



EUROPEAN CENTRAL BANK

BANKING SUPERVISION

Guide on climate-related and environmental risks

Supervisory expectations relating to
risk management and disclosure

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1 Introduction

Following the adoption of the Paris Agreement on climate change and the UN 2030 Agenda for Sustainable Development in 2015, governments are making strides to transition to low-carbon and more circular economies on a global scale. On the European front, the [European Green Deal](#) sets out the objective of making Europe the first climate-neutral continent by 2050. The financial sector is expected to play a key role in this respect, as enshrined in the [Commission action plan on financing sustainable growth](#).

Transitioning to a low-carbon and more circular economy entails both risks and opportunities for the economy and financial institutions,¹ while physical damage caused by climate change and environmental degradation can have a significant impact on the real economy and the financial system. For the second year in a row, the European Central Bank (ECB) has identified climate-related risks as a key risk driver on the [SSM Risk Map](#) for the euro area banking system. The ECB is of the view that institutions should take a forward-looking and comprehensive approach to considering climate-related and environmental risks.

The ECB is closely following developments that are likely to affect euro area institutions. The [Commission action plan on financing sustainable growth](#) aims to redirect financial flows to sustainable investments, to mainstream sustainability in risk management and to enhance transparency and long-termism. Specifically for the banking sector, the European Banking Authority (EBA) was given several mandates to assess how Environmental, Social and Governance (ESG) risks can be incorporated into the three pillars of prudential supervision. Based on this, the EBA published an [Action Plan on sustainable finance](#) with key policy messages addressed to institutions in the areas of strategy and risk management, disclosure, scenario analysis and stress testing.

This guide outlines the ECB's understanding of the safe and prudent management of climate-related and environmental risks under the current prudential framework. It describes how the ECB expects institutions to consider climate-related and environmental risks – as drivers of established categories of prudential risks – when formulating and implementing their business strategy and governance and risk management frameworks. It further explains how the ECB expects institutions to become more transparent by enhancing their climate-related and environmental disclosures.

This guide is not binding for the institutions, but rather it serves as a basis for supervisory dialogue. As part of this supervisory dialogue, the ECB will discuss with institutions the ECB's expectations set out in this guide in terms of any possible divergences in institutions' practices. The ECB will continue to develop its supervisory approach to managing and disclosing climate-related and environmental risks over

¹ See, for example, [ECB Financial Stability Review May 2019](#).

time, taking into account regulatory developments as well as evolving practices in the industry and in the supervisory community.

Box 1

Overview of ECB supervisory expectations

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.
2. When determining and implementing their business strategy, institutions are expected to integrate climate-related and environmental risks that materially impact their business environment in the short, medium or long term.
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.
4. Institutions are expected to explicitly include climate-related and environmental risks in their risk appetite framework.
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.
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.
7. Institutions are expected to incorporate climate-related and environmental risks as drivers of established risk categories into their existing risk management framework, with a view to managing and monitoring 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.
8. In their credit risk management, institutions are expected to consider climate-related and environmental risks at all stages of the credit-granting process and to monitor the risks in their portfolios.
9. Institutions are expected to consider how climate-related events could have an adverse impact on business continuity and the extent to which the nature of institutions' activities could increase reputational and/or liability risks.
10. Institutions are encouraged 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-testing scenarios that incorporate climate-related and environmental risks.
11. Institutions with material climate-related and environmental risks are expected to evaluate the appropriateness of their stress testing with a view to incorporating them into their baseline and adverse scenarios.

12. Institutions are expected to assess whether material climate-related and environmental risks could cause net cash outflows or depletion of liquidity buffers and, if so, incorporate these factors into their liquidity risk management and liquidity buffer calibration.
 13. For the purposes of their regulatory disclosures, institutions are expected, to publish meaningful information and key metrics on climate-related and environmental risks that they deem to be material, as a minimum in line with the [European Commission's Guidelines on non-financial reporting: Supplement on reporting climate-related information](#).
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2 Scope and application

2.1 Application to significant institutions

The expectations set out in this guide are to be used in the ECB's supervisory dialogue with significant institutions directly supervised by the ECB. This guide was developed jointly by the ECB and the national competent authorities (NCAs) with the aim of providing greater transparency regarding the ECB's understanding of the safe and prudent management of climate-related and environmental risks under the current prudential framework.² Moreover, it aims to enhance the industry's awareness of and preparedness for managing climate-related and environmental risks.

Significant institutions are expected to use the guide, taking into account the materiality of their exposures to climate-related and environmental risks.

The guide does not substitute or supersede any applicable law. The observed practices shared throughout this document, described in the boxes, merely serve as a means of illustration and are not necessarily replicable, nor do they necessarily meet all supervisory expectations. This guide should be read in conjunction with other ECB guides, and in particular the ECB Guide to the internal capital adequacy assessment process (ECB Guide to the ICAAP).³ Furthermore, in addition to this guide and to relevant Union law and national law, institutions are encouraged to duly consider other relevant publications, such as those by the European Commission (EU COM), the European Banking Authority (EBA), the Network for Greening the Financial System (NGFS), the Basel Committee on Banking Supervision (BCBS), the Financial Stability Board (FSB), the Task Force on Climate-related Financial Disclosures (TCFD), the Organisation for Economic Co-operation and Development (OECD) and by the NCAs.⁴

2.2 Date of application

This guide is applicable as of its date of publication. Significant institutions are expected to consider the extent to which their current management and disclosure practices for climate-related and environmental risks are safe and prudent in the light of the expectations set out in the guide. Where needed, significant institutions are expected to promptly start adapting their practices.

As part of the supervisory dialogue, as from end-2020, significant institutions will be asked to inform the ECB of any divergences of their practices from the supervisory

² This effectively means that this guide does not intend to impose additional auditing requirements.

³ See the [Guide to the internal capital adequacy assessment process \(ICAAP\)](#), ECB, 2018. The current guide further specifies how the particularities of climate-related and environmental risks are expected to be taken into account for the management of risks to capital.

⁴ See, for instance, "[Guidance Notice on Dealing with Sustainability Risks](#)", BaFin, 2019, "[Integration of climate-related risk considerations into banks' risk management](#)", *Good Practice document*, DNB, 2019, and "[Guide for Handling Sustainability Risks](#)", *Consultation document*, FMA, 2020.

expectations described in this guide. The ECB acknowledges that the management and disclosure of climate-related and environmental risks, and also the methodologies and tools used to address them, are currently evolving and are expected to mature over time.

2.3 Application to less significant institutions

This guide was developed jointly by the ECB and the NCAs and is aimed at ensuring the consistent application of high supervisory standards across the euro area. NCAs are therefore recommended to apply, in substance, the expectations set out in this guide in their supervision of less significant institutions, proportionately to the risk profile and business model of the institution. The ECB acknowledges that a number of NCAs have issued, or are in the process of issuing, guidance on climate-related and environmental risks. Less significant institutions are invited to consider these as well as other relevant publications by their NCAs.

2.4 General prudential framework

This guide describes the ECB's understanding of the safe and prudent management of climate-related and environmental risks under the current prudential framework. In that respect, the following articles from the Capital Requirements Directive (CRD)⁵ and the Capital Requirements Regulation (CRR)⁶ are particularly relevant:

- Article 73 CRD requires institutions to have in place sound, effective and comprehensive strategies and processes to assess and maintain on an ongoing basis the amounts, types and distribution of internal capital that they consider adequate to cover the nature and level of the risks to which they are or might be exposed.
- Article 74(1) CRD requires institutions to have robust governance arrangements, which include a clear organisational structure with well-defined, transparent and consistent lines of responsibility, effective processes to identify, manage, monitor and report the risks they are or might be exposed to, adequate internal control mechanisms, including sound administration and accounting procedures, and remuneration policies and practices that are consistent with and promote sound and effective risk management.
- Article 74(2) CRD provides that the arrangements, processes and mechanisms referred to in paragraph 1 shall be comprehensive and proportionate to the nature, scale and complexity of the risks inherent in the business model and the

⁵ Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directive 2006/48/EC and 2006/49/EC (OJ L 176, 27.6.2013, p. 338).

⁶ Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012.

institution's activities. The technical criteria established in Articles 76 to 95 shall be taken into account.

- Article 76(1) CRD requires institutions to ensure that the management body approves and periodically reviews the strategies and policies for taking up, managing, monitoring and mitigating the risks the institution is or might be exposed to, including those posed by the macroeconomic environment in which it operates in relation to the status of the business cycle.
- Article 79 CRD sets out specific legislative requirements for credit and counterparty risks that the competent authorities must ensure are in place vis-à-vis credit institutions.
- Article 83(1) CRD provides that competent authorities shall ensure that policies and processes for the identification, measurement and management of all material sources and effects of market risks are implemented.
- Article 85 CRD provides that competent authorities shall ensure that institutions implement policies and processes to evaluate and manage the exposure to operational risk, [...] including that contingency and business continuity plans are in place to ensure an institution's ability to operate on an ongoing basis and limit losses in the event of severe business disruption.
- Article 91 CRD provides that [...] members of the management body shall possess sufficient knowledge, skills and experience to perform their duties [...].
- Article 431(3) CRR requires institutions to adopt a formal policy to comply with the disclosure requirements laid down in Part Eight [of the CRR] and have policies for assessing the appropriateness of their disclosures, including their verification and frequency. Institutions shall also have policies for assessing whether their disclosures convey their risk profile comprehensively to market participants.
- Article 432(1) CRR provides that institutions may omit one or more of the disclosures listed in Title II if the information provided by such disclosures is not regarded as material, except for the disclosures laid down in Article 435(2)(c), Article 437 and Article 450. Information in disclosures shall be regarded as material if its omission or misstatement could change or influence the assessment or decision of a user relying on that information for the purpose of making economic decisions.

The EBA has adopted several guidelines specifying the abovementioned articles. Where this guide makes reference to those guidelines, the reference should be read in conjunction with the relevant articles of the CRD/CRR to which they refer. The following EBA Guidelines are relevant:

- EBA Guidelines on internal governance (EBA/GL/2017/11);

- EBA Guidelines on the revised common procedures and methodologies for the supervisory review and evaluation process (SREP) and supervisory stress testing (EBA/GL/2018/03);
- EBA Guidelines on institutions' stress testing (EBA/GL/2018/04);
- EBA Guidelines on sound remuneration policies under Articles 74(3) and 75(2) of Directive 2013/36/EU and disclosures under Article 450 of Regulation (EU) No 575/2013 (EBA/GL/2015/22);
- EBA Guidelines on materiality, proprietary and confidentiality and on disclosure frequency under Articles 432(1), 432(2) and 433 of Regulation (EU) No 575/2013 (EBA/GL/2014/14);
- EBA Guidelines on ICT and security risk management (EBA/GL/2019/04);
- EBA Guidelines on outsourcing arrangements (EBA/GL/2019/02);
- EBA draft Guidelines on loan origination and monitoring (EBA/CP/2019/04).

3 Climate-related and environmental risks

3.1 Definitions

Climate change and environmental degradation are sources of structural change that affect economic activity and, in turn, the financial system. Climate-related and environmental risks are commonly understood to comprise two main risk drivers:

- **Physical risk** refers to the financial impact of a changing climate, including more frequent extreme weather events and gradual changes in climate, as well as of environmental degradation, such as air, water and land pollution, water stress, biodiversity loss and deforestation.⁷ Physical risk is therefore categorised as “acute” when it arises from extreme events, such as droughts, floods and storms, and “chronic” when it arises from progressive shifts, such as increasing temperatures, sea-level rises, water stress, biodiversity loss and resource scarcity.⁸ This can directly result in, for example, damage to property or reduced productivity, or indirectly lead to subsequent events, such as the disruption of supply chains.
- **Transition risk** refers to an institution’s financial loss that can result, directly or indirectly, from the process of adjustment towards a lower-carbon and more environmentally sustainable economy. This could be triggered, for example, by a relatively abrupt adoption of climate and environmental policies, technological progress or changes in market sentiment and preferences.

3.2 Characteristics of climate-related and environmental risks

Physical and transition risk drivers impact economic activities, which in turn impact the financial system. This impact can occur directly, through for example lower corporate profitability or the devaluation of assets, or indirectly, through macro-financial changes. In addition, physical and transition risks can trigger further losses, stemming directly or indirectly from legal claims on the institution – this is commonly referred to as “liability risk”⁹ – and reputational loss for failing to adequately manage climate-related and environmental risks.

Consequently, physical and transition risks are drivers of prudential risk, in particular credit risk, operational risk, market risk and liquidity risk (see Table 1). These risks also affect the sustainability of the institution’s business model in the medium to long

⁷ See “Integrating climate-related risk in prudential supervision: Guiding Action for Supervisors”, *Report*, NGFS, forthcoming.

⁸ See “Values at risk? Sustainability risks and goals in the Dutch financial sector”, *Report*, DNB, 2019, and “Guide for Supervisors: Integrating climate-related and environmental risks in prudential supervision”, *Report*, NGFS, forthcoming.

⁹ In addition to legal claims on institutions (liability risk – see Expectation 9 on operational risk management), the counterparties of institutions may also be impacted by legal risks arising from environmental or climate-related factors which, in turn, can increase the credit risk for the institution (see Expectation 8 on credit risk management).

term, and particularly institutions whose business model is reliant on sectors and markets that are particularly vulnerable to climate-related and environmental risks.

The magnitude and distribution of climate-related and environmental risks depend on the level and timing of mitigation measures and whether the transition occurs in an orderly or disorderly fashion. Potential losses stemming from climate-related and environmental risks depend especially on the future adoption of climate-related and environmental policies, technological developments and changes in consumer preferences and market sentiment. Irrespective of this, any combination of physical and transition risks will, in all probability, materialise on the balance sheets of euro area institutions.¹⁰ Existing estimates of adverse long-term macroeconomic effects resulting from climate change point to significant and lasting losses in wealth. These may be due to slowing investment and lower factor productivity in many sectors of the economy, as well as reduced potential GDP growth.¹¹

Table 1
Examples of climate-related and environmental risk drivers

Risks affected	Physical		Transition	
	Climate-related	Environmental	Climate-related	Environmental
	<ul style="list-style-type: none"> • Extreme weather events • Chronic weather patterns 	<ul style="list-style-type: none"> • Water stress • Resource scarcity • Biodiversity loss • Pollution • Other 	<ul style="list-style-type: none"> • Policy and regulation • Technology • Market sentiment 	<ul style="list-style-type: none"> • Policy and regulation • Technology • Market sentiment
Credit	The probabilities of default (PD) and loss given default (LGD) of exposures within sectors or geographies vulnerable to physical risk may be impacted, for example, through lower collateral valuations in real estate portfolios as a result of increased flood risk.		Energy efficiency standards may trigger substantial adaptation costs and lower corporate profitability, which may lead to a higher PD as well as lower collateral values.	
Market	Severe physical events may lead to shifts in market expectations and could result in sudden repricing, higher volatility and losses in asset values on some markets.		Transition risk drivers may generate an abrupt repricing of securities and derivatives, for example for products associated with industries affected by asset stranding.	
Operational	The bank's operations may be disrupted due to physical damage to its property, branches and data centres as a result of extreme weather events.		Changing consumer sentiment regarding climate issues can lead to reputation and liability risks for the bank as a result of scandals caused by the financing of environmentally controversial activities.	
Other risk types (liquidity, business model)	Liquidity risk may be affected in the event of clients withdrawing money from their accounts in order to finance damage repairs.		Transition risk drivers may affect the viability of some business lines and lead to strategic risk for specific business models if the necessary adaptation or diversification is not implemented. An abrupt repricing of securities may reduce the value of banks' high quality liquid assets, thereby affecting liquidity buffers.	

Source: ECB.

Methodologies to estimate the magnitude of climate-related risks for the financial system in general, and banks specifically, are rapidly developing. Available estimates suggest that both physical¹² and transition¹³ risks are likely to be significant. Although

¹⁰ See "A call for action. Climate change as a source of financial risk", *Report*, NGFS, 2019, and "Too late, too sudden: Transition to a low-carbon economy and systemic risk", *Report*, ESRB, 2016.

¹¹ "Technical supplement to the First NGFS comprehensive report", NGFS, 2019, and "Long-Term Macroeconomic Effects of Climate Change: A Cross-Country Analysis", *IMF working paper*, 2019.

¹² Roughly one-fifth of assessed equity and loan exposures at Dutch financial institutions are to extreme water stress regions. See "Values at risk? Sustainability risks and goals in the Dutch financial sector", *Report*, DNB, 2019. Some 8.8% of mortgage exposures are located in flood risk zones in another jurisdiction. See "Transition in thinking: The impact of climate change on the UK banking sector", *Prudential Regulation Authority report*, Bank of England, 2018.

the majority of studies have focused on climate-related risks in particular, other environmental factors such as water stress, biodiversity loss and resource scarcity have also been shown to drive financial risk.^{14 15}

Climate-related and environmental risks have distinctive characteristics that warrant particular consideration by supervisors and institutions alike. These characteristics include the far-reaching impact in breadth and magnitude, an uncertain and extended time horizon and the dependency on short-term action.¹⁶

Climate change has a far-reaching impact in terms of the business activities and geographical areas affected. Sectors that are more likely to be physically impacted are, amongst others, agriculture, forestry, fisheries, human health, energy, transport and infrastructure and tourism. Sectors that are likely to be impacted by the transition to a low-carbon economy include energy, transport, manufacturing, construction and agriculture.¹⁷ Geographically, the impact of climate change is expected to vary substantially across the world. The European Environment Agency concludes that, in Europe, the most costly effects in southern Europe are projected to be increases in energy demand and heat waves, in western Europe coastal flooding and heat waves, in northern Europe coastal and river flooding, and in eastern Europe river flooding.¹⁸ The impact may differ considerably across given sectors and given geographical areas.

Climate-related risk for euro area institutions is expected to primarily materialise in the medium to long term.¹⁹ As the planning horizon and average loan tenor for institutions is typically shorter than the time horizon in which the effects of climate change would primarily manifest,²⁰ it is important for institutions to take a forward-looking approach and consider a longer than usual time horizon. In addition, adopting a forward-looking perspective should enable institutions to be able to respond in a timely manner should

¹³ For example, the ESRB (2016) finds that European financial institutions' (including banks, pension funds and insurers) exposures to fossil-fuel firms exceed €1 trillion and estimates potential losses of between €350 billion and €400 billion, even under an orderly transition scenario. Losses from asset stranding could amount to USD 6 trillion for the EU-28 in a delayed policy action scenario (IRENA, 2017). Looking at a sample of €720 billion, the ECB finds that 15% of the exposures are to the most carbon-intensive firms (ECB, 2019). The ACPR (2019) found that exposures of major French banking groups to the most carbon-intensive sectors amounted to 12.7% of the total exposures. A transition risk stress test in the Netherlands showed that the banking sectors' CET1 ratio could drop by over 4% in a severe but plausible transition scenario (DNB, 2018).

¹⁴ See, for example, "Summary for policymakers of the global assessment report on biodiversity and ecosystem services", Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, 2019.

¹⁵ See "Values at risk? Sustainability risks and goals in the Dutch financial sector", *Report*, DNB, 2019.

¹⁶ See "A call for action. Climate change as a source of financial risk", *Report*, NGFS, 2019.

¹⁷ See, for instance, the report entitled "In-depth analysis in support of the Commission communication COM (2018) 773", European Commission, 2018.

¹⁸ See "Climate change, impacts and vulnerability in Europe 2012: An indicator-based report", EEA, 2012.

¹⁹ See the "SSM Risk Map for 2020", ECB, 2019.

²⁰ See the "EBA report on undue short-term pressure from the financial sector on corporations", EBA, 2019, "Waterproof? An exploration of climate-related risks for the Dutch financial sector", DNB, 2017, and "Analysis and synthesis: French banking groups facing climate change-related risks", ACPR, 2019. The reports also highlight that despite a limited average loan tenor, institutions also provide loans that are typically renewed or prolonged after the original loan period, thus potentially making these loans particularly vulnerable to long-term risks such as climate-related and environmental risks.

the pace of the transition to a low carbon economy accelerate and projections materialise more rapidly than expected.

3.3 Observations from stocktakes

The ECB performed a number of assessments to take stock of how euro area institutions are addressing climate-related and environmental risks, mainly through targeted surveys among samples of euro area institutions²¹, the assessment of euro area institutions' public disclosures, as well as through the analysis of a sample of ICAAP submissions. The evidence collected has been taken into account to inform the content of this guide.

While the approach towards climate-related and environmental risks varies depending on the size, business model, complexity and geographic location of the institutions, the aforementioned assessments demonstrate that institutions have predominantly approached the topic from the perspective of corporate social responsibility and have yet to develop a comprehensive risk management approach.

According to a survey conducted jointly by the ECB and the EBA, institutions broadly acknowledge the materiality of physical and transition risks and the increasing need to assess and incorporate climate-related and environmental risks into their risk management processes. Despite the fact that the majority of institutions have implemented one or more sustainability policies²², most of the institutions do not have the tools to assess the impact of climate-related and environmental risks on their balance sheet. More specifically, only a small number of institutions have fully incorporated climate-related and environmental risks into their risk management framework, through for instance a risk measurement approach, by defining their risk appetite, performing stress tests and scenario analyses and/or assessing the impact on their capital adequacy. The ECB sees that institutions are increasingly involved in joint industry initiatives aimed at developing adequate methodologies and obtaining the necessary data.

The assessment of a sample of significant institutions' ICAAP packages shows that institutions' practices are heterogeneous. Many institutions consider climate-related risks in their risk identification processes and/or have policies to exclude certain sectors from lending/investing based on environmental criteria. However, climate-related risk taxonomies are very heterogeneous. If at all, climate-related risks are typically integrated within existing risk categories, such as credit risk, business/strategic risk or operational/reputational risk. Approaches to assess their materiality, however, are limited in terms of depth and sophistication. Some institutions are beginning to set limits based on quantitative indicators. Only a few institutions include climate-related risks in their stress testing and reverse stress-testing scenarios, and the practice of assessing the capital impact and the capital requirements, should such risks unfold, remains limited.

²¹ Surveyed institutions represent approximately 44% of total euro area banking assets.

²² Understood as policies incorporating the impact of environmental, social and governance factors.

An assessment of significant institutions' public disclosures of climate-related and environmental risks shows sparse and heterogeneous disclosure practices. The level of disclosures is correlated with size: the larger the institution, the more comprehensive the disclosures. Of the institutions that disclose climate-related and environmental risks, very few institutions were transparent as to the definitions and methodologies used. Only a minority of institutions' disclosures are in line with the recommendations by the Task Force on Climate-related Financial Disclosures (TCFD). Nonetheless, the ECB has observed that a number of institutions are involved in initiatives that promote broader and more comparable disclosures and are working on improving their disclosure procedures.

4 Supervisory expectations relating to business models and strategy

Article 74(1) of the CRD, as further specified by the EBA Guidelines on internal governance²³, require institutions to implement internal governance arrangements, processes and mechanisms to ensure effective and prudent management of the institution. In this respect, it is important for institutions to identify, assess and monitor the current and forward-looking impact of climate-related and environmental factors on their business environment and to ensure the sustainability and resilience of their business model going forward.

4.1 Business environment

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.

As set out in the EBA Guidelines, institutions should identify, assess and monitor the business environment in which they operate, as it provides essential input for the assessment of the risks and developments that may affect the institution.²⁴ Institutions are required to document material factors impacting their business environment. The business environment captures a broad range of external factors and trends that shape the business conditions in which an institution operates or is likely to operate based on its main or material geographic and business exposures.²⁵ These include macroeconomic variables, the competitive landscape, policy and regulation, technology, societal/demographic developments, and geopolitical trends.²⁶ Climate-related and environmental risks may affect all of these areas.

When scanning their business environment, institutions are expected to identify risks arising from climate change and environmental degradation at the level of key sectors, geographies and related to products and services they are active in or are considering becoming active in.²⁷ Climate-related and environmental risks, for instance, may influence economic growth, employment or real estate prices at the national, regional or local level. Weather events may cause

²³ See the EBA Guidelines on internal governance (EBA/GL/2017/11).

²⁴ See paragraph 30 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

²⁵ See paragraph 64 of the EBA Guidelines on common procedures and methodologies for the supervisory review and evaluation process (SREP) (EBA/GL/2014/13).

²⁶ See paragraph 65 of the EBA Guidelines on common procedures and methodologies for the supervisory review and evaluation process (SREP) (EBA/GL/2014/13).

²⁷ See also paragraphs 59 and 60 under Principle 4 of the ECB Guide to the internal capital adequacy assessment process (ICAAP).

Expectation 1.1

droughts or floods affecting regional agricultural production or housing demand at the national, regional, or local level. Policy changes to promote an environmentally-resilient economy may reduce the demand for real estate in certain, for example high flood risk, areas. Parallel to this, the competitive landscape is affected by the development of a green financing market and consumer preferences that are shifting away from carbon-intensive goods and services. In the area of technology, institutions serving clients operating in energy-intensive industries, or power stations with a high reliance on fossil fuels, may see that their clients are facing significant capital expenditure requirements to decarbonise their energy mixes.

Institutions are expected to properly document the materiality assessment of climate-related and environmental risks for their business environment. For instance, it could be reflected as part of their regular monitoring of material or emerging risks, or evidenced through management board discussions.²⁸

Expectation 1.2

Institutions are expected to understand how climate-related and environmental risks affect their business environment in the short, medium and long term to inform their business strategy process. The way that institutions strategically respond to changes in their business environment stemming from climate-related and environmental risks will impact the resilience of their business model over time. Institutions are thus expected to explicitly consider climate-related and environmental changes to their macroeconomic and regulatory environment and their competitive landscape, in particular. This is expected to be reflected in institutions' business strategy processes, and demonstrated by documented management body²⁹ meetings and discussions.

The relevant time horizon is also an important dimension to consider. While some risks may play out in the short to medium run, such as reputational effects or policy-driven developments, others may stretch out over considerably longer horizons. Institutions are expected to take into account up-to-date scientific insights to enhance their understanding of the potential changes to their business environment going forward. Institutions are also advised to monitor relevant policy initiatives in the jurisdictions in which they operate, for example related to energy efficiency standards that might affect real estate portfolios.³⁰

²⁸ See also Principle 4 of the ECB Guide to the internal capital adequacy assessment process (ICAAP).

²⁹ In line with the EBA Guidelines on internal governance, the terms "management body in its management function" and "management body in its supervisory function" are used throughout this guide without advocating or referring to any specific governance structure, and references to the management (executive) or supervisory (non-executive) function should be understood as applying to the bodies or members of the management body responsible for that function in accordance with national law.

³⁰ For an analysis of the potential prudential impact of the tightening of energy efficiency standards for credit institutions, see, for example, "Transition in thinking: the impact of climate change on the UK banking sector", Box 3, *Prudential Regulation Authority report*, Bank of England, 2018.

4.2 Business strategy

Expectation 2

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

The business strategy is an institution's principal tool for positioning itself within its business environment in order to generate acceptable returns in line with its risk appetite. As set out in the EBA Guidelines³¹, institutions should take into account any material factors related to their long-term financial interests and solvency when determining their business strategy. Climate-related and environmental risks may directly impact the effectiveness of institutions' existing and future strategies.³²

Expectation 2.1

Institutions are expected to determine which climate-related and environmental risks are material in the short, medium and long term with regard to their business strategy, for example by using (stress) scenario analyses.³³ As set out in the EBA Guidelines, institutions should take the limitations, vulnerabilities and shortcomings detected in internal stress tests and scenario analyses into account when determining their business strategy.³⁴ The scenario analysis tool is particularly useful in the context of climate-related and environmental risks given the uncertainty associated with the future course of climate change and society's response to it.³⁵ By developing a set of plausible scenarios to test the resilience of its business model, an institution can account for this uncertainty in its strategic decision-making. These scenarios are expected to include assumptions regarding the impact of climate-related and environmental risks and the time horizons over which these effects are expected to materialise. These assumptions can be quantitative and/or qualitative in nature, are expected not to rely solely on historical experiences, and also to be relevant to an institution's particular exposure to environmental risk (depending on the types of business activity, sector and location of such exposures). This may also involve an expert judgement, since the given nature of climate change as a driver of financial risk will present new challenges that have not yet materialised. Scenario analyses can be used to assess risks in the short to medium term as well as in the longer term:

1. A short-to-medium term assessment is expected to include an analysis of the climate-related and environmental risks to which the institution is exposed within its current business planning horizon (three to five years).

³¹ See Article 23 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

³² See also paragraphs 25, 32 and 34 under Principles 2 and 4 of the ECB Guide to the internal capital adequacy assessment process (ICAAP).

³³ A number of publications may assist institutions in performing scenario analyses or identifying relevant scenarios, such as the "Technical supplement: The Use of Scenario Analysis in Disclosure of Climate-related Risks and Opportunities", TCFD, 2017, and the "Requirements for scenario analysis", NGFS, forthcoming. "Institutions are also expected to consider the IEA and IPCC climate scenarios for physical risk", see Expectation 11.

³⁴ See Articles 30 and 72 of the EBA Guidelines on institutions' stress testing (EBA/GL/2018/04).

³⁵ See the "Technical supplement: The Use of Scenario Analysis in Disclosure of Climate-related Risks and Opportunities", TCFD, 2017.

2. A longer-term assessment beyond the typical business planning horizon (>5 years), assessing the resilience of the current business model against a range of plausible future scenarios relevant to estimate climate-related and environmental risks, would be required to capture the specificities of this kind of risk.

Expectation 2.2

The implementation of the institution's business strategy is expected to reflect material climate-related and environmental risks, for example by setting and monitoring key performance indicators (KPIs) that are cascaded down to individual business lines and portfolios. Based on the EBA Guidelines³⁶, the risk management framework of an institution should enable it to make fully informed decisions on risk-taking, including decisions concerning both internal and external developments. In order to support their business strategy, institutions may set KPIs for any type of material climate-related or environmental risk. These KPIs should be measurable and quantifiable, wherever possible. Depending on the nature of the institution's activities, these KPIs should be cascaded down to relevant business lines and portfolios. Institutions are also expected to possess the capabilities to integrate material climate-related and environmental risks across the relevant layers of its organisation by assigning specific duties, ensuring ongoing communication through the various functions, monitoring progress, taking timely corrective action and tracking all related budget costs. Any strategic decisions related to material climate-related and environmental factors are expected to be integrated in the institution's policies, for example in its credit policies by sector and by product.

Box 2

Observed practice: Climate-related and environmental key performance indicators

The ECB observed an institution which had integrated the following climate-related and environmental key performance indicators (KPIs) into its strategic framework with a view to making its strategy measurable: i) the carbon emission footprint of its assets; ii) the average energy label of its mortgage portfolios; iii) the number of homes that saw an energy label improvement thanks to its financing; and iv) the share of assets under management that was invested according to a predefined green investment mandate. These KPIs underpin the bank's strategic approach to climate change and other environmental developments. These metrics are cascaded down to the business line level (e.g. retail banking, private banking, commercial banking and corporate banking). For each metric, the respective time horizon is set and progress is measured against a base year.

³⁶ See paragraphs 136 and 139 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

5 Supervisory expectations relating to governance and risk appetite

Based on Article 74 of the CRD, institutions are required to have robust governance arrangements in place that allow institutions to effectively identify, manage, monitor and report the risks they are or might be exposed to, so as to form a holistic view of all risks both on an individual and consolidated basis.³⁷ To enable institutions to understand and respond to climate-related and environmental risks, institutions are expected to embed these risks in their governance and risk appetite frameworks, while adequately involving all relevant functions. In addition, appropriate and regular reporting on climate-related and environmental risks to the management body is expected to ensure proper management of these risks.

5.1 Management body

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.

As set out in the EBA Guidelines³⁸, the management body's³⁹ responsibilities include setting, approving and overseeing the implementation of the overall business strategy and key policies, the overall risk strategy, an adequate internal governance and internal control framework. Given the impact of climate-related and environmental risks on these aspects, the management body plays a key role in terms of both its supervisory and its management function.⁴⁰

The management body is expected to explicitly allocate roles and responsibilities to its members and/or its sub-committees for climate-related and environmental risks. Based on the EBA Guidelines, the management body should ensure that the reporting lines and the allocation of responsibilities within an institution are clear, well-defined, coherent, enforceable and duly documented.⁴¹ Institutions are expected to explicitly and formally allocate roles and responsibility, as appropriate, within their organisational structure and in line with their risk profile. Institutions may, on the basis of the proportionality principle, establish committees

³⁷ See also paragraph 30 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

³⁸ See paragraph 23 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

³⁹ See footnote 29 for clarification of the use of the terms "management body in its management function" and "management body in its supervisory function" and paragraph 9 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

⁴⁰ See also Article 91 of the CRD and the joint ESMA/EBA Guidelines on the assessment of the suitability of members of the management body (EBA/GL/2017/12).

⁴¹ See paragraph 67 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

Expectation 3.1

other than those specifically referred to in the CRD.⁴² Institutions may consider assigning the responsibility for climate-related and environmental risks to a member of an established committee or may consider setting up a dedicated committee. The management body is, furthermore, expected to have adequate knowledge and understanding of climate-related and environmental risks.

Box 3

Observed practice: Setting up dedicated committees

The ECB observed several institutions that established dedicated committees as part of their efforts to fully consider climate-related and environmental risks. For example, as part of its medium-term strategic plan, one bank is in the process of establishing a committee which draws on internal and external expertise, such as scientists from relevant disciplines, to advise and assist the management body in defining its ESG strategy. This includes reviewing its climate-related and environmental risks, as well as related sectoral financing policies, which determine both targets and limits for exposures to certain sectors. Another bank has set up a dedicated committee to provide informed guidance on transactions with complex climate-related and environmental implications. This committee is chaired by senior management.

Expectation 3.2

The management body is expected to ensure that the institution adequately embeds climate-related and environmental risks in the overall business strategy and risk management framework.⁴³ The management body should be involved in setting, approving and overseeing the business strategy process⁴⁴, and should take decisions on a sound and well-informed basis.⁴⁵ As explained in the previous sections, the management body is expected to consider the short, medium and long-term climate-related and environmental effects on the overall business strategy and clearly embed the relevant responsibilities in the organisational structure. With regard to the management body's responsibility for setting, approving and overseeing the implementation of the key policies of the institutions,⁴⁶ ⁴⁷ the management body is expected to review all policies potentially affected by climate-related and environmental risks, including the (credit) policies for each sector and product, on a regular basis.

To achieve a holistic approach to risk,⁴⁸ while considering the institution's long-term financial interest,⁴⁹ the management body is advised to explicitly consider the institution's response to the objectives set out under international agreements such as the Paris Agreement (2015), EU environmental-related policies such as the EU Green Deal, local and national policies, as well as the outcomes of well-founded

⁴² See paragraph 41 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

⁴³ See also Principle 1 (i) and Principle 2 (iii) and (v), and paragraphs 32 and 34 of the ECB Guide to the internal capital adequacy assessment process (ICAAP).

⁴⁴ See paragraph 23 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

⁴⁵ See paragraph 28 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

⁴⁶ See paragraph 23 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

⁴⁷ See paragraph 33 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

⁴⁸ See paragraph 95 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

⁴⁹ See paragraph 23 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

climate-related and environmental assessments, such as those by the IPCC and IPBES.

Expectation 3.3

The management body is expected to exercise effective oversight over the institutions' exposures and response to climate-related and environmental risks. As stated in the EBA Guidelines,⁵⁰ the oversight role includes reviewing the performance of the management function and the achievement of its objectives. In order to promote an effective oversight function and informed decision-making,⁵¹ the management body in its management function is encouraged to set key performance indicators (KPIs) and key risk indicators (KRIs), as described in the previous and following section. The management body in its supervisory function is expected to monitor and scrutinise the targets and any developments in those KPIs and KRIs.

5.2 Risk appetite

Expectation 4

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

Institutions are expected to have in place a risk appetite framework (RAF) that considers all the material risks to which the institution is exposed, that is forward-looking, in line with the strategic planning horizon set out in the business strategy and that is reviewed regularly.⁵² Integrating climate-related and environmental risks into the RAF increases institutions' resilience to such risks and improves their ability to manage those risks, for example, by setting limits on lending to sectors and geographies that are highly exposed to climate-related or environmental risks.⁵³

Expectation 4.1

Institutions are expected to develop a well-defined description of climate-related and environmental risks in their risk appetite statement. The risk appetite statement (RAS) is expected to address, in particular, the medium and long-term impacts of these risks for the institution. In accordance with the above expectations, the institution is also expected to align the RAS with the business strategy and clearly outline the level of risk it is willing to accept for related risk exposures.

Expectation 4.2

Institutions are expected to develop appropriate key risk indicators and set appropriate limits for climate-related and environmental risks in line with their regular monitoring and escalation arrangements. Based on the EBA Guidelines, institutions are expected to ensure that their risk strategy and risk appetite consider all

⁵⁰ See paragraph 24 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

⁵¹ See paragraph 28 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

⁵² See paragraph 100 under Section 2.7.1 of the EBA Guidelines on the revised common procedures and methodologies for the supervisory review and evaluation process (SREP) and supervisory stress testing (EBA/GL/2018/03).

⁵³ See also paragraphs 25, 32 and 34 under Principle 2 (iii) of the ECB Guide to the internal capital adequacy assessment process (ICAAP).

material risks to which they are exposed and specify risk limits, tolerances and thresholds.⁵⁴ In addition, institutions should have a risk management framework in place that ensures that, when risk limits are breached, there is a defined process for escalating and addressing these, together with an appropriate follow-up procedure.⁵⁵ The ECB expects institutions to monitor and report their exposures to climate-related and environmental risks on the basis of their current data and forward-looking estimations. The ECB expects institutions to assign quantitative metrics to climate-related and environmental risks, particularly for physical and transition risks. However, it also acknowledges that common definitions and taxonomies in these risk areas are still under development, and that qualitative statements can be used as intermediate steps while the institution is developing appropriate quantitative metrics. It is also expected that risk appetite arrangements and boundaries are decided before commercial targets.

With respect to climate-related risks, institutions are expected to develop metrics that consider the long-term nature of climate change, particularly how different paths of temperature and greenhouse gas (GHG) emissions may accentuate existing risks. These metrics are expected to support the institution’s ability to implement mitigating actions on a timely basis and to take into consideration a sudden and unanticipated transition towards a low-carbon economy or a physical event that may have an impact on its operations or lending portfolios.

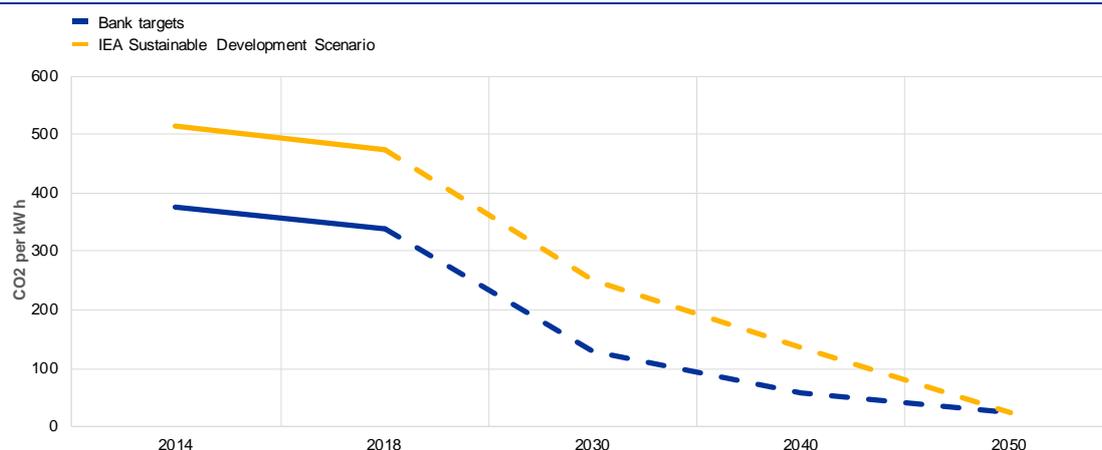
Box 4

Observed practice: Carbon intensity targeting and climate resilience of the balance sheet

The ECB observed that several institutions aim to keep the carbon content of their financed energy mix in line with the target of remaining well below 2°C as provided for in the Paris Agreement (2015).

Chart A

Carbon intensity targeting



Source: World Energy Outlook 2019.

⁵⁴ See paragraph 100 of the EBA Guidelines on the revised common procedures and methodologies for the supervisory review and evaluation process (SREP) and supervisory stress testing (EBA/GL/2018/03).

⁵⁵ See paragraph 138 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

Some institutions use the International Energy Agency (IEA) Sustainable Development Scenario or a similar scenario to quantify such targets, as illustrated in the graph. Other institutions take a different approach that involves, for each sector with a large carbon footprint, measuring and benchmarking how lending to these sectors contributes to climate resilience, and adjusting the lending portfolio accordingly. Such approaches are not mutually exclusive and, in fact, some institutions have adopted several methodologies.

Expectation 4.3

Institutions are expected to ensure that their remuneration policy and practices stimulate behaviour consistent with their climate-related and environmental (risk) approach, as well as with voluntarily commitments made by the institution. As set out in the EBA Guidelines, remuneration policies and practices should be consistent with the institution's risk appetite, business strategy and long-term objectives.⁵⁶ Incentive structures should stimulate behaviour in line with the risk appetite and long-term business goals⁵⁷ and discourage excessive risk-taking. Remuneration policies and practices, including the use of deferral and the determination of performance criteria, are expected to help foster a long-term approach to managing climate-related and environmental risks. To encourage behaviour consistent with their climate-related and environmental (risk) approach, institutions that have climate-related and environmental objectives could consider implementing a variable remuneration component linked to the successful achievement of those objectives. Where the financial impacts of climate-related and environmental risks are difficult to quantify, the management body can consider incorporating appropriate qualitative criteria into the remuneration policy.

5.3 Organisational structure

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.

In accordance with Article 74 of the CRD, and as further specified in the EBA Guidelines, institutions should have in place a clear, transparent and documented decision-making process and a clear allocation of responsibilities and authority within their internal control framework, including their business lines, internal units and internal control functions⁵⁸ that promote informed decision-making by the

⁵⁶ Furthermore, credit institutions that provide portfolio management and/or financial advice shall include in their remuneration policies information on how those policies are consistent with the integration of sustainability risks, and shall publish that information on their websites, from March 2021 pursuant to Article 5 of Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector.

⁵⁷ See the EBA Guidelines on sound remuneration policies under Articles 74(3) and 75(2) of Directive 2013/36/EU and disclosures under Article 450 of Regulation (EU) No 575/2013 (EBA/GL/2015/22).

⁵⁸ See paragraph 131 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

management body.⁵⁹ Consequently, responsibilities for identifying, assessing and managing climate-related and environmental risks are expected to be evenly distributed across the different functions within the institution.

Expectation 5.1

Institutions are expected to explicitly assign responsibilities for climate-related and environmental risks within their institution. These responsibilities are also expected to be duly documented in the relevant governance documents.

Institutions are expected to explicitly define which internal structures have responsibility for considering climate-related and environmental risks and to clearly describe their respective mandates and working procedures. Institutions may consider establishing a dedicated structure responsible for coordinating the institution's overall risk management approach to climate-related and environmental risks or may allocate such responsibility among existing structures. If such a dedicated structure for climate-related and environmental risks is established, its integration into existing processes and interfaces with other functions is expected to be clearly defined. Regardless of the specific arrangements, institutions are expected to describe the relationships between the relevant structures and their working procedures to ensure an adequate flow of information between all parties involved.

Expectation 5.2

Institutions are expected to ensure that the functions involved in managing climate-related and environmental risks have the appropriate human and financial resources. Based on the EBA Guidelines, institutions should ensure that the internal control functions have the appropriate financial and human resources as well as the powers to effectively perform their role.⁶⁰ In the same vein, institutions are expected to evaluate the appropriateness of the capacity and resources to deal with climate-related and environmental risks, particularly in the relevant functions responsible for managing these risks. To the extent needed, institutions are expected to strengthen the available capacity and resources, as well as encourage appropriate training for all relevant functions.

Expectation 5.3

Institutions are expected to describe the tasks and responsibilities of the first line of defence in terms of risk-taking and managing climate-related and environmental risks in their policies, procedures and controls. Institutions are expected to ensure that the first line of defence performs its duties in accordance with any climate-related and environmental policy, procedure or limit. More specifically, the first line of defence is expected to identify, assess and monitor any climate-related and environmental risks relevant for the creditworthiness and the scoring/rating of a client, as well as to conduct proper due diligence on climate-related and environmental risks in line with Expectation 7.4.

Expectation 5.4

Institutions are expected to define the tasks and responsibilities of the risk management function for identifying, assessing, measuring, monitoring and reporting climate-related and environmental risks. The main responsibility of the risk management function is to ensure that all risks are identified, assessed, measured, monitored, managed and properly reported by the relevant units in the

⁵⁹ See paragraphs 28 and 94 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

⁶⁰ See paragraphs 155 and 160 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

institution.⁶¹ Since climate-related and environmental risks drive existing risk types, the tasks and responsibilities are expected to be embedded in the framework of the existing risk types in the risk management system, as further detailed in the risk management section.

Box 5

Observed practice: Horizontal points of contact

The ECB observed several institutions that implemented specific measures to promote a risk culture that takes into account climate-related and environmental risks. For example, one bank designated horizontal points of contact to ensure that climate-related and environmental risks were appropriately integrated into its risk management function's working procedures. Another bank put in place correspondents for those business lines actively cooperating and liaising with risk management functions and/or other functions involved in ESG risks, including climate-related and environmental risks.

Expectation 5.5

Institutions are expected to define the tasks and responsibilities of the compliance function by ensuring that liability risks stemming from climate-related and environmental risk are duly considered and effectively integrated in all relevant processes. The compliance function should advise the management body on measures to be taken to ensure compliance with applicable laws, rules, regulations and standards, and should assess the possible impact of any changes in the legal or regulatory environment on the institution's activities and compliance framework.⁶² As rules and standards on sustainability may change over time, institutions may increasingly face compliance risks stemming from climate-related and environmental issues.

Expectation 5.6

The internal audit function is expected to consider in its reviews of the risk management framework the extent to which it is equipped to manage climate-related and environmental risks. The internal audit function should review the risk management framework, by considering external developments, changes in the risk profile and in products and/or business lines.⁶³ This is expected to include the appropriateness of the arrangements for managing climate-related and environmental risks. Furthermore, an institution's policies and procedures for climate-related and environmental risks fall within the scope of the internal audit function, as its role is to review compliance with the institution's internal policies and procedures and with external requirements.

⁶¹ See paragraph 174 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

⁶² See paragraph 192 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

⁶³ See paragraph 139 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

5.4 Reporting

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.

The EBA Guidelines⁶⁴ set out how institutions should establish regular and transparent reporting mechanisms so that the management body, its risk committee, where established, and all relevant units in an institution are provided with reports in a timely, accurate, concise, clear and meaningful manner and can share relevant information on the identification, measurement or assessment, monitoring and management of risks. Consequently, the ECB expects institutions to integrate climate-related and environmental risks into their data reporting frameworks with a view to informing decision-making at management level. The ECB acknowledges that metrics and tools are evolving and that, currently, data available in institutions are sometimes incomplete. Nevertheless, it expects reporting of climate-related and environmental risks to mature over time. Initially, when accurate and complete reporting is deemed unfeasible or premature, the ECB expects institutions to assess their data needs in order to inform their strategy-setting and risk management, to identify the gaps compared with current data and to devise a plan to overcome these gaps and tackle any insufficiencies.

Expectation 6.1

Institutions are expected to develop a holistic approach to data governance for climate-related and environmental risks. Based on the EBA Guidelines, regular and transparent reporting mechanisms should be established in order to ensure timely, accurate, concise, understandable and meaningful reporting that will enable the sharing of relevant information about the identification, measurement or assessment, monitoring and management of risks.⁶⁵ Institutions are expected to define, document and integrate climate-related and environmental risks into the data reporting framework, so they can effectively monitor, manage and mitigate their exposures to these risks. In particular, this includes risk data reporting governance, IT infrastructure, risk data aggregation capabilities and reporting procedures. Institutions are expected to ensure that the data reporting framework for climate-related and environmental risks operates in conjunction with the climate-related and environmental risk metrics set out in their existing RAS and risk management processes. The data reporting framework is also expected to support, where relevant, the KPIs used to assess the performance of the institution in terms of climate-related and environmental risks and public disclosure.

Expectation 6.2

As climate-related and environmental risks have distinctive characteristics, institutions are expected to consider adapting their IT systems to systematically collect and aggregate the necessary data in order to assess their

⁶⁴ See the EBA Guidelines on internal governance (EBA/GL/2017/11).

⁶⁵ See paragraph 145 of the EBA Guidelines on internal governance (EBA/GL/2017/11).

exposures to these risks. While institutions are expected to incorporate the data taxonomy of these risks, it is also acknowledged that this may not be feasible owing to the current lack of common definitions, taxonomies and data gaps. In this case, institutions are expected to consider establishing reporting processes and procedures based on internal or external qualitative risk metrics to ensure that climate-related and environmental risks are adequately reported to the management body. To this end, the management body is expected to be aware of the limitations of the reporting it receives in terms of its coverage, as well as legal and technical constraints. The management body is expected to use this information to discuss, challenge and take decisions on managing impacts arising from climate-related and environmental risks.

Expectation 6.3

An institution's risk reports are expected to convey the impact of climate-related and environmental risks on its business model, strategy and risk profile.⁶⁶ Institutions should strive to cover all material climate-related and environmental risks across the legal entity and/or business lines in its risk reports. The depth and scope of these reports are expected to be consistent with the size and complexity of the institution's operations and risk profile.

Expectation 6.4

An institution is expected to be able to generate aggregated and up-to-date climate-related and environmental risks data in a timely manner. This is consistent with EBA Guidelines that expect institutions to have effective and reliable information and communication systems that fully support risk data aggregation capabilities during both normal operations and times of stress.⁶⁷ The issue of timeliness is critical to these risks owing to, for example, the impacts of a sudden transition to a low carbon economy or the impact of a physical event on an institution's operations. The management body, therefore, should remain aware of any developments at national, international, political and regulatory levels that may have an impact on its reporting expectations. An institution is expected to be adaptable in order to generate aggregated climate-related and environmental risk data to meet a broad range of on-demand and ad hoc reporting requests, including requests during stress/crisis situations, requests related to changing internal needs and requests to meet supervisory queries, as demand for climate-related and environmental risks reporting increases.

⁶⁶ See also paragraphs 29 and 30 under Principle 2 of the ECB Guide to the internal capital adequacy assessment process (ICAAP).

⁶⁷ See the EBA Guidelines on internal governance (EBA/GL/2017/11) and Section 5.8 of the EBA Guidelines on the revised common procedures and methodologies for the supervisory review and evaluation process (SREP) and supervisory stress testing (EBA/GL/2018/03).

6 Supervisory expectations relating to risk management

Building on the previous chapter, this section provides detailed guidance on integrating climate-related and environmental risks into credit, operational, market and liquidity risk management, as well as into the ICAAP, including risk quantification by means of scenario analysis and stress testing.

6.1 Risk management framework

Expectation 7

Institutions are expected to incorporate climate-related and environmental risks as drivers of established risk categories into their existing risk management framework, with a view to managing and monitoring 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.

As part of their overall internal control framework, institutions should have an institution-wide risk management framework that extends across all business lines and internal units, including internal control functions.^{68 69} According to Article 73 of the CRD, institutions shall have in place sound, effective and comprehensive strategies and processes for assessing and maintaining on an ongoing basis the amounts, types and distribution of internal capital that they consider adequate to cover the nature and level of the risks to which they are or might be exposed.

Institutions are expected to have a holistic and well-documented view of the impact of climate-related and environmental risks on existing risk categories.

The risk management framework should encompass on-balance-sheet risks and off-balance-sheet risks, with appropriate consideration of both financial and non-financial risks⁷⁰, both for risks that the institutions is currently exposed to and for risks that the institution may be exposed to going forward. Institutions are responsible for implementing a regular process for identifying all material risks and including these in a comprehensive internal risk inventory. As clarified in sections 3.1 and 3.2 of this Guide, climate-related and environmental risks are deemed to be drivers of existing risk categories. For organisational or analytical purposes, institutions may choose to treat climate-related and environmental risks as a stand-alone risk type. However,

⁶⁸ See paragraphs 136 and 137 of the EBA Guidelines on internal governance and risk management (EBA/GL/11/2017).

⁶⁹ See also paragraphs 32 and 34 under Principle 2 (ii) of the ECB Guide to the internal capital adequacy assessment process (ICAAP).

⁷⁰ See paragraph 136 of the EBA Guidelines on internal governance and risk management (EBA/GL/11/2017).

Expectation 7.1

they are expected to comprehensively analyse the ways in which climate-related and environmental risks affect the different risk areas, including credit, operational, market and liquidity risks. The management body is expected to decide which risk types are material and to ensure that, when an institution assesses that climate-related and environmental risks do not significantly contribute to material risk types, a classification as non-material risks is justified. This analysis is expected to be tailored to the business model and risk profile of the institution. Institutions are expected to document the climate-related and environmental risks considered, in particular their transmission channels and impact on the risk profile.

Box 6

Observed practice: Mapping of climate-related risks to financial risks

Some institutions have launched an internal process to map climate-related risks and their potential financial impacts. One bank mapped the main transmission channels onto existing risk categories and provided an overview of the estimated impact on its risk profile as well as the estimated time frame.

Table A

Stylised example of the mapping of climate-related risks to financial impacts

Climate-related risk drivers	Potential financial impact	Time frame	Impact on risk profile	Impact on strategy
Policy and legal	Depreciation of assets of carbon-intensive companies in the investment portfolio.	1-3 years	**	****
Technology	Corporates clients in the car industry affected by a substitution of existing products and services.	3-5 years	*	***
Market sentiment	Consumers and investors favouring more sustainable products	1-3 years	****	*
Acute physical risk	Damage to property and assets in high-risk locations	1-3 years	*	**
Chronic physical risk	Increased costs for customers to address damages or losses caused by climatic incidents affecting their ability to pay	1-3 years	*	**

Source: ECB.

Expectation 7.2

Institutions are expected to adequately quantify the climate-related and environmental risks that the institution is exposed to. As also stated in the ECB Guide to the ICAAP, risks are not expected to be excluded from the assessment because they are difficult to quantify or because the relevant data are not available.⁷¹ Where such quantification methodologies are subject to further developments, also taking into account the current work and upcoming publications of international networks and standard setters, institutions are expected to make active efforts to develop or apply appropriate tools and methods.

Expectation 7.3

Institutions are expected to adopt a strategic approach to managing and/or mitigating climate-related and environmental risks in line with their business strategy and risk appetite, and to adapt policies, procedures, risk limits and risk controls accordingly. Based on the EBA Guidelines, an institution's risk management framework should provide specific guidance on the implementation of its strategies and, where appropriate, establish and maintain internal limits consistent with its risk appetite and commensurate with its sound operation, financial strength,

⁷¹ See paragraph 74 of the ECB Guide to the internal capital adequacy assessment process (ICAAP).

capital base and strategic goals.⁷² With this in mind, institutions are expected to consider the need to adjust their risk policies, for example by setting limits on financing certain sensitive economic (sub-)sectors, sovereigns, businesses or real estate exposures or even excluding some specific (sub-)sectors or borrowers from credit granting; modifying credit conditions for borrowers included or not included on a white list/black list or which are considered “best-in-class”; entering into a constructive dialogue with critical counterparties; agreeing on measures to gradually reduce climate-related or environmental risks, potentially also with a view to improving the sustainability rating and/or credit rating of a counterparty.

Box 7

Observed practice: Quantifying the climate-related and environmental impacts of financing in the ICAAP

The ECB has observed a bank that, in its internal capital plan, assesses the environmental impact of its financing and assigns an environmental rating to either the asset or project being financed, or to the borrower for general purpose financing, whether a corporate or public sector client. This rating is derived from an assessment of the deal’s climate impact, and factors in any significant environmental externalities, such as water use, pollution, waste and biodiversity. On the basis of this rating, the bank applies penalties to the assets projected to have the highest level of environmental impact, leading to an increase in the analytical risk weight for these exposures. The bank reports that the facilities with a negative environmental and climate impact are subject to an increase in their analytical risk-weighted assets of up to a quarter. Ultimately, this impact is reflected in the expected rate of return of the assets, providing potential incentives to invest or disinvest in particular sectors.

Expectation 7.4

Institutions are expected to conduct a proper climate-related and environmental due diligence, both at the inception of a client relationship and on an ongoing basis. This should be understood to include the collection and verification of information and data needed to assess borrowers’ vulnerabilities to climate-related and environmental risks, notably before concluding a loan agreement or significantly increasing the loan amount, in line with the institutions’ risk policies and procedures. Institutions are expected to be aware of their clients’ impact on and vulnerability to climate-related and environment aspects and of their approach to managing this impact and risks. Moreover, proper environmental due diligence, when appropriately acted upon, is likely to reduce reputation and liability risks. The scope and depth of due diligence is expected to be defined in relation to the sector and geographic location in which the client is located. If deemed necessary, institutions may consider the need for external expertise. Institutions are advised to ensure compliance with the OECD Guidelines for Multinational Enterprises⁷³ for example. Any findings from due diligence assessments are expected to be considered in the decision on whether and how to engage, or continue to engage, with a client.

⁷² See paragraphs 135, 137 and 138 of the EBA Guidelines on internal governance (EBA/GL/11/2017).

⁷³ See the [OECD Guidelines for Multinational Enterprises](#) OECD, 2019 and “Due Diligence for Responsible Corporate Lending and Securities Underwriting – Key considerations for banks implementing the OECD Guidelines for Multinational Enterprises”, OECD, 2019.

Expectation 7.5

Institutions are expected to assess the impact of climate-related and environmental risks on their capital adequacy from an economic and a normative perspective. In line with the ECB Guide to the ICAAP, institutions are expected to consider in their forward-looking capital adequacy assessment any risks, and any concentration within and between those risks, that may arise from relevant changes in their operating environment.⁷⁴ In the same vein, the ECB expects institutions to incorporate climate change, in particular the energy transition, into the assessment from an economic value perspective. Institutions are expected to take into consideration the impact of climate-related and environmental risks when determining their capital adequacy in a way that enables the institution to sustainably follow its business model by ensuring economic and normative capital adequacy. As set out in the ECB Guide to the ICAAP, institutions are expected to implement both a normative perspective and an economic perspective that mutually inform each other. Where climate-related and environmental risks are deemed to have an impact from an economic perspective, institutions are expected to consider in the normative perspective the potential impact on regulatory capital ratios going forward, reflected in baseline and adverse scenario assessments. Institutions are also expected to consider the outcomes in their risk appetite and business strategy.

Expectation 7.6

Institutions are expected to evaluate the appropriateness of their identification, measurement and mitigation instruments for climate-related and environmental risks in their periodic reviews. Institutions should perform regular internal reviews, for instance, in the context of the ICAAP.⁷⁵ The purpose of these reviews is to assess whether internal processes and methodologies have led to sound outcomes and whether they remain appropriate in view of current and future developments.⁷⁶ As the availability of data and methodologies for identifying and measuring climate-related and environmental risks is evolving rapidly, institutions are expected to regularly consider the appropriateness and quality of the data sources and methods in place.

6.2 Credit risk management

Expectation 8

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

In accordance with Article 79 of the CRD, competent authorities must ensure, among other things, that institutions grant credit on the basis of sound and well-defined criteria and that the process for approving, amending, renewing and refinancing credit is clearly established. To this end, institutions are expected to adopt a holistic approach and take into account risks associated with climate-related and

⁷⁴ See paragraph 60 of the ECB Guide to the internal capital adequacy assessment process (ICAAP).

⁷⁵ See Article 73 of CRD IV.

⁷⁶ See also paragraph 18 under Principle 1 (iii) of the ECB Guide to the internal capital adequacy assessment process (ICAAP).

environmental factors in their credit risk policies and procedures, in line with the EBA Guidelines on loan origination and monitoring.^{77 78}

Expectation 8.1

Climate-related and environmental risks are expected to be included in all relevant stages of the credit-granting process and credit processing.

Specifically, institutions are expected to form an opinion on how climate-related and environmental risks affect the borrower's default risk. The climate-related and environmental factors material to the default risk of the loan exposure are expected to be identified and assessed. As part of this assessment, institutions may take into consideration the quality of the clients' own management of climate-related and environmental risks. Institutions are expected to give appropriate consideration to changes in the risk profile of sectors and geographies driven by climate-related and environmental risks.

Box 8

Observed practice: Climate-informed shadow probabilities of defaults

The ECB observed that institutions often consider climate-related and environmental risks qualitatively in their credit-granting process. Nonetheless, some institutions are considering or in the process of developing means to incorporate these risks into their models. One bank is developing climate-informed shadow probabilities of defaults (PDs) to be reported alongside the regular PDs. The climate-informed shadow PDs would take into consideration a detailed analysis of physical and transition risks for higher risk counterparties identified in a screening process. A big differential between the two would then trigger the need to consider mitigating action. A second bank is developing a scorecard for sustainability risks comprising qualitative aspects. The input from the scorecard would get a fixed weighting within the model.

Another bank includes environmental variables in its internal credit-scoring models. The environmental valuation has been introduced for sectors where such an assessment was found to be relevant in terms of credit quality differential analysis. The potential environmental impact of the underlying activities influences the credit quality. The credit-scoring models have been rolled out for exposures to large corporates, corporates and for project finance exposures.

Expectation 8.2

Institutions are expected to adjust risk classification procedures in order to identify and evaluate, at least qualitatively, climate-related and environmental risks.

Institutions are expected to define appropriate general risk indicators or ratings for their counterparties that take into account climate-related and environmental risks. As part of risk classification procedures, institutions are expected to identify borrowers that may be exposed, directly or indirectly, to increased climate-related and environmental risks. Critical exposures to such risks should be highlighted and, where applicable, considered under various scenarios⁷⁹ with the aim of ensuring the ability to assess and introduce in a timely manner any appropriate risk mitigation measures,

⁷⁷ See paragraph 51 of the draft EBA Guidelines on loan origination and monitoring (EBA/CP/2019/04).

⁷⁸ See also Principles 2 (ii) and (iii) of the ECB Guide to the internal capital adequacy assessment process (ICAAP).

⁷⁹ Possible scenarios include, among others, a review of current and projected GHG emissions, the market environment, supervisory requirements for the companies under consideration, the likely impacts on borrowers' profitability and solvency, etc.

including pricing. Institutions are expected to consider, for example, the use of heat maps that highlight sustainability risks based on the relevance of individual (sub-)economic sectors for a given client.

Expectation 8.3

Institutions are expected to consider climate-related and environmental risks in their collateral valuations. Climate-related and environmental risks may affect the value of collateral. Institutions are expected to give particular consideration to the physical locations and the energy efficiency of commercial and residential real estate in this regard. Institutions are expected to incorporate these considerations into both the process for establishing the value of collateral and into regular reviews.

Expectation 8.4

Institutions are expected to monitor and manage credit risks in their portfolios, for example, through sectoral/geographic concentrations analysis, exposure limits, deleveraging strategies and scenario-analysis and/or stress testing.⁸⁰ Institutions are expected to monitor how geographic and sectoral concentration is prone to climate-related and environmental risks. Likewise, institutions may measure concentrations of assets with specific characteristics likely to be targeted by transition policies, for example the distribution of energy efficiency labels within residential and commercial real estate portfolios in the light of potential legislation. Institutions are advised to develop their monitoring capabilities in conjunction with the metrics and limits developed for the purposes of their risk appetite and data governance framework.

Expectation 8.5

Institutions' loan pricing frameworks are expected to reflect their credit risk appetite and business strategy with regard to climate-related and environmental factors.⁸¹ Pursuant to Article 76(3) of CRD IV, an institution's risk committee shall review whether the prices of assets offered to clients take the business model and risk strategy fully into account. The pricing of loans is an important steering mechanism for institutions, determining the level and origin of their future income. For instance, as part of their business strategy and risk appetite, institutions may decide to reduce or limit exposures to sectors harmful for the environment or the climate or to steer away from loans collateralised by energy-inefficient real estate. The pricing framework is then expected to support the chosen risk perspective and strategy, for example by differentiating the loan prices for exposures according to their energy efficiency or by including a sector/client-specific charge. Institutions may also consider, in line with their business strategy and risk appetite, incentivising their clients to properly consider climate-related and environmental risks so as to improve the creditworthiness and resilience towards such risks. This could, for instance, entail offering discounts on the interest rate of an environmentally sustainable loan or linking the interest rate of the loan to the achievement of a sustainability target by the client.

⁸⁰ See paragraph 245 of the draft EBA Guidelines on loan origination and monitoring (EBA/CP/2019/04).

⁸¹ See paragraphs 200 and 201 of the draft EBA Guidelines on loan origination and monitoring (EBA/CP/2019/04).

Box 9

Observed practice: Mortgage price differentiation

The ECB observed an institution that differentiates the client price of retail mortgage loans according to the energy label of the underlying real estate. Mortgages with a better energy label receive a lower client rate than mortgages with a less energy-efficient label, while the institution's overall profitability target for mortgages is projected to be met. This price differentiation is in line with its strategy to support sustainable banking. In addition, a portfolio with higher energy-efficiency labels is likely to be less vulnerable to transition risk. As a result, the mortgage portfolio shifts to a portfolio with a better energy-label distribution.

Expectation 8.6

Institutions' loan pricing is expected to reflect the different costs driven by climate-related and environmental risks. As set out in the EBA Guidelines on loan origination and monitoring,⁸² institutions should implement a pricing framework linked to the characteristics of the loan, considering all relevant costs. The impact of climate-related and environmental risks may play out through various cost drivers, such as the cost of capital, funding or credit risk. Environmentally sustainable assets may, for example, be funded by dedicated instruments, such as green (covered) bonds, and thus incur different funding costs. Areas exposed to increasing physical climate risks, such as floods or droughts, may see an increase in credit loss. Institutions are expected to consider these developments and reflect them in their loan pricing, for instance through a higher credit cost charge or via differentiation of funding costs for assets that are particularly affected by physical and transition risk.

6.3 Operational risk management

Expectation 9

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

As set out in Article 85 of the CRD and in the EBA Guidelines⁸³, institutions should implement policies and processes to evaluate and manage their exposure to operational risk. They should assess operational risk across all business lines and operations, and determine how operational risk may materialise.⁸⁴ Institutions are also expected to adopt all necessary measures to safeguard business continuity and ensure a timely disaster recovery, both in terms of policies and the functioning of physical assets, including IT systems.

⁸² See paragraphs 186, 187 and 190 of the draft EBA Guidelines on loan origination and monitoring (EBA/CP/2019/04).

⁸³ See paragraph 255 of the EBA Guidelines on the revised common procedures and methodologies for the supervisory review and evaluation process (SREP) and supervisory stress testing (EBA/GL/2018/03).

⁸⁴ See also Principle 4 and paragraph 60 of the ECB Guide to the internal capital adequacy assessment process (ICAAP).

Expectation 9.1

Institutions are expected to assess the impact of physical risks on their operations in general, including the ability to quickly recover their capacity to continue providing services. The geographical location in which an institution operates might make it more prone to physical risks. Institutions are expected to assess the materiality of operational risk arising from physical risk. This applies in particular to outsourced services and IT activities, particularly if service providers are established in locations that are prone to extreme weather events or other environmental vulnerabilities.

Institutions are expected to consider whether these could affect their ability to process transactions, provide services or cause legal liabilities for damage to third parties, such as customers and other stakeholders. In particular, when assessing its critical or important functions, an institution is expected to consider the impacts of climate change on the provision of these services.⁸⁵ The outcome of this assessment, if material for any of the institution's business lines or operations, is expected to be reflected in its business continuity plan.

Expectation 9.2

Institutions are expected to consider the extent to which the nature of the activities in which they are involved increases the risk of future reputational damage or liability. Based on the EBA Guidelines, all relevant risks should be encompassed in the risk management framework of an institution, with appropriate consideration of both financial and non-financial risks, including reputational risk.⁸⁶ Reputational risks can arise quickly and can rapidly affect firms. Institutions associated with social or environmental controversies – or more generally institutions that are perceived not to take due consideration of environmental aspects in their business activities – could face reputational risks as a result of changing market sentiment in relation to environmental and climate-related risks. Similarly, to avoid reputational risks arising from controversy in connection with their products, institutions are also expected to consider evaluating the compliance of their investment products with international or EU best practices, such as the EU Green Bond Standard.⁸⁷

Box 10

Reputation risks captured in the ICAAP

The ECB observed an institution that considers reputational risks arising from environmental, social or governance impacts in its internal capital adequacy assessment process. The institution is exposed to considerable reputational risk related to environmental and social factors, as its business model is targeted at financing private companies in emerging market economies. Each of its clients is therefore categorised based on the degree of potentially negative environmental, social and

⁸⁵ See paragraph 31 under Section 4 of the EBA Guidelines on outsourcing (EBA/GL/2019/02).

⁸⁶ See paragraph 136 of the EBA Guidelines on internal governance and risk management (EBA/GL/11/2017).

⁸⁷ Furthermore, credit institutions that provide portfolio management and/or financial advice will have to comply with the disclosure requirements laid down in Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector, which will be further described in the forthcoming technical standards.

governance impacts. There are four risk categories in the institution's classification system, which range from a "significant" to having "minimum or no" adverse environmental, social or governance impacts. The institution allocates an amount to capital relative to the number of clients in each of the risk classification categories. Each risk category is assigned a capital charge per client, i.e. the institution takes a higher capital for a client that has a higher risk classification.

6.4 Market risk management

Expectation 10

Institutions are encouraged 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-testing scenarios that incorporate climate-related and environmental risks.

Article 83 of the CRD provides that competent authorities must ensure that policies and processes for the identification, measurement and management of all material sources and effects of market risk are implemented. With regard to market risk management, institutions are expected to consider that environmental and climate-related risks could lead to potential shifts in supply and demand for financial instruments (e.g. securities, derivatives), products and services, with a consequent impact on their values.⁸⁸ Institutions that invest in companies with business models that are perceived as environmentally unsustainable or that are geographically located in areas prone to physical risks might suffer a decline in the value of their investment owing to changes in policy measures, market sentiment or technology, or as a result of severe weather events or gradual adverse changes in climatic conditions.

In assessing their exposure to market risk, institutions are expected to include, as a minimum, risks arising from debt, equity and equity-related financial instruments in the regulatory trading book, as well as foreign exchange positions and commodities risk positions assigned to both the trading and banking book.

Moreover, the assessment is expected to consider the following sub-categories of market risk in relation to the banking book credit spread risk arising from positions measured at fair value and at cost, and risk arising from equity exposures.

With specific reference to the credit spread risk component of banking book positions, institutions are expected to assess the relevance of the credit spread among all the drivers of overall market risk. This is relevant when considering, among others, that financial instruments issued by companies belonging to sectors perceived as environmentally unsustainable and which do not adopt a comprehensive sustainable management approach might suffer an abrupt decline in their value. In the same vein, the value of equity exposures should be monitored on an ongoing basis to assess

⁸⁸ See also Principles 2 and 7 of the ECB Guide to the internal capital adequacy assessment process (ICAAP).

whether their value has been negatively affected by a change in the perception of the issuer's riskiness, specifically owing to climate-related and environmental risks.

Institutions specialised in commodities trading are expected to pay particular attention to potential hidden vulnerabilities including, but not limited to, jumps in prices or values of certain commodities perceived as environmentally less sustainable than others.

Additionally, it would be advisable for institutions to monitor how the governments to which institutions are exposed via sovereign holdings may be affected by transition and physical risks.

Given the specific characteristics of market activities, internal stress testing could be usefully applied to better understand and assess the relevance of climate-related risks for an institution's trading and banking book. Institutions are expected to conduct a rigorous programme of stress testing. Such internal stress tests are expected to address climate-related and environmental risks alongside other risks.

6.5 Scenario analysis and stress testing

Expectation 11

Institutions with material climate-related and environmental risks are expected to evaluate the appropriateness of their stress testing, with a view to incorporating them into their baseline and adverse scenarios.

As part of the ICAAP, institutions are expected to conduct a tailored and in-depth review of their vulnerabilities through stress testing.⁸⁹ The stress scenarios should comprise all material risks that may deplete internal capital or impact regulatory capital ratios and be used as part of the institution's stress-testing programme in both the economic and normative perspective. For physical risk, institutions are expected to consider using scenarios that are in line with scientific climate change pathways, such as IPCC or IEA scenarios. All these aspects should be properly reflected in an institution's ICAAP.⁹⁰ When conducting scenario analysis and stress testing with respect to climate-related and environmental risks, at least the following aspects are expected to be considered:

- how the institution might be affected by physical risk and transition risk;
- how climate-related and environmental risks might evolve under various scenarios, taking into account that these risks may not be fully reflected in historical data;
- how climate-related and environmental risks might materialise in the short, medium and long term depending on the scenarios considered.

⁸⁹ See paragraph 140 et seq. of the EBA Guidelines on internal governance under Directive 2013/36/EU (EBA/GL/2017/11) and Chapters 5.4 and 6.5 of the Guidelines on ICAAP and ILAAP information collected for SREP purposes (EBA/GL/2016/10).

⁹⁰ See Article 73 of the CRR.

Institutions are expected to define the assumptions for their own risk profile and individual specifications, as well as consider several scenarios based on different combinations of assumptions. As part of their capital planning, institutions are expected to assess their capital adequacy under a credible baseline scenario and institution-specific adverse scenarios.

For the adverse scenarios, the institution is expected to assume unusual but plausible developments with an adequate degree of severity in terms of their impact on its regulatory capital ratios.

According to the ECB Guide to the ICAAP, the normative perspective is expected to cover a forward-looking horizon of at least three years. Institutions are expected to take developments beyond this minimum horizon into account in their strategic planning in a proportionate manner if they will have a material impact.⁹¹ Institutions are expected to consider adopting a longer time horizon for climate-related and environmental risks given the likelihood that they will mostly materialise in the medium to long term. In particular, longer time horizons could be reflected in stress testing in the economic perspective.

Likewise, institutions are also expected to take into account the relevance of climate-related impacts on their business lines when designing scenarios for recovery planning processes. As stipulated in the Bank Recovery and Resolution Directive⁹², institutions should contemplate a range of scenarios of severe macroeconomic and financial stress for a full scope recovery plan. Institutions are expected to test recovery options against these scenarios to determine their effectiveness in such events.

6.6 Liquidity risk management

Expectation 12

Institutions are expected to assess whether material climate-related and environmental risks could cause net cash outflows or depletion of liquidity buffers and, if so, incorporate these factors into their liquidity risk management and liquidity buffer calibration.

Pursuant to Article 86(1) of the CRD, institutions are required to have robust strategies, policies, processes and systems for the identification, measurement, management and monitoring of liquidity risk over an appropriate set of time horizons to ensure they maintain adequate liquidity buffers.

To ensure robust liquidity risk management, institutions are expected to consider the direct or indirect impacts of climate-related and environmental risks on their liquidity

⁹¹ See paragraph 44 and footnote 22 of the ECB Guide to the internal capital adequacy assessment process (ICAAP).

⁹² See Article 5(6) of Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms (BRRD).

position.^{93 94} Consequently, they are expected to assess whether climate-related and environmental risks could have a material impact on net cash outflows or liquidity buffers. If this is deemed to be the case, institutions should incorporate this into their liquidity risk management and liquidity buffer calibration. Such assessments are expected to be conducted in a forward-looking manner, assuming both business-as-usual and stressed conditions, and to consider in particular severe but plausible scenarios that may occur in combination, with a focus on key vulnerabilities. For example, institutions could consider the possibility that a combined idiosyncratic and market stress situation could occur simultaneously with the materialisation of climate-related or environmental risks. Furthermore, institutions could consider how their liquidity position might be affected by a climate-related or environmental risk event that has an impact on the value of their liquidity buffers. Institutions could also consider the impact of such risks on regional liquidity positions, for example in local currencies, as well as potential operational and other impediments to providing liquidity to regions where climate-related or environmental risks materialise.

⁹³ Directly, as a result of a severe physical event, clients could be withdrawing money from their accounts in order to finance damage repairs, forcing the credit institution to sell a high level of assets to cover these outflows (see “Guidance Notice on Dealing with Sustainability Risks”, BaFin, 2020, p. 18). Indirectly, banks with balance sheets that would be hit by credit and market risks could be unable to refinance themselves, potentially leading to tensions on the interbank lending market (see “The Green Swan”, BIS, 2020, p. 28). In addition, banks’ liquidity risk may increase owing to macroeconomic shocks caused by physical and transition risks, resulting for instance in a narrower universe of investable securities.

⁹⁴ See, in particular, Principle 4 (iv) of the ECB Guide to the internal liquidity adequacy assessment process (ILAAP), November 2018.

7 Supervisory expectations relating to disclosures

Access to information is necessary for promoting transparency within financial institutions and contributing to the orderly functioning of financial markets.⁹⁵ The European regulatory framework therefore sets out disclosure requirements to make key information available about an institution's capital, risks and risk exposures in order to adequately inform market participants. Disclosures on climate-related risk allow market participants to make a more informed assessment of physical and transition risks. In turn, this will improve institutions' and investors' understanding of the financial implications of climate change.

It should also be pointed out that the EU institutions have reached a political agreement to develop an EU-wide classification system, or taxonomy, for sustainable investments. Going forward, institutions subject to the Non-Financial Reporting Directive (NFRD) will be asked to provide further transparency on the extent to which their activities can be regarded as environmentally sustainable.⁹⁶ In a similar vein, it should be noted that the European Commission plans to conduct a review of the NFRD as part of the strategy to strengthen the foundations for sustainable investment.^{97 98}

Disclosure policies and procedures

Expectation 13

For the purposes of their regulatory disclosures, institutions are expected to publish meaningful information and key metrics on climate-related and environmental risks that they deem to be material, as a minimum, in line with the European Commission's Guidelines on non-financial reporting: Supplement on reporting climate-related information.

Expectation 13.1

Institutions are expected to specify in their disclosure policies key considerations that inform their assessment of the materiality of climate-related and environmental risks, as well as the frequency and means of disclosures.

Articles 431 et seq. of the CRR require institutions to publicly disclose specific information that is material, but is not proprietary or confidential. Article 432 of the

⁹⁵ See Title III of the EBA Guidelines on materiality, proprietary, and confidentiality and on disclosure frequency on materiality, proprietary and confidentiality and on disclosure frequency under Articles 432(1), 432(2) and 433 of Regulation (EU) No 575/2013.

⁹⁶ See the Proposal for a Regulation of the European Parliament and of the Council on the establishment of a framework to facilitate sustainable investment (14970/19).

⁹⁷ See Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups.

⁹⁸ Large institutions with publicly listed issuances will also be required to disclose information on ESG risks from June 2022 pursuant to Article 449a of the CRR2.

CRR provides that information shall be regarded as material where its omission or misstatement could change or influence economic decision-making.⁹⁹ To that end, institutions shall “have policies for assessing the appropriateness of their disclosures, including their verification and frequency.”¹⁰⁰ This disclosure policy is expected to specify the way in which the materiality of climate-related risks is assessed.¹⁰¹ For this purpose, the EBA Guidelines state that, in the assessment of materiality of certain information, institutions should pay particular attention not only to their business model, long-term strategy and the overall risk profile, but also to the influence of the economic and political environment, the assumed level of relevance of information for users, and the relationship with recent developments in risks and disclosure needs.¹⁰²

Based on the EBA Guidelines, there are no common thresholds for materiality.¹⁰³ The assessment of the materiality of climate-related and environmental risks is therefore expected to be performed using both qualitative and quantitative information and to duly consider reputational and liability risks associated with the institution’s impact on the climate and environment. Institutions are also reminded of the European Commission’s advice not to prematurely consider climate-related risks as immaterial owing to their longer-term nature.¹⁰⁴ Institutions are reminded that disclosures of material risks must comply with Articles 433, 434 and 434a of the CRR.

Expectation 13.2

In case an institution deems climate-related risks to be immaterial, the institution is expected to document this judgement with the available qualitative and quantitative information underpinning its assessment. Pursuant to Article 432(1) of the CRR, information shall be regarded as material if its omission or misstatement could change or influence the assessment or decision of a user relying on that information for the purpose of making economic decisions. Furthermore, the EBA Guidelines state that, when an institution decides not to disclose information or a set of requirements due to immateriality, it should clearly state this fact.¹⁰⁵

Expectation 13.3

When institutions disclose figures, metrics and targets as material, they are expected to disclose or reference the methodologies, definitions and criteria associated with them.¹⁰⁶ In particular, this applies when institutions commit to contribute to climate-related and environmental goals, in which case the ECB also expects them to provide a comprehensive overview of the impact of the entity as a

⁹⁹ The expectations described in this section pertain solely to institutions’ regulatory disclosure requirements and are not in any way applicable to existing accounting standards.

¹⁰⁰ See Article 431(3) of the CRR.

¹⁰¹ In accordance with Article 431(3) CRR, and as elucidated in the EBA Guidelines, the concept of materiality implies the need to disclose elements that are not explicitly required under specific provisions in the CRR.

¹⁰² See the EBA Guidelines on materiality, proprietary and confidentiality and on disclosure frequency under Articles 432(1), 432(2) and 433 of Regulation (EU) No 575/2013, p. 17.

¹⁰³ See the EBA Guidelines on materiality, proprietary and confidentiality and on disclosure frequency under Articles 432(1), 432(2) and 433 of Regulation (EU) No 575/2013, p. 4.

¹⁰⁴ See the European Commission Guidelines on non-financial reporting: Supplement on reporting climate information.

¹⁰⁵ See paragraph 19 of the EBA Guidelines on materiality, proprietary and confidentiality and on disclosure frequency under Articles 432(1), 432(2) and 433 of Regulation (EU) No 575/2013.

¹⁰⁶ Pursuant to Article 432(1) of the CRR, “information shall be regarded as material if its omission or misstatement could change or influence the assessment or decision of a user relying on that information for the purpose of making economic decisions.”

whole. The ECB has assessed that information currently disclosed is heterogeneous and partial, in some cases focusing on commitments (not) to finance certain activities without providing sufficient clarity on thresholds utilised and portfolios covered. While institutions are encouraged to contribute to climate-related and environmental goals, they are also expected to provide comprehensive and meaningful information related to it. Institutions committing to stop or limit financing to certain industries or activities through dedicated financing policies are then expected to disclose the definition of the covered activity and associated targets, in terms of dates and outstanding volumes by geographic area. Institutions are also expected to communicate on progress in achieving these targets, the internal monitoring governance, as well as relevant methodological aspects, in particular, the criteria used to identify counterparties covered by the financing policy and the scope of business relationships concerned. Likewise, institutions are expected to consider all business lines and their exposures as a whole when reporting on their contribution to environmental goals.

Figure 1
Recommendations of the Task Force on Climate-related Financial Disclosures

Governance	Strategy	Risk management	Metrics and targets
Disclose the organisation's governance around climate-related risks and opportunities.	Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning, where such information is material.	Disclose how the organisation identifies, assesses and manages climate-related risks.	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities, where such information is material.
Recommended disclosures			
<p>a) Describe the board's oversight of climate-related risks and opportunities.</p> <p>b) Describe management's role in assessing and managing climate-related risks and opportunities.</p>	<p>a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term.</p> <p>b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning.</p> <p>c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.</p>	<p>a) Describe the organisation's processes for identifying and assessing climate-related risks.</p> <p>b) Describe the organisation's processes for managing climate-related risks.</p> <p>c) Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management.</p>	<p>a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.</p> <p>b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.</p> <p>c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.</p>

Source: TCFD.

Content of climate-related and environmental risk disclosures

Expectation 13.4

Institutions are expected to disclose climate-related risks that are financially material in line with the European Commission's Guidelines on non-financial reporting: Supplement on reporting climate-related information. This supplement integrates the recommendations of the Task-Force on Climate-related Financial Disclosures (TCFD) and provides guidance consistent with the Non-Financial Reporting Directive. The expected disclosures revolve around five key aspects: business model, policies and due diligence processes, outcomes, risks and risk management and KPIs. In this respect, institutions are reminded of the ECB expectations regarding their business model and strategy, governance and risk management as set out in this guide.

Expectation 13.5

In particular, institutions are expected to disclose the institution's Scope 1, 2 and 3 GHG emissions¹⁰⁷ for the whole group. While remaining consistent with the GHG Protocol,¹⁰⁸ as prescribed in the European Commission Supplement, institutions are encouraged to adopt a granular approach to measuring carbon emissions. This could, for instance, entail a project-by-project approach to measuring the carbon intensity of large corporate portfolios and the property-by-property measurement of actual energy consumption or energy efficiency classification for real estate portfolios. Institutions are expected to disclose or reference the methodologies used and assumptions made. Institutions are expected to disclose:¹⁰⁹

- the amount or percentage of carbon-related assets in each portfolio in € millions or as a percentage of the current portfolio value and, to the extent possible, a forward-looking best estimate of this amount or percentage over the course of their planning horizon;
- the weighted average carbon intensity of each portfolio, where data are available or can be reasonably estimated and, to the extent possible, a forward-looking best estimate of this weighted average carbon intensity over the course of their planning horizon;
- the volume of exposures by sector of counterparty and, to the extent possible, a forward-looking best estimate of this volume over the course of their planning horizon;
- credit risk exposures and volumes of collateral by geography/country of location of the activity or collateral, with an indication of those countries/geographies highly exposed to physical risk.

Expectation 13.6

Institutions are expected to disclose the KPIs and KRIs used for the purposes of their strategy-setting and risk management, as well as their current

¹⁰⁷ The ECB understands Scope 3 emissions as including the emissions of an institution's assets (financed emissions).

¹⁰⁸ See [Greenhouse Gas Protocol](#).

¹⁰⁹ See Annex 1 of the European Commission Guidelines on non-financial reporting: Supplement on reporting climate-related information.

performance against these metrics. In line with the European Commission Supplement and the EBA's key policy messages, institutions are expected to disclose the metrics used, including relevant targets and the current performance of the institution against those targets. Using the aforementioned metrics, the institution is expected to describe the short, medium and long-term resilience of its strategy in the light of different climate-related scenarios.

Expectation 13.7

Institutions are expected to explicitly consider the need for further disclosures. The ECB encourages financial institutions to advance their environmental risks disclosures more broadly. After all, risks to financial institutions emanate from a wide source of environmental factors, such as water stress, biodiversity loss, resource scarcity and pollution. As disclosure frameworks and the needs of market participants are evolving rapidly in this area, institutions are well-advised to actively improve their disclosures.

Box 11

Observed practice: Overview of disclosure alignment with TCFD recommendations

The ECB observed a bank that provides schematic reference to its alignment with the individual TCFD recommendations. This lays out the respective and specific chapters containing its disclosures that are in line with the TCFD recommendations.

Table A

Stylised overview table

Category	TCFD recommendation	Reference to institutions' disclosures
Governance	a) Describe the board's oversight of climate-related risks and opportunities.	Document X, Page ABC
	b) Describe management's role in assessing and managing climate-related risks and opportunities.	Document X, Page ABC
Strategy	a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term.	Document Y, Page ABC
	b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning.	Document Y, Page ABC
	c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	Document X, Page ABC
Risk management	a) Describe the organisation's processes for identifying and assessing climate-related risks.	Document Z, Page ABC
	b) Describe the organisation's processes for managing climate-related risks.	Document Z, Page ABC
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	Document Z, Page ABC
Metrics and targets	a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process. Describe the organisation's processes for managing climate-related risks.	Document X, Page ABC
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, and the related risks.	Document X, Page ABC
	c) Describe the targets used by the organisation to manage climate-related risks and opportunities, and performance against the targets.	Document Y, Page ABC

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Postal address 60640 Frankfurt am Main, Germany

Telephone +49 69 1344 0

Website www.ecb.europa.eu

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