

GUIDE FOR MANAGING SUSTAINABILITY RISKS

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Translator's Note:

Since the German version of this guide was published in March 2025, changes have occurred, with some ministerial departments (*Ressorts*) moving from one ministry to another. Likewise, ministries may have been renamed. Where possible, the translation takes this into account, with updated links to the content on the new ministry's website.

In addition, where at all possible, links in this translation relate to the English version of web pages, downloads etc. Links to the German versions are only included where no English version is available.

LIST OF ABBREVIATIONS

AIF: alternative investment fund	EIOPA: European Insurance and Occupational Pensions Authority	OECD: Organisation for Economic Co-operation and Development
AIFM: alternative investment fund manager	EMIR: Market Infrastructure Regulation, Regulation (EU) No 648/2012	OeKB: Oesterreichische Kontrollbank
AIFMD: Alternative Investment Fund Manager Directive, Directive 2011/61/EU	ESAs: European Supervisory Authorities	ÖKS: Austrian climate scenarios
AIFMG: Alternative Investment Fund Managers Act	ESG Rating Regulation: Regulation on the transparency and integrity of environmental, social and governance ratings	OJ: Official Journal
AIT: Austrian Institute of Technology GmbH	ESG: Environment, Social and Governance	para.: Paragraph (of an Article)
Balance Sheet Directive: Balance Sheet Directive, Directive 2013/34/EU	ESMA: European Security Markets Authority	PKG: Pensionskassen Act (PKG; Pensionskassengesetz)
Benchmark Regulation: Regulation (EU) 2019/2089 amending Regulation (EU) 2016/1011 as regards EU Climate Transition Benchmarks, EU Paris-aligned Benchmarks and sustainability-related disclosures for benchmarks	ESRB: European Systemic Risk Board	PK-RiMaV 2019: Pension Funds Risk Management Regulation 2019
BGBI: Federal Legal Gazette (Bundesgesetzblatt)	ESRS: European Sustainability Reporting Standards	Rec.: Recital
BMF: Federal Ministry of Finance	EU: European Union	SDGs: Sustainable Development Goals
BMK: Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology	EUCRA: European Climate Risk Assessment	SFDR: Sustainable Finance Disclosure Regulation, Regulation (EU) 2019/2088 on sustainability-related disclosures in the financial services sector
BMSGV: Occupational Employee and Self-Employed Pension Schemes Act	Fig.: Figure	SME: small and medium-sized enterprises
BörseG 2018: Stock Exchange Act 2018 (BörseG 2018; Börsengesetz 2018)	FMA: Austrian Financial Market Authority	Solvency II: Solvency II, Directive 2009/138/EC
BWG: Austrian Banking Act (BWG; Bankwesengesetz)	FMABG: Financial Market Authority Act	SREP: Supervisory Review and Examination Process
CCP: Central counterparty	FSB: Financial Stability Board	SSM: Single Supervisory Mechanism
CDR: Commission Delegated Regulation	GDP: Gross domestic product	Taxonomy Regulation: Taxonomy Regulation (EU) 2020/852 on the establishment of a framework to facilitate sustainable investment
CRD: Capital Requirements Directive, Directive 2013/36/EU	GFA: Green Finance Alliance	TNFD: Taskforce on Nature-related Financial Disclosures
CRR: Capital Requirements Regulation, Regulation (EU) No 575/2013	GHG: Greenhouse Gas	UCITS: Undertakings for Collective Investments in Transferable Securities
CSDDD: Corporate Sustainability Due Diligence Directive, Directive (EU) 2024/1760	ICAAP: Internal Capital Adequacy Assessment Process	UCITS D: Directive 2009/65/EC on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investments in transferable securities
CSDR: Central Securities Depositories Regulation, Regulation (EU) No 909/2014	IDD: Insurance Distribution Directive	UGB: Austrian Commercial Code (UGB; Unternehmensgesetzbuch)
CSRD: Corporate Sustainability Reporting Directive, Directive (EU) 2022/2464	ILO: International Labour Organization	VAG 2016: Insurance Supervision Act 2016 (VAG 2016; Versicherungsaufsichtsgesetz 2016)
EBA: European Banking Authority	InvFG 2011: Investment Funds Act 2011	VU-KAV: Insurance Undertakings Investment Regulation (VU-KAV; Versicherungsunternehmen Kapitalanlageverordnung)
EC: European Commission	IPBES: Intergovernmental Platform on Biodiversity and Ecosystem Services	WAG 2018: Securities Supervision Act 2018 (WAG 2018; Wertpapieraufsichtsgesetz 2018)
ECB: European Central Bank	IPCC: Intergovernmental Panel on Climate Change	ZaDiG 2018: Payment Services Act 2018 (ZaDiG; Zahlungsdienstegesetz)
EEA: European Environment Agency	IR: Implementing Regulation	
E-GeldG 2010: E-Money Act 2010 (E-Geldgesetz 2010)	KAG: Investment fund management company	
	KPIs/KRIs: Key Performance Indicators/Key Risk Indicators	
	MiFID II: Directive 2014/65/EU on markets in financial instruments.	
	NFRD: Non-Financial Reporting Directive	
	NGFS: Network for Greening the Financial System	

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1 INTRODUCTION

The increasing impacts of climate change and the increasingly acute biodiversity crisis – two massive challenges that are intrinsically linked with one another and which affect one another – pose existential risks to the economy and society that all financial sectors, and therefore also entities supervised by the FMA are unable to avoid. In addition, risks emanating from the social and governance areas may also have a negative impact on companies. So called sustainability risks therefore include environmental, social and governance (ESG) risks, that have increasingly entered the focus of the public, the financial market, and supervisory authorities in recent years.

The FMA Guide for Managing Sustainability Risks consists of six chapters and an annex. The introduction in **Chapter 1** identifies its target audience as well as the framework conditions that apply. **Chapter 2** defines the terms used and **Chapter 3** focuses on legal bases. The following three chapters address sustainability risks in risk management (**Chapter 4**), strategy and governance (**Chapter 5**) and transparency obligations (**Chapter 6**). The Annex describes potential metrics, methodologies and tools for addressing sustainability risks.

This guide is not a Regulation. It is intended to provide supervised entities with know-how and to promote the development of a common understanding. No rights and obligations extending over and above the provisions of the law can be derived from this guide.

1.1 TARGET AUDIENCE

The FMA is aware of the increasing sustainability risks and is of the opinion, due to the increased risk situation, that appropriately robust risk management arrangements are needed and should be adequately integrated into the regular risk management processes of supervised entities. The purpose of this guide is to assist financial market participants in dealing with sustainability risks and to provide an overview of definitions, requirements and arrangements. Information in terms of practical examples, methodologies and tools are also intended to provide support for financial market participants (especially in the annex to this guide).

The cross-sectoral addressees of this guide are all entities supervised by the FMA¹, especially credit institutions², insurance undertakings, investment fund management companies, alternative investment fund managers, investment firms, pension companies (*Pensionskassen*), corporate provision companies and market infrastructures. Examples address the existing factual and legal idiosyncrasies of the respective sectors.³ The guide should be viewed as a national guidance tool, while operative supervisory activities are based on and operate exclusively in accordance with the relevant legal bases, examples of which are listed in Chapter 3.

This guide's general considerations should be viewed under the principle of proportionality, so that the size, internal organisation and the nature, scale and complexity of the activity or operations, as well as the risk structure of the respective supervised entity, which may vary significantly, can be taken into account when determining appropriate methodologies, systems and processes related to the management of sustainability risks. At the same time, it is also necessary to consider even supervised entities with a relatively low balance sheet size or assets under management might be exposed to significant sustainability risks and that increased risk management requirements should ultimately be applied.

This guide does not prevent supervised entities from setting higher standards and better methodologies to address sustainability risks.

Due to the importance and current dynamics of the topic, especially at European level, we have updated the existing version of the guide from 2020. The continuing dynamic regulatory environment may necessitate further updates in the future. Supervised entities are also recommended to stay abreast of relevant developments independently and react appropriately.

* Note: All online sources stated in the Guide were most recently accessed on 25.03.2025.

¹ cf. Article 2 FMABG, which defines the material legal acts allocated to the FMA to enforce.

² On the basis of Regulation (EU) No. 2013/1024 (SSM-R) the European Central Bank (ECB) took over supervision of all banks in the Euro area on 4 November 2014. Significant credit institutions as defined in Article 6 (4) SSM-R are therefore subject to direct supervision by the ECB in relation to the areas of responsibility listed in Article 4 (1) SSM-R within the scope of the Single Supervisory Mechanism (SSM). In particular, this provision cites ensuring compliance with the requirements on credit institutions to have in place robust governance arrangements, including the fit and proper requirements for the persons responsible for the management of credit institutions, risk management processes, internal control mechanisms, remuneration policies and practices and effective internal capital adequacy assessment processes. In summary, this Guide is therefore addressed to supervised credit institutions, provided they are subject to direct supervision by the FMA. This also covers non-CRR credit institutions

³ Since the CSRD entered into force the requirements for the non-financial statement no longer only address public interest entities (PIEs) pursuant to Articles 243b and 267a UGB in conjunction with Article 19a or Article 29a of Directive 2013/34/EU and which meet the criterion on the reporting dates of financial statements of employing more than 500 employees annually on average (Article 221 para. 6 UGB), but in the future will also apply to all large entities irrespective of whether they are exchange-listed as well as exchange-listed small and medium enterprises; micro enterprises remain exempt. Entities that are supervised by the FMA are the principal addressees of this FMA Guide, although it may also be applied by other entities.

1.2 PREVAILING CIRCUMSTANCES

1.2.1 INTERNATIONAL REQUIREMENTS

Some steps have been taken at international level in recent years to address the twin crisis – caused by climate change and biodiversity/ecosystem loss. The Paris Agreement, which was ratified by Austria⁴, stipulates – in addition to limiting global temperature increase to well below 2°C and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels – that financial flows should be consistent with a pathway towards a low-CO₂⁵ and climate change-resilient development.⁶ From a scientific point of view, limiting the global temperature increase to 1.5°C is considered necessary to avert severe economic, social and environmental impacts, and especially to reduce the likelihood of extreme weather events and reaching or exceeding tipping points,⁷ the European Climate Law⁸ was therefore adopted in June 2021. Its objective is to achieve climate neutrality in the EU by 2050 at the latest and thereafter to achieve negative emissions.⁹

To achieve this goal, the EU sets binding (intermediate) climate targets. The aim is to reduce net greenhouse gas emissions within the Union by at least 55 % compared to 1990 levels¹⁰ by 2030. The European Commission states that a significant investment gap needs to be filled to achieve these objectives. For example, in 2020 the European Commission estimated the need to increase energy-related investments between 2021–2030 by an additional EUR 350 billion per year compared to the period 2011–2020.¹¹ In February 2024, in accordance with Article 4 (6) of the European Climate Law, the European Commission also presented a Union climate target for 2040 that recommends a 90 % reduction in net greenhouse gas emissions within the Union.¹² The European Commission's impact

⁴ Federal Law Gazette III No. 197/2016 as amended in Federal Law Gazette III No. 124/2024.

⁵ The term CO₂ is used in this Guide to include CO₂ equivalents. All greenhouse gases covered in the Kyoto Protocol are therefore covered: carbon dioxide (CO₂, which serves as a benchmark), methane (CH₄), nitrous oxide (laughing gas, N₂O) and the group of fluorinated gases. The emission of greenhouse gases is weighted based on their greenhouse gas potential and is expressed as a CO₂ equivalent. A full list of all gases, including all fluorinated gases (F-gases) may be found in Annex III in United Nations, *Framework Convention on Climate Change* (2012) FCCC/CP/2011/9/Add.2, Further background information and sector-specific figures from the Austrian Greenhouse Gas Inventory can be found in Umweltbundesamt, *Klimaschutzbericht 2019* (2019).

⁶ See Article 2(1)(c) of the Paris Agreement on climate change.

⁷ Cf. Intergovernmental Panel on Climate Change (IPCC), *Special Report - Global Warming of 1.5°C* (2018), p. 15. Tipping points are thresholds, which once exceeded mean that certain consequences can no longer be avoided, even if temperatures are subsequently reduced again.

⁸ Regulation (EU) 2021/1119 establishing the framework for achieving climate neutrality and amending Regulations (EC) 2009/401 and (EU) 2018/1999 ("European Climate Law").

⁹ See Article 2 (1) of the European Climate Law.

¹⁰ See Article 4 (1) of the European Climate Law.

¹¹ See EC Communication, *Stepping up Europe's 2030 climate ambition*, COM(2020) 562 final.

¹² See EC Communication "Securing our future – Europe's 2040 climate target and the way to climate neutrality by 2050 for a sustainable, just and prosperous society", COM(2024) 63 final, p. 6 et seq.

assessment has shown that the cost of extreme weather events will reduce EU's GDP by 7 % by 2100. The cumulative additional GDP costs of a pathway leading to an aggravation of global warming, compared to the cost of a pathway compatible with the 1.5°C objective, could amount to EUR 2.4 trillion¹³ between 2031 and 2050.

Since methane (CH₄) along with CO₂, is also a significant driver of climate change,¹⁴ the EU co-founded the *Global Methane Pledge* in 2021.¹⁵ Its aim is to reduce global methane emissions by at least 30 % compared to 2020 levels by 2030, which could avoid warming by over 0.2°C by 2050. In this context, the European Commission presented a strategy to reduce methane emissions.¹⁶ As a result, a regulation to reduce methane emissions was adopted in June 2024, which entered into force in August 2024.¹⁷ Agriculture is the largest source of man-made methane emissions, accounting for around one-quarter of emissions, closely followed by the energy sector, which includes emissions from coal, oil, natural gas and biofuels.¹⁸

In addition, the Biodiversity Framework adopted under the United Nations Biodiversity Convention in 2022 – the *Kunming-Montreal Global Biodiversity Framework* – prescribes providing incentives for enterprises and financial institutions to monitor and disclose biodiversity risks and impacts associated with their operations, value creation chains and portfolios, to reduce risks associated with reductions in biodiversity for enterprises and financial institutions, and to promote measures for ensuring sustainable production patterns. In addition, the Biodiversity Framework stipulates the necessity to gradually align all relevant public and private activities, tax and financial flows with the framework's objectives and requirements.¹⁹ These include a target of effectively protecting at least 30 % of the world's land, sea and inland waters and restoring 30 % of degraded terrestrial and marine ecosystems by 2030.²⁰

¹³ See EC Communication, *COM(2024) 63 final*, p. 10 et seq.

¹⁴ Methane is responsible for about 30 % of the global temperature increase since the industrial revolution, see International Energy Agency, *Global Methane Tracker 2022*. Methane is the second most important greenhouse gas (2022: > 8.9 %), see Umweltbundesamt, *Austria's National Inventory Report 2024* (2024), p. 14.

¹⁵ See <https://www.globalmethanepledge.org/> for more information.

¹⁶ Communication from the European Commission, *EU strategy to reduce methane emissions*, *COM(2020) 663 final*.

¹⁷ Regulation (EU) 2024/1787 on methane emissions reduction in the energy sector and amending Regulation (EU) 2019/942.

¹⁸ International Energy Agency, *Methane Tracker 2021: Methane and climate change*.

¹⁹ Convention on Biological Diversity, *Kunming-Montreal Global Biodiversity Framework* (decision 15/14), *CBD/COP/15/L.25* (2022), Targets 14 and 15.

²⁰ Convention on Biological Diversity, *Kunming-Montreal Global Biodiversity Framework* (decision 15/14), *CBD/COP/15/L.25*, Targets 2 and 3.

Austria's 'Biodiversity Strategy Austria 2030+' also includes numerous measures and targets, e.g. in terms of reducing land take-up and fragmentation, as well as the development of public and private financial products for economic activities promoting biodiversity.²¹ At European level, the Nature Restoration Regulation was adopted in June 2024 as a central element of the EU's Biodiversity Strategy,²² combining an overarching restoration target for the long-term recovery of nature in the EU's land and sea areas with binding restoration targets for specific habitats and species, such as insect pollination, agricultural ecosystems, or urban ecosystems. By 2030, these measures should cover at least 20 % of the EU's land and sea areas, and ultimately all ecosystems in need of restoration by 2050. The Commission's Impact Assessment on the Nature Restoration Regulation estimated the benefits of restoring peatlands, marshes, forests, heaths and bushes, grasslands, rivers, lakes and floodplains and coastal wetlands in the EU at EUR 1.860 billion by 2050, while the cost of restoration was estimated at the comparatively low amount of EUR 154 billion. Annual investment needs to meet these analysed target options by 2050 are stated as being at least EUR 7.4 billion for the EU.²³

These diverse international and national endeavours show the weight given to efforts on climate change mitigation, adaptation (climate resilience) and addressing biodiversity and ecosystem loss at international and European level. It also highlights the dimensions of costs and investment needs. It is expected that policy-regulatory measures will continue to address the challenges that significantly impact all social and economic sectors (including the financial sector).

1.2.2 CURRENT DIMENSION OF SUSTAINABILITY RISKS

Sustainability risk levels have never been so apparent as in 2024. Environmental risks continue to dominate the risk landscape of global risks in the World Economic Forum's *Global Risks Report 2024*²⁴ over time horizons of one, two and ten years. Among other things, the report refers to recent research findings that indicate that the threshold for triggering long-term, potentially irreversible and self-sustaining changes is likely to be exceeded at or even before global warming reaches 1.5°C, currently expected to occur in the early 2030s. According to the report, many national economies are largely unprepared for such non-linear impacts. The updated concept of planetary boundaries,

²¹ Cf. BKA, *Biodiversity Strategy Austria 2030+* (2022).

²² Regulation (EU) 2024/1991 on nature restoration and amending Regulation (EU) 2022/869; Communication from the European Commission, *EU Biodiversity Strategy for 2030*, COM(2020) 380 final.

²³ EC, *Impact assessment study to support the development of legally binding EU nature restoration targets: Final report (2023)*, p. 10.

²⁴ World Economic Forum, *The Global Risks Report 2024* (2024).

which shows the boundaries of the Earth's 'safe operational space' and the increased risk of large-scale abrupt or irreversible environmental changes (known as tipping points) when leaving this safe operational space, presents that six of the nine planetary boundaries have already been transgressed. This applies to climate change, overloading with novel entities, changes in biogeochemical flows (nitrogen and phosphorus cycles), changes in freshwater systems, land system change and biosphere integrity (see Figure 1 below).

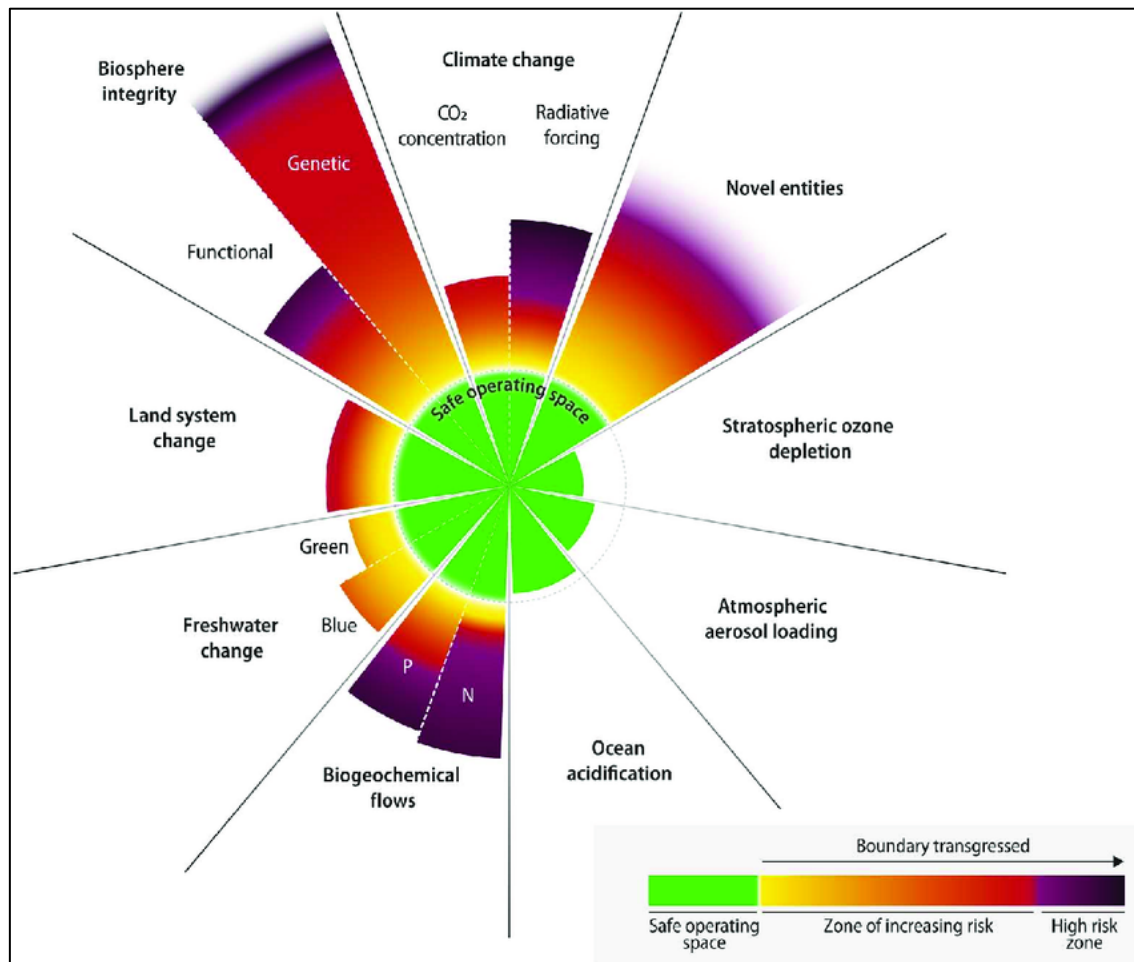


Figure 1: Current status of the control variables for all nine planetary boundaries²⁵

The *European Environment Agency* (EEA) published its *European Climate Risk Assessment* (EUCRA) in 2024, which shows that 2023 was the warmest year on record. The average global temperature during the 12-month period between February 2023 and January 2024 surpassed pre-industrial levels by 1.5°C.²⁶ 2023, together with 2018, was also Austria's warmest year on record in over 250

²⁵ Richardson et al., *Earth beyond six of nine planetary boundaries* (2023), *Sci. Adv.* 9, eadh2458.

²⁶ EEA, *European climate risk assessment – Executive summary* (2024), [EEA Report 01/2024](#).

years since records began.²⁷ The average annual temperature in lowland was 1.3°C higher than for the 1991-2020 reference period, and 2.5°C higher than the mean temperature for the period 1961-1990.²⁸ The Copernicus Climate Change Service (C3S) has confirmed that 2024 will be the warmest year on record, as well as the first calendar year in which the global average temperature has been 1.5°C above pre-industrial levels.²⁹ 2024 was also by far the warmest year in Austria since records began, and when compared to the 1961-1990 climate period, which was not yet so strongly affected by global warming, the temperatures were 3.1°C higher than average in the lowland and 3.0°C higher in the mountains.³⁰ Climate change is occurring at a significantly quicker rate in Austria than the global mean.³¹ EUCRA shows Europe to be the fastest warming continent in the world, with several climate risks having already reached critical levels.³² Climate change risk assessments (such as EUCRA) are observing closely whether the rapid warming currently being seen is due to temporary fluctuations caused by cyclical weather phenomena (e.g. El Niño). If necessary, climate change models applied would need to be adapted should this not just be a temporary temperature variation.³³ In its communication on climate risk management in March 2023, the European Commission refers to different temperature scenarios to which Europe could be exposed. Even in the “best-case scenario”, Europe is expected to get 3°C warmer – resulting in an exponential increase in heatwaves or other extreme weather events (see Figure 2 below).³⁴

²⁷ See Climate Change Centre Austria, *Klimastatusbericht 2023* (in German only); 2023 was the warmest year since records started, with an average country-wide mean temperature of +8.2°C – a deviation of +2.5°C compared to the mean for 1961-1990.

²⁸ See <https://infothek.bmimi.gv.at/2023-waermstes-jahr-der-messgeschichte/> (in German only); in the mountains it was 1°C above the mean for 1991-2020 and 2.2°C above the mean for 1961-1990.

²⁹ See <https://climate.copernicus.eu/copernicus-2024-first-year-exceed-15degc-above-pre-industrial-level>.

³⁰ See <https://infothek.bmimi.gv.at/2024-waermstes-jahr-in-oesterreich/> (in German only).

³¹ Climate Change Centre Austria, *Klimastatusbericht 2023* (in German only), p. 15 et seq.

³² EEA, *EEA Report 01/2024*.

³³ See Trust et al., *Climate Scorpion – the sting is in the tail Introducing planetary solvency* (2024), p. 15.

³⁴ See EC Communication, *Managing Climate Risks – Protecting People and Prosperity*, *COM(2024) 91 final*, p. 1.

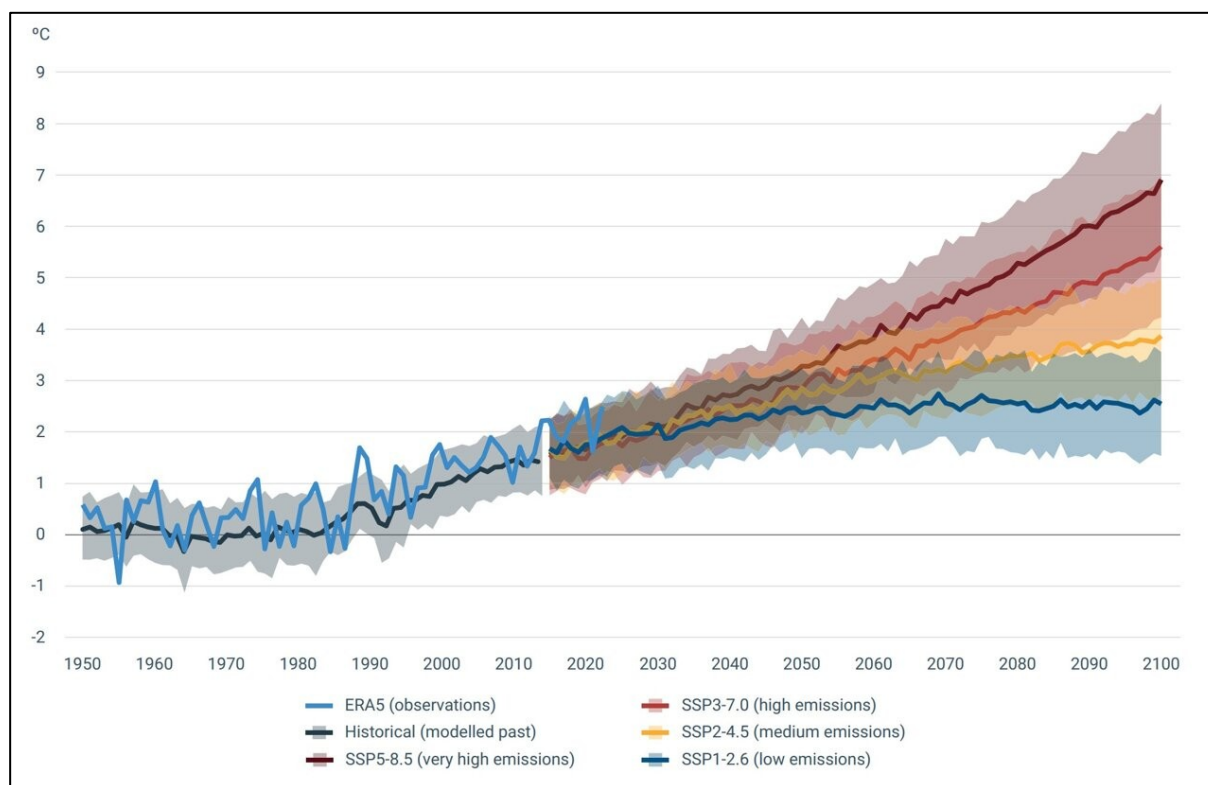


Figure 2: Temperature projections for Europe under four standard global climate scenarios³⁵

The scenarios are even more impressive when the findings of the Sixth Assessment Report of the *Intergovernmental Panel on Climate Change* (IPCC) are applied. It has been found that the risks and projected negative impacts, as well as associated losses and damages, are increasing erratically with every stage of global warming. As a result, climate and non-climatic risks are increasingly interacting, leading to compound and cascading risks that are more complex and difficult to manage.³⁶ In addition, climate change is a risk multiplier that can further exacerbate existing risks and crises. Climate risks can spread in a cascade-like manner from one system or region to another, including to Europe, in turn leading to system-wide challenges.³⁷

With regard to biodiversity and ecosystems, reports of recent years have also shown increasing risks. For example, the Global Assessment Report on Biodiversity and Ecosystem Services published in 2019 by the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) already pointed to a huge loss in terms of global diversity, with rapid declines in most ecosystem and biodiversity indicators. Climate change was identified as a direct driver of biodiversity loss, which

³⁵ See EC Communication, *COM(2024) 91 final*, p. 2.

³⁶ See IPCC, *Summary for Policymakers – Climate Change 2023: Synthesis Report* (2023), B.2.

³⁷ EEA, *EEA Report 01/2024*.

increasingly exacerbates the impact of other drivers on nature and human well-being.³⁸ Austria's 'Biodiversity Strategy Austria 2030+' shows that 27 % of all species globally are assessed as being at risk. The *Living Planet Index*, which showcases the development of mammals, birds, fish, reptiles and amphibians worldwide, shows an average decline of 68 % of the populations surveyed compared to 1970 and that the global forest area currently only covers around 68 % of the estimated pre-industrial level.³⁹ The EEA's 2020 State of Nature report finds that biodiversity in the EU continues to decline; the trend is worsening due to changes in land- and sea-use, overexploitation and unsustainable management practices, as well as changes in water cycle, pollution, invasive alien species and climate change.⁴⁰

1.2.3 IMPACT ON THE ECONOMY AND THE FINANCIAL MARKET

As the EEA report (EUCRA) shows, the European economy and the financial market face multiple climate-related risks and the European financial system is significantly threatened by the effects of climate change. For example, severe sectoral and regional risks could trigger a systemic financial shock.⁴¹ Moreover, according to the report, existing assessments and stress tests provide an initial assessment of risks for key financial actors, but probably underestimate the cascading and increasing risks of climate change both, in the EU and beyond, as well as the risks associated with rare extreme events. A joint ECB-ESRB report published in 2023 highlights that banks will play a key role in addressing and reducing climate-related financial stability risks, where lending is disproportionately strongly focussed on enterprises and households with high climate risk. In the event of a significant shock, banks' vulnerability to combined transition and credit risks through their loan portfolios could triple.⁴² In addition, several systemic risk channels could result in the upstreaming of apparently far-off losses or increased concentrated losses. However, as past data does not reflect this, it would not be reliably captured by traditional back-testing.⁴³

European real estate and insurance markets are also exposed to significant risks from climate change (e.g. regarding further increases in insurance premiums, widening of the existing insurance

³⁸ See IPBES, *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (2019), A.4 and B.2.

³⁹ BKA, *Biodiversity Strategy Austria 2030+* (2022), p. 6.

⁴⁰ EEA, *State of nature in the EU - Results from reporting under the nature directives 2013-2018*, *EEA Report 10/2020*.

⁴¹ EEA, *EEA Report 01/2024*, p. 26 et seq.

⁴² ECB/ESRB, *Towards macroprudential frameworks for managing climate risk* (2023), p. 4.

⁴³ EEA, *EEA Report 10/2020*, p. 5.

protection gap and low-income households' and other disadvantaged groups' increased vulnerability). In addition, financial institutions are thereby exposed to an increased probability of default and loss of assets.⁴⁴ According to an ECB/ESRB report, the insurance protection gap is remarkable in Euro area countries, as only 25 % of the average climate losses are currently insured (and in some countries up to 95 % of climate losses remain uninsured), with the coverage gap likely to widen further as climate shocks increase.⁴⁵ In the banking sector, risks related to a lack of insurance coverage against climate-related disasters could in turn lead to higher capital needs for existing loans and reduced credit supply.⁴⁶ In the face of climate change, insurability and affordability of insurance coverage for natural disasters may become a growing problem. It is therefore essential to understand and identify insurance protection gaps. EIOPA has developed a *Dashboard on Insurance Protection Gap*⁴⁷ to monitor risks related to insurance gaps, identify risk regions and raise awareness of this issue.

Climate-related disruptions can also be associated with shocks in the supply chain, amplified by other factors, including geopolitical tensions, with downstream impacts on food security, access to medicines and business operations. The extent of risk is uncertain due to a lack of stress tests and insufficient monitoring of supply chain vulnerability to current and future climate risks.⁴⁸

In addition, even if the risks associated with heat and water stress appear to be regionally limited, climate shocks could reinforce themselves and each other and require an abrupt revaluation of assets in financial markets, which may also be caused by a change in general social sentiment. Traditional financial externalities in the event of a rapid change in financial market sentiment could amplify climate shocks if climate risks become more visible. Traditional counterparty risk could also be a particularly strong source of risk spreading in the financial system as a result of credit, market and liquidity linkages between financial undertakings.⁴⁹ In general, knowledge gaps still exist regarding the dual materiality of climate risks, i.e. the impact of climate change on businesses and the financial sector on the one hand, as well as, inter alia, the retroactivity of investors' expectations

⁴⁴ EEA, *EEA Report 10/2020*, p. 28.

⁴⁵ ECB/ESRB, *Towards macroprudential frameworks for managing climate risk* (2023), p. 5.

⁴⁶ ECB/EIOPA, *Policy options to reduce the climate insurance protection gap: Discussion paper* (2023), p. 4.

⁴⁷ See EIOPA, *Dashboard on insurance protection gap for natural catastrophes*, and ECB/EIOPA, *Policy options to reduce the climate insurance protection gap: Discussion paper*.

⁴⁸ EEA, *EEA Report 10/2020*, p. 28.

⁴⁹ ECB/ESRB, *Towards macroprudential frameworks for managing climate risk*, p. 5.

regarding climate change and climate policy on the risk assessment, loan origination, investment decisions and climate impacts on the other.⁵⁰

The impacts of climate change are diverse and relevant for many Austrian regions and sectors, with particular reference to the interdependent link between climate change and ecosystem degradation/biodiversity loss (see Table 1 below). Changing climatic conditions and ecosystem changes give rise to different sources of risk, but these may differ by sector, region, or in temporal terms. Depending on the climate zone, topography and geological zone, Austria's mountainous areas, continental lowland regions and cities may be affected by different effects of climate change. Austria's strategy for adapting to the consequences of climate change⁵¹ contains detailed information about sector-specific effects and numerous adaptation measures, with the second progress report on climate change adaptation showing the intensification of activities in this area across Austria.⁵² In 2024, Austria's updated strategy for adaptation to climate change was published,⁵³ which refers, inter alia, to the necessity of avoiding maladaptation, as well as the implementation of the strategy by gradually taking into account the government's *Green Budgeting* methodology under Article 2 (1) (c) of the Paris Agreement.⁵⁴ Austria's '*Biodiversity Strategy Austria 2030+*' also contains numerous measures and targets for protecting and restoring biodiversity, as well as information on sector-specific impacts.⁵⁵

⁵⁰ Gourdel et al., *The double materiality of climate physical and transition risks in the euro area (2024)*, *Journal of Financial Stability*, Vol. 71 2024, 101233.

⁵¹ See in general <https://www.bmluk.gv.at/en/topics/climate-environment/climate/adaptation-to-climate-change/austrian-strategy-adaptation.html>.

⁵² See BMK, *Second Progress Report on Austria's Climate Adaptation Strategy (2021)* - available in German only.

⁵³ See BMK, *The Austrian Strategy for Adaptation to Climate Change (2024)*.

⁵⁴ See BMF, *Green Budgeting Method of the Federal Government*.

⁵⁵ See BMK, *Biodiversity Strategy Austria 2030+ (2022)*.

<i>Consequences of Climate Change in Austria</i>	<i>Examples of Affected Sectors</i>
Increase in average temperature, increase in heat extremes	■ Agriculture (variability of crop location, crop heat stress, growing water demand, increased heat problems in livestock farming, spread of harmful organisms, food safety in changing climatic conditions) ■ Forestry and timber industry (increasing disturbances/disasters and more damaged timber also as a result of windthrow, decreasing economic value of woodland due to deteriorating wood quality/changes in tree species) ■ Water management (increased water temperatures, potential reduction of available groundwater resources in Austria by around 23 %⁵⁶ by 2050) ■ Urban tourism ■ Construction and housing (increased cooling demand during the summer months) ■ Transport and utility infrastructure (thermal comfort) ■ All sectors of the economy (higher energy demand for cooling, increased heat stress for workers) ■ Social and health sectors (higher exposure of vulnerable groups to heat waves, spread of allergenic species, increased pollen exposure due to extended growing season, vector-borne diseases)
Reduced precipitation and more frequent droughts	■ Agriculture (decrease in harvest, loss of harvest, drought stress) ■ Forestry and wood-based industries (higher risk of forest fire, change in wood quality) ■ Water management (decrease in groundwater levels, problems in the drainage system or water treatment plants) ■ Energy sector (reduced hydroelectric power potential, lack of cooling water) ■ Shipping (lower water levels) ■ Industry (Lack of water for cooling) ■ Tourism (waters, wetland habitats, bathing tourism)
Increased risk of flooding, torrential rainfall, wet snow, thunderstorms and hail⁵⁷	■ Regionally concentrated endangering of assets ■ Agriculture (loss of harvest, decline in harvest, insurability) ■ Forest and wood-based industries (snow damage, windthrow) ■ Transport, energy and operational infrastructure/critical infrastructure ■ Settlements (public facilities and residential buildings, commercial real estate, utility and waste disposal services) ■ Disaster management
Reduction of the extent and volume of glaciers⁵⁸	■ Winter/summer tourism ■ Water management (floods, glacial lake outburst) ■ Civil Protection (gravitational mass movement)

⁵⁶ See BMK, *Second Progress Report on Austria's Climate Adaptation Strategy*, p. 18 - available in German only.

⁵⁷ For every 1°C increase in temperature, an increase of around 10 % in the intensity of precipitation is to be expected, cf. Umweltbundesamt, *13. Umweltkontrollbericht – Umweltsituation in Österreich* (2022), p. 24 (in German only).

⁵⁸ In addition, the reduction of the extent of glaciers also contributes towards warming as a result of the reduction in size of the reflection surface.

Higher risk of rockfalls, soil erosion and landslides	■ Settlements and infrastructures in the Alpine region and the pre-Alpine lowland ■ Forest and timber industry ■ Summer tourism in Alpine regions ■ Protection against natural hazards ■ Transport economy/critical infrastructure
Rise in the snowline and shortening of the duration of closed snow coverage	■ Winter tourism ■ Water industry
Greater risks of interruption of supply and value creation chains	■ All industrial sectors ■ Agriculture and forestry ■ Transport ■ Trade (availability of goods) ■ Guaranteed food supply for the population ■ Social and health sectors (availability of medications)
Higher risk of species extinction/loss of natural capital, biodiversity and ecosystem services	■ Agriculture and forestry ■ Food supply for the population ■ Tourism/recreation ■ Social and health sectors (pharmacology/bases for medicines/research, physical and mental health) ■ Civil protection (protective forest, retention areas, soil erosion, etc.) ■ Air quality ■ Intangible value of intact natural and cultural landscape ■ Feedback loop to climate change (e.g. loss of carbon sinks)

Table 1: Consequences of Climate Change in Austria

The consequences of climate change are already causing significant environmental, social and economic damage in Austria, in particular as a result of, for example, more frequent and severe weather and extreme events, temperature rises, changes in precipitation patterns and their effects. It is therefore essential to include relevant climate risks and other sustainability risks in undertakings' risk management. However, the irregular or unpredictable nature of damage occurring caused by climate change also hampers the risk management of all stakeholders.

Practical example 1: Damage caused by flooding between 14 and 21 September 2024 in Austria

According to a Research Brief by Supply Chain Intelligence Institute Austria (ASCI), Austrian Institute of Economic Research (WIFO) and Complexity Science Hub (CSH), the damage caused by flooding between 14 and 21 September 2024 in Austria amounts to approximately EUR 1.3 billion. This estimate covers manufacturing downtime as well as inventory damage at companies directly affected by the catastrophic flooding, and disruptions for companies indirectly affected through supply chain effects (estimates range between EUR 300 and 900 million, so the median of EUR 600 million is assumed), damage sustained by the agriculture sector (around EUR 15 million), and private households (around EUR 600 to 700 million based on estimates by the Austrian Insurance Association (VVO)); infrastructure damage was excluded due to the lack of available data.⁵⁹

It is therefore essential, in principle, to increase understanding of sustainability risks and their management, and also to increase the opportunities and chances the transition to *Net Zero*⁶⁰ presents. This ultimately also applies to the entities supervised by the FMA. The FMA's general expectation is therefore that sustainability risks with regard to environment, society and governance are adequately addressed.

⁵⁹ Friesenbichler et al., A Rapid Assessment of the Economic Impact of the Central European Flood 2024 on Austria, [WIFO Research Briefs 14/2024](#).

⁶⁰ This corresponds to a state under which greenhouse gas emissions caused by human activities and the reduction of such gases are in a state of equilibrium over a period of time.

2 TERMINOLOGY⁶¹

2.1 SUSTAINABILITY

The United Nations has defined 17 Sustainable Development Goals (SDGs) within its Resolution on “*Transforming our world: the 2030 Agenda for Sustainable Development*”.⁶² The Republic of Austria as a Member State of the United Nations is obliged to implement these sustainable development goals.⁶³ Sustainability is ultimately interpreted under international law as fulfilling the 17 SDGs.

In conjunction with the relevant regulatory framework for sustainability-related financial regulation, the FMA therefore understands ‘sustainability’ not only in terms the environment and climate, but in terms of the environment, social and governance (ESG) sectors.

2.2 SUSTAINABILITY FACTORS

According to Article 2 (24) of the Disclosure Regulation, ‘sustainability factors’ mean environmental, social and employee matters, respect for human rights, and combating corruption and bribery. The following table shows a (merely demonstrative) presentation of sustainability factors for better comprehensibility.

⁶¹ It should be noted that the terms used in this Guide are intended to contribute to a common understanding, but do not permit then to be classified comparably. Overlaps may exist for some terms in certain areas or may be super- or subordinate to one another.

⁶² Cf. United Nations, [Sustainable Development Goals](#).

⁶³ Cf. Federal Chancellery, [Sustainable Development – 2030 Agenda for Sustainable Development](#).

<i>Environment</i>	<i>Social / Social and Employee Issues</i>	<i>Good corporate governance/ Governance</i>
■ Climate protection ■ Adjustment to climate change ■ Protection of biodiversity ■ Sustainable use and protection of water and maritime resources ■ Transition to a circular economy, the avoidance of waste, (thermal) waste treatment and recycling ■ Avoidance of hazardous (incl. radioactive) waste ■ Avoidance and reduction of pollution (incl. air pollution) or destruction of the environment ■ Protection of healthy ecosystems ■ Sustainable land use ■ Plant-based nutrition and sustainable livestock farming	■ Observance of recognised labour law standards (e.g. no child labour, forced labour, no discrimination)⁶⁴ ■ Compliance with health and safety requirements for employees ■ Appropriate remuneration, fair working conditions, diversity, and training and development opportunities ■ Trade union rights and freedom of assembly (freedom of association) ■ Guaranteeing adequate product safety, including health protection ■ Projections for combating inequality or for social coherence / social integration of for the benefit of financially or socially disadvantaged groups of the population	■ Tax honesty ■ Measures for preventing corruption ■ Sustainability management by the management body ■ Remuneration dependent on sustainable business activities ■ Facilitation of whistle blowing ■ Guaranteeing workers' rights⁶⁵ ■ Data protection guarantees ■ Disclosure of information ■ Transparency of information towards consumers ■ Installation of company-owned quality management systems and ombudsperson's office for customers': internal complaints

Table 2: Presentation of sustainability factors

2.3 SUSTAINABILITY RISKS

It should be noted that, depending on the underlying sectoral substantive law, different definitions of 'sustainability risks' or 'ESG risks' are used, which relate in substance to the same facts. Sustainability risks within the meaning of this guide follow the cross-sectoral definition in Article 2 (22) SFDR and are understood as environmental, social or governance events or conditions, the occurrence of which could have an actual or potential material adverse impact on the value of assets or on the assets, financial performance and reputation of an undertaking. Article 4 (1) (52d) CRR III uses a similar wording to define environmental, social and governance risks or ESG risks as the risks of any negative financial impact on an institution arising from the current or future impact of environmental, social or governance factors, i.e. ESG factors, on the counterparties or invested assets of that institution. The materiality of sustainability risks may vary significantly by sector, size, internal organisation structure and the nature, scope and complexity of the activity or operations,

⁶⁴ Cf. e.g. ILO, *International Labour Standards*. In Austria, this means, in particular, compliance with the Workers' Protection Act and relevant regulations issued in relation to it.

⁶⁵ See also the category "Social / Social and Employee Issues".

as well as the risk structure of the respective supervised entity. To make this guide easier to read, it mainly uses the term ‘sustainability risks’, whereby ‘sustainability factors’ according to Chapter 2.2 may be understood as environmental, social or governance events or conditions. CRR III also defines the terms ‘environmental risk’, ‘physical risk’, ‘transition risk’, ‘social risk’ and ‘governance risk’,⁶⁶ which are addressed in substantive terms in the following sections.

In general, it is noted that the concept of “sustainability risks” has to be considered in the concept of double materiality. On the one hand, risks arising from sustainability factors should be considered that may have a negative impact on assets or undertakings (‘financial materiality’). On the other hand, impacts should also be considered that are caused by undertakings and which may negatively influence sustainability factors (‘societal or environmental materiality’). This guide primarily relates to the handling of risks that may have a negative effect on assets and undertakings. However, financial market participants adequately integrating such sustainability risks into their processes does not necessarily make them ‘sustainable’, have a ‘sustainable’ business model, or have a low impact on sustainability factors. On the other hand, “sustainable” investments⁶⁷ are not necessarily exposed to lower sustainability risks.

It is also necessary to state that performing well in relation to some sustainability factors does not mean that a company conducts business sustainability overall. A company’s social governance (e.g. positive consideration of employee rights, professional development, employment contracts, handling of trade union representation), in some cases, may even be at odds with ecological principles (e.g. ecological manufacturing processes, sparing use of materials). Similarly, trade-offs as well as co-benefits may exist within environmental factors such as adaptation and mitigation (protection) against climate risk. This is the case, for example, in the land use sector; for example, afforestation measures (such as monoculture planting) may negatively affect existing ecosystems, biodiversity and water balance within the region in question, or where land is used for forests or bioenergy plants, this may compete with foodstuff production. Biophysical mechanisms may result in regional climatic changes occurring (to some extent with a large spatial distance as a result of teleconnections).⁶⁸ It seems advisable to consider such reciprocal effects between sustainability factors in the risk assessment. More generally, risk management is likely to require increased

⁶⁶ Cf. Article 4(1)(52e) et seq. CRR III.

⁶⁷ See also the definition of ‘sustainable investments’ under Article 2(17) of the SFDR.

⁶⁸ IPBES-IPCCC Co-sponsored Workshop, *Biodiversity and Climate Change: Scientific outcome* (2021), p. 30 et seq; Table 3.1 on p. 35 of the report contains a comprehensive view about the impacts on biodiversity of selected global climate mitigation and adaptation practices.

attention to (global) socio-ecological complexity and interlinkages, cross-scale integration and feedback loops, and decision-making amidst uncertainty about biodiversity and climate challenges.⁶⁹

2.4 CLIMATE RISKS

Climate risks cover all risks arising due to climate change or which increase due to climate change.⁷⁰

It should be noted that the term ‘climate risk’ refers to weather-related or climate-related financial risks. Entities and their value creation chains (especially suppliers) may be directly or indirectly affected, whether through changing climate conditions and potential natural hazards (physical risks), regulatory standards in climate protection, or by technological developments and societal changes (transition risks) which may have reciprocal effects.

2.4.1 PHYSICAL RISKS

Physical risks from climate change result directly from the consequences of climate change e.g. an increase in global average temperature, more frequently occurring natural catastrophes and extreme weather events such as flooding, periods of extreme heat/drought, storms and hail. The primarily affected sectors in particular including agriculture and forestry, foodstuffs production, the (foodstuffs) transport sector, the food trade, the construction and real estate sector, the healthcare sector, tourism, the energy sector, the water sector as well as infrastructure. However, financial market participants may also be directly affected, e.g. through their office buildings, server locations or through write-down interests in affected entities in the real economy or in the insurance sector with regard to the *insurance protection gap* (see also chapter 1.2.3 above). It should also be noted that physical risks of climate change may also manifest themselves both acutely and suddenly, as well as chronically.

The physical risk potential for financial market participants depends on their respective exposure to assets and value chains affected by physical risks and on their vulnerability or capacities to adjust. Physical risks are considered as a reduced risk for the financial market in the short-term but may already bear significant risks (that may even endanger their continued existence) for individual supervised entities. Furthermore, physical risks are expected to increase in the medium- to long-

⁶⁹ IPBES-IPCCC Co-sponsored Workshop, *Biodiversity and Climate Change: Scientific outcome*, p. 129.

⁷⁰ Climate risks not only include risks that arise or are increase in the future due to climate change, but also those that have already constituted a risk in the past or currently constitute a risk in the present (current status).

term, unless effective climate protection measures are taken promptly. Furthermore, it is necessary to take measures to adapt to the quickly changing climate conditions. Even if we are successful in limiting temperature increase to well below 2°C, the inertia of the climate system will make it impossible to prevent or reverse certain effects of climate change.⁷¹ The earlier suitable climate protection measures are taken by entrepreneurs, the public sector and private households, then the lower the probability of realisation and extent of damage of physical risks, the lower the negative financial impact and the costs for adaptive measures will be.⁷²

From the outset, the handling of physical risks has constituted a typical business activity of (re)insurance undertakings. Due to climate change, however, the probability of realisation and the effects of such events change, and therefore past frequencies and previous amounts of damage alone no longer provide adequate indicators about the future risks for certain risks or industries. The more frequently such risks are correctly measured and evaluated, the higher the probability is, that the risk premiums will change. Since physical risks often occur in spatial correlation, a single source of physical risk can also give rise to a concentration risk for supervised entities that are active in a regionally concentrated manner, which should be taken into consideration.

2.4.2 TRANSITION RISKS

Transition risks is the term used for risks, that arise through the transition to a climate-neutral and resilient economy and society and which therefore may lead to a devaluation of assets or negative financial impacts, such as e.g. changes in political and legal conditions in the real economy (introduction of a CO₂ tax, requirements for the renovation of property, changes in construction codes and zoning, rules regarding the reliability of supply, different treatment of exposures with higher sustainability risks etc.), technological developments (e.g. renewable energies) as well as changes in consumer behaviour. Energy generation using fossil fuels as well as high-emissions sectors may be considered as the sectors that are primarily affected, whose business model is based on the cheap availability of fossil energy, or which have high process emissions (the cement, iron and steel industry). However, industries, whose products cause high emissions as also endangered (e.g. Production of cars with internal combustion engines). Other primarily affected sectors are the exploration for, production, refining and distribution of mineral oil products, the exploration for,

⁷¹ See IPCC, *Global Warming of 1.5 °C: Special Report* (2018).

⁷² The temporal dimension of this relationship should be taken into account here. Measures taken now will only be climate-effective in a few years' time, and only if actions taken change the global driving signal. Consequently, climate risks are expected to increase until that point, with possible increases of both an exponential, sometimes with disruptive jumps, and a linear nature.

production and distribution of natural gas, operating of airline companies, operating of road haulage companies, as well as the operating of haulage companies that are heavily dependent on transportation. In this regard, the risk of “stranded assets” must also be highlighted.⁷³ In addition, supervised entities may also be directly affected, e.g. through the impact of the EU Carbon Border Adjustment Mechanism⁷⁴ or by changing building energy efficiency requirements.

Practical example 2: Transition risks in the real estate sector by the EU Energy Performance of Buildings Directive

Several EU Directives are being amended as part of the EU’s ‘Fit for 55’⁷⁵ package. Among other, the European Energy Performance of Buildings Directive has also been amended. The objective is to improve the overall energy efficiency of buildings and to push further for using renewable energy to achieve climate neutrality in 2050. The Directive calls for a step-by-step improvement in energy efficiency in line with targets to be implemented by Member States by way of a national building renovation plan.

Based on the measures to be taken to comply with the Directive, financial impacts on properties with low energy efficiency may generally be assumed to be climate transition risks (due to renovation requirements and transparency of energy certificates). Affected financial market participants may include real estate funds, insurance undertakings, pension companies and credit institutions that hold real estate in their own portfolio, as well as credit institutions that grant mortgage-based loans.⁷⁶

The potential for risk from transition risks for financial market participants therefore depends on their exposure to high-emission and energy-intensive industries as well as industries with high emissions in the value creation chain.⁷⁷ Value creation in the financial sector itself is usually not particularly CO₂ intensive, however for example, the granting of loans to, the buying of securities in, or the insurance of, companies with business models that are damaging to the environment may cause significant transition risks for supervised entities. To permit such risks to be correctly mapped, it is necessary for the real economy to state its CO₂ emissions and to disclose suitable metrics. In

⁷³ In this case assets are concerned, the earning capacity of which or market value falls in an unexpectedly drastic way, in extreme cases until it is worthless. For example, a power station, that may no longer be operated due to changes in regulatory conditions such as energy efficiency criteria, or an oil field or gas field, the opening up or use of which is no longer profitable or no longer permissible.

⁷⁴ See also the BMF’s information on the [EU Carbon Border Adjustment Mechanism](#) (available in German only).

⁷⁵ See <https://www.consilium.europa.eu/en/policies/fit-for-55/>.

⁷⁶ See also Austrian Green Finance Alliance (GFA)’s [Real Estate Guide 2024](#), which provides further information about the EPBD and guidance for action for decarbonising real estate lending portfolios (in German only).

⁷⁷ It should be noted that in the transition period towards sustainable business that “reverse” transitions risks might also occur, e.g. short-term (competitive) disadvantages for the pioneers (e.g. reduced performance, investment in advance, being excluded from certain business relationships), which will however be overcome in the medium-to-long-term by the improved predisposition to risk.

such cases, both the total amount of annual CO₂ emissions as well as the CO₂ intensity form important metrics, to be able to conduct an appropriate risk assessment.⁷⁸

Time dynamics should also be considered regarding transition risks. The less intensive the current measures for reducing CO₂ are, the more probable the rapid and drastic reduction of CO₂ will become in the foreseeable future, or corresponding carbon pricing jumps.

2.4.3 RECIPROCAL EFFECTS BETWEEN PHYSICAL AND TRANSITION RISKS

Physical risks and transition risks are subject to strong reciprocal effects. An increase in physical risks is therefore to be expected, if a transition towards a climate-neutral and resilient economy is not initiated. On the other hand, physical risks may be reduced if effective climate protection measures are taken in a timely manner. An unexpectedly rapid increase in physical risk – in particular by failing to take timely climate protection measures – might necessitate an accelerated changeover towards a climate-neutral and resilient economy, in turn leading to high transition risks.⁷⁹

In such a case, an orderly transition towards climate-friendly investments as opposed to an abrupt exit from emissions- and energy-intensive assets should be strived for to mitigate transition risks associated with lower costs for the real economy than for an abrupt exit.⁸⁰ An orderly transition assumes that the climate-friendly orientation of the business model is strategically planned, is quickly initiated and purposefully implemented.

2.4.4 INDIRECT CLIMATE RISKS

In addition to direct impacts of physical and transition risks, climate risks can indirectly affect financial market participants. In the context of climate change, the following examples can be given:

- Increased risk of production outages due to increased disease burden among female workers (e.g. higher risk of health problems due to heat; increased higher risk of vector-based diseases such as borreliosis, which can lead incapacity for work);
- Increased risk of production failures due to pandemics;

⁷⁸ It is significant that companies not only state the emissions caused in their own operations (Scope 1) but also disclose the indirect emissions from buying in of electricity, heat and cooling (Scope 2) as well as the emissions in the value creation chain (Scope 3).

⁷⁹ In this context, 'compounding' effects must also be considered. See 2.5 on nature-related risks.

⁸⁰ In contrast to "divestment", an "engagement" approach (i.e. dialogue with undertakings or their management, so that they initiate a climate-friendly orientation of their business model) is to be adopted as a strategy for an orderly transition.

- Increased risk of labour shortages in certain sectors due to increasing competition for workers due to increased climate-induced demand for medical and nursing staff, exacerbated by demographic change;
- Increased risk of interruptions or overloads across different sectors with the corresponding knock-on consequences for other sectors (e.g. failure of harvests leading to a reduction in the amount of available raw produce, resulting in lower processing and sales).

2.5 NATURE-RELATED/BIODIVERSITY RISKS

The economy and the financial system are highly dependent on nature and the so-called ecosystem services it provides, and biodiversity is crucial for maintaining healthy ecosystems. For example, over half of global GDP is either highly or very highly dependent on nature and the ecosystem services it provides, especially in sectors of the economy such as construction, agriculture, and food and beverages (e.g. over 75 % of global food crops depend on animal pollination).⁸¹ For example, according to the OECD, the world lost an estimated USD 4 to 20 trillion in ecosystem services per year due to land-use change, and about USD 6 to 11 trillion per year as a result of land degradation, between 1997 and 2011. If no action is taken, the loss of ecosystem services could result in an annual loss of USD 479 billion. The cumulative total loss would amount to USD 9.87 trillion for the period between 2011 and 2050. Other estimates suggest that biodiversity loss and ecosystem degradation could lead to annual economic losses of between EUR 1.7 and 3.9 trillion.⁸²

Nature can be understood as referring to all aspects of the natural world (biotic, i.e. living, and abiotic, i.e. non-living, elements).⁸³ The Taxonomy Regulation defines biodiversity as the variability among living organisms arising from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and includes diversity within species, between species and of ecosystems.⁸⁴

In turn, ecosystem services relate to services performed by ecosystems that may be categorised as follows: provisioning, regulating, cultural and supporting services.⁸⁵ There are different ecosystem services within these categories, depending on the classification system used, which in turn directly

⁸¹ EC Communication, *EU Biodiversity Strategy for 2030*, COM(2020) 380 final.

⁸² See EIOPA, *Consultation Paper on a Report on Biodiversity Risk Management by Insurers*, EIOPA-BoS-24-455, p. 6.

⁸³ cf. Network for Greening the Financial System, *Nature-related Financial Risks: a Conceptual Framework to guide Action by Central Banks and Supervisors* (2023), p. 6.

⁸⁴ Cf. Article 2 (15) of the Taxonomy Regulation.

⁸⁵ Millenium Ecosystem Assessment, *Ecosystems and Human Well-being: General Synthesis* (2005).

or indirectly support or underpin economic activities, most of which are also essential for economic activities in Austria (see Table 3 below). Biodiversity, in turn, is essential for the resilience and productivity of ecosystem services.⁸⁶ Ecosystems are therefore capital goods (like produced capital) that lose value if misused or overexploited. However, they differ from produced capital: (i) in many cases, the loss of value is irreversible (or, in the best case scenario, systems require a long time to recover), (ii) it is not possible to reproduce an ecosystem that is exhausted or damaged; and (iii) ecosystems can collapse abruptly and with no distinct prior warning.⁸⁷

<i>Ecosystem service category</i>	<i>Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)⁸⁸</i>	<i>UNEP-WCMC Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE)⁸⁹</i>	<i>Taskforce on Nature-related Financial Disclosures (TNFD)⁹⁰</i>
Provisioning services	■ Food and feed ■ Energy ■ Materials and support ■ Medical, biochemical and genetic resources	■ Supply of biomass ● Plant supply ● Provision of biomass from grazing ● Livestock ● Aquaculture ● Wood supply ● Wild fish and other natural aquatic products ● Wildlife, plants and other services for the supply of biomass ■ Genetic material ■ Water supply ■ Other utilities – Energy from animals	■ Supply of biomass ■ Genetic material ■ Water supply ■ Other utility services
Regulating Services ⁹¹	■ Air quality regulation ■ Climate regulation ■ Pollination and spread of seeds ■ Regulating ocean acidification	■ Global climate regime ■ Regulating precipitation patterns (on a subcontinental scale)	■ Air filtration ■ Local/Global climate regulation ■ Pollination ■ Floods/storm mitigation

⁸⁶ Cf. OECD, *A supervisory framework for assessing nature-related financial risks: Identifying and navigating biodiversity risks* (2023), p. 12.

⁸⁷ Dasgupta, *The Economics of Biodiversity: The Dasgupta Review – Full report*, HM Treasury 2021, p. 52.

⁸⁸ Freely translated based on “Table 2.1. List of ecosystem services” in OECD, *A supervisory framework for assessing nature-related financial risks: Identifying and navigating biodiversity risks*.

⁸⁹ Cf. “Table 2. List of ecosystem services used in the updated ENCORE knowledge base based on SEEA EA” in UNEP-WCMC ENCORE, *Explanatory note on the updated ENCORE knowledge base outlining business dependencies and impacts on nature* (2024).

⁹⁰ Freely translated based on “Table 2.1. List of ecosystem services” in OECD, *A supervisory framework for assessing nature-related financial risks: Identifying and navigating biodiversity risks*.

⁹¹ The revised ENCORE categorisation from 2024 no longer explicitly distinguishes between ‘regulating’ and ‘supporting’ services, as the two categories have been merged.

	■ Regulating hazards and extreme events ■ Regulating organisms harmful to humans ■ Regulating the quantity, place and time of fresh water ■ Regulating the quality of fresh and coastal waters	■ Local (micro and meso) climate services ■ Air filtration ■ Regulating soil quality ■ Soil and sediment retention • Combating soil erosion • Landslide containment ■ Solid waste remediation ■ Water purification services (water quality improvement) • Retention and degradation of nutrients • Retention and degradation of other pollutants ■ Water flow regulation • Basic maintenance of the river • Mitigation of peak loads ■ Flood control • Coastal Protection • River flood protection services ■ Containment of storms ■ Noise reduction ■ Pollination ■ Biological control services • Pest control • Disease control ■ Nursery stocks and habitats ■ Other regulatory and maintenance activities – atmosphere and ecosystem dilution ■ Other regulatory and maintenance services – intermediation of sensory impressions (excluding noise)	■ Precipitation pattern regulation ■ Biological control ■ Noise attenuation ■ Soil quality ■ Water flow regulation ■ Water purification ■ Other regulatory and maintenance services ■ Soil and sediment retention ■ Remediation of solid waste
Supportive	■ Soil formation, protection and decontamination ■ Creation and maintenance of habitats	See 'Regulatory' category	
Culturally	■ Creation and maintenance of habitats ■ Learning and inspiration ■ Physical and psychological experiences	■ Recreational services ■ Visual amenity services ■ Education, science and research services	■ Rearing of young animals and conservation of habitats ■ Leisure and recreation ■ Visual amenity services

	■ Identity support ■ Maintaining options	■ Spiritual, artistic and symbolic services	■ Education, science and research services ■ Spiritual, artistic and symbolic services ■ Other cultural services
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Table 3: Categorisation systems for ecosystem services⁹²

The diversity of ecosystem services shows their importance for the economy and therefore also the financial sector. Although the evolution of agricultural production, fisheries, bioenergy production and harvesting of certain raw materials has increased since 1970, according to a 2019 IPBES report, 14 of the 18 categories of mainly regulating and non-material contributions from nature have decreased,⁹³ with associated economic impacts. For example, a conservative estimate of a collapse of selected ecosystem services such as wild pollination, provision of food from marine fisheries and wood could lead to a USD 2.7 trillion decline in global GDP in 2030, according to a 2021 World Bank report.⁹⁴ An ECB *Occasional Paper* published in 2024 points out that around 72 % of non-financial corporations in the euro area – i.e. around 3 million individual corporations (Austrian companies are close to the European average of just under 70 %)⁹⁵ are largely dependent on at least one ecosystem service, and ecosystem degradation would cause critical economic problems for them.⁹⁶ According to the paper, almost 75 % of bank lending to firms in the euro area is granted to non-financial corporations that rely heavily on at least one ecosystem service. Only moderate differences were found to exist between countries. As a result, this could lead to considerable losses for banks, especially in the event of shocks being amplified by the large number of relevant ecosystem services.⁹⁷ EIOPA has also found that around 30 % of insurers' exposures to corporate bonds and equities are highly and directly dependent on at least one ecosystem service (e.g. water resources).⁹⁸ In addition, systemic risks to the financial sector and to overall financial stability may also arise as a result of ecological collapses due to biodiversity/ecosystem loss.⁹⁹ In terms of nature-related risks,

⁹² A comparative overview of different categorisation systems can be downloaded [here](#).

⁹³ IPBES, *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (2019), A3.

⁹⁴ Cf. International Bank for Reconstruction and Development/The World Bank, *The Economic Case for Nature: A global Earth-economy model to assess development policy pathways* (2021), p. VI.

⁹⁵ Boldrini et al., *Living in a world of disappearing nature: physical risk and the implications for financial stability* (2023), ECB *Occasional Paper Series No. 333*, Chart 7.

⁹⁶ Cf. Boldrini et al., ECB *Occasional Paper Series No. 333*, p. 3.

⁹⁷ Cf. Boldrini et al., ECB *Occasional Paper Series No. 333*, p. 3.

⁹⁸ EIOPA: *Consultation Paper on a Report on Biodiversity Risk Management by Insurers* (2024), p. 7.

⁹⁹ Cf. EIOPA, *Staff paper on nature-related risks and impacts for insurance*, EIOPA-23/247, p. 6.

there are also indications of tipping points in the biosphere¹⁰⁰ with potential feedback effects on climate change, as well as the risk of transferring economic losses due to reaching tipping points to all types of financial institutions through increased default rates, loss of value of collateral, market volatility, insured losses and inflation shocks.¹⁰¹

Dealing with nature-related risks, in addition to climate risks, has therefore recently become increasingly important in the discourse around the issue of dealing with sustainability risks; this is due not least to the increasing numbers of international standards, increases in sustainability risks and the associated impact on the economy and the financial sector, as already stated in the introduction. In this context, different initiatives at international level have carried out significant foundational work in the field of assessment, disclosure and management of nature-related financial risks. It should be noted that the relevant work is only at an early stage, in particular when compared to work related to climate risks.¹⁰²

The *Network for Greening the Financial System* (NGFS) defines nature-related financial risks as risks of adverse impacts on real economies, individual financial institutions and financial systems, which on the one hand arise from nature degradation, including biodiversity degradation, and the loss of ecosystem services resulting from it (physical risks) or on the other hand from economic actors' misalignment with measures for protecting, restoring and/or reducing negative impacts on nature (transition risks).¹⁰³

Given the intrinsic link between climate change and biodiversity and ecosystem loss, an integrated and holistic approach to nature-related risks seems appropriate. According to a report published by the *Financial Stability Board* (FSB) in 2024, downside tail risks arising in the absence of an integrated approach to nature and climate shocks that could be underestimated for the financial system given the potential for complex shocks.¹⁰⁴ Overall, an urgent need should be noted to build up knowledge and know-how to better understand and limit the impact on the financial system, especially in light

¹⁰⁰ For example, the 2023 *Global Tipping Points Report* identified a total of 16 earth system tipping points, including forest deaths (e.g. in the Amazon), eutrophication of lakes, and collapse of fishing. See Lenton et al., *The Global Tipping Points Report 2023* (2023), A.1.2.

¹⁰¹ See e.g. Marsden et al., *Ecosystem tipping points: Understanding risks to the economy and financial system*, *IIPP Policy Report 2024/03*, p. 4.

¹⁰² See e.g. NGFS, *Nature-related Financial Risks: a Conceptual Framework to guide Action by Central Banks and Supervisors* (2023); NGFS, *Recommendations toward the development of scenarios for assessing nature-related economic and financial risks* (2023), TNFD, *Recommendations of the Taskforce on Nature-related Financial Disclosures* (2023); OECD, *A supervisory framework for assessing nature-related financial risks: Identifying and navigating biodiversity risks* (2023); EC, *Study for a methodological framework and assessment of potential financial risks associated with biodiversity loss and ecosystem degradation: Final report* (2024).

¹⁰³ Cf. NGFS, *Nature-related Financial Risks: a Conceptual Framework to guide Action by Central Banks and Supervisors*, p. 9.

¹⁰⁴ FSB, *Stocktake on Nature-related Risks: Supervisory and regulatory approaches and perspectives on financial risk* (2024), p. 12.

of complexity due to the non-linear nature, irreversibility, interdependencies and feedback loops of the two phenomena, etc., and for adequately integrating relevant risks into disclosure and quantitative risk models.¹⁰⁵ It can be safely assumed that most effects of the two phenomena will materialise as ‘*compounding*’ effects¹⁰⁶, which in turn should be taken into account in risk management.¹⁰⁷ In addition, from a risk management perspective, it should also be noted that ecosystems do not operate in strict isolation but interact with each other, so isolated assessments of individual ecosystem services may lead to economic impacts being underestimated. Trade-offs may also occur in using ecosystem services.¹⁰⁸ In addition to the general complexity, the geographical specificity of nature and ecosystem services in risk management must also be considered. It should therefore be noted that, in addition to the general need to build up knowledge and know-how, further work is necessary in particular on the development of appropriate methods, tools, data bases, etc. to adequately consider natural risks in risk management. Work at academic level, as well as by undertakings and other stakeholders, is still at an early stage and will take some time, not least due to the complexity of the subject as has been mentioned.

As for climate-related risks, both physical and transition risks are relevant for nature-related risks. Effects on financial assets and financial institutions may occur through various means of transmission in the form of traditional financial risks, with a potential impact on financial and price stability. Risk drivers are the five main drivers of biodiversity loss: land-use change, climate change, over-use of resources, pollution, and invasive alien species (see Figure 3 below). In addition, the principle of double materiality also applies in relation to nature-related risks, i.e. negative impacts of certain economic activities on nature on the one hand (i.e. financial materiality), and negative impacts of nature-related risks on economic activities on the other (i.e. environmental materiality).

¹⁰⁵ Cf. Boldrini et al., *ECB Occasional Paper Series No. 333*, p. 4.

¹⁰⁶ The NGFS defines “compound risks” as “the combination of multiple drivers and/or hazards that contributes to societal and/or environmental risk”; these hazards can include at least one climate-related hazard, alongside hazards emerging from other environmental, economic, societal, geopolitical, and technological systems, and can include, for example, pandemics, economic recessions, wars or financial crises, cf. NGFS, *Compound Risks: Implications for Physical Climate Scenario Analysis: On the necessity for climate financial risk management to integrate compound events in physical climate risk scenario analyses (2023)*, p. 10.

¹⁰⁷ Cf. Ceglar et al., *The impact of the euro area economy and banks on biodiversity (2023)*, *ECB Occasional Paper Series Nr. 335*, p. 19.

¹⁰⁸ Cf. OECD, *A supervisory framework for assessing nature-related financial risks: Identifying and navigating biodiversity risks*, p. 15.

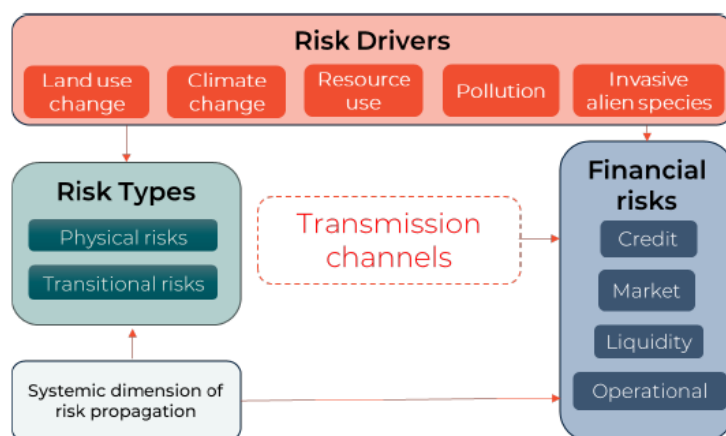


Figure 3: Risk categorisation of nature-related risk frameworks¹⁰⁹

Physical risks arise from nature degradation and loss of ecosystem services. Like climate risks, they may take the form of acute risks (e.g. natural disasters, crop failure due to pest infestation) or chronic risks such as reduced crop yields due to a gradual reduction of pollinators.

Transition risks linked to nature are strongly associated with changes in the regulatory and policy environment. As the introduction explained, some initiatives have been taken at international, European and Austrian level to protect or restore nature/biodiversity/ecosystems, which could have a subsequent direct impact on the economy and the financial market, e.g. in terms of land-take restrictions, prohibition of certain products, changes in consumption patterns, renaturing measures, etc. Further regulatory developments in the field of technological innovation, e.g. in the agricultural sector, are to be expected, which could in turn translate into transition risks or costs, but also reputational and legal risks, on a sector-by-sector basis.

¹⁰⁹ EC, *Study for a methodological framework and assessment of potential financial risks associated with biodiversity loss and ecosystem degradation: Final Report* (2024), p. 8.

Practical example 3: Biodiversity loss financed in the euro area

According to a 2023 ECB Occasional Paper, the impact on biodiversity loss financed by euro area banks is highly concentrated. For example, the ten largest banks covered by the study finance around 40 % of the total impact (ordered by extent of impact on nature). That share increases to around 90 % if the top 100 banks among the 2,500 banks in total covered by the study are considered (in terms of size of influence, 18 of which are based in Germany, 15 in Italy, and 5 in Austria). This provides an exemplary illustration of the significant transition risk for certain credit institutions related to nature-related risks.¹¹⁰

However, legal and reputational risks may also arise in relation to nature-related risks because of physical or transition risks. Due to the ability to localise and therefore better allocate nature-related risks, the associated legal risks could be even more relevant than, for example, climate change-related risks (see more details on legal risks in Chapter 2.8).¹¹¹

At the same time, nature-related opportunities should not be overlooked, i.e. positive effects on the business development and/or sustainability performance of individual companies caused by positive impacts or mitigation of negative impacts on nature (see e.g. the nature-based categories of opportunity developed by the TNFD in Figure 4).

¹¹⁰ Ceglar et al., *ECB Occasional Paper Series No. 335*, p. 17.

¹¹¹ Cf. OECD, *A supervisory framework for assessing nature-related financial risks: Identifying and navigating biodiversity risks*, p. 18.



Figure 4: Nature-related opportunities categories¹¹²

Addressing nature-related risks and opportunities requires financial undertakings to better address the dependencies and impacts on nature and biodiversity. Various technical guides can support financial undertakings, such as the Green Finance Alliance (GFA) guide on mainstreaming biodiversity in the core business of financial undertakings.¹¹³ The assessment of specific impacts plays a central role in addressing nature-related risks. Using appropriate indicators makes it possible to map relevant biodiversity factors and integrate them into decision-making processes. An overview of relevant metrics and methods used to capture funded impacts is provided in the annex to this guide.

¹¹² TNFD, *Recommendations of the Taskforce on Nature-related Financial Disclosures*, Fig. 16.

¹¹³ The Green Finance Alliance (GFA), an Austrian climate change initiative for the financial sector, has for the first time published a guide on mainstreaming biodiversity in financial undertakings' core business. The guide is based on a comprehensive analysis of existing literature, national and international frameworks and regulatory requirements. On this basis, the GFA Guide provides specific recommendations to financial undertakings that are relevant for addressing nature-related risks and opportunities. This includes, inter alia, prioritising biodiversity-related issues, the mainstreaming of biodiversity in corporate processes, engaging with portfolio companies and clients, and quantifying impacts on biodiversity; see GFA, *Guidance on integrating biodiversity and nature into the core business of financial undertakings* (2025).

Practical example 5: Financial land take-up indicator

The current high use of land in Austria stemming from construction activity (currently 11.5 ha per day) leads to the loss of ecological functions of soils and biotopes, and in doing so endangers biodiversity, increases flood risk, reduces local climate regulation and agricultural productivity and multiplies the consumption of resources. How the loss of such ecological functions can lead to significant physical and transition risks (i.a. also for financial institutions), is shown e.g. by *Boldrini et al. (2023)*.¹¹⁴ To achieve the EU's 'No net Land Take by 2050' target¹¹⁵, a significant reduction in land take is needed (target for Austria 2.5 ha per day by 2030)¹¹⁶.

The value of land in terms of agriculture, carbon sinks or biodiversity may vary widely across regions, and current approaches that only assess the area's usage are in any case insufficient.

To this end, the StartClim 2023 project *Indikator Finanzierte Flächeninanspruchnahme*¹¹⁷ 'Funded land take indicator' has developed a simple indicator showing the merits of protecting plots of land and can serve as a measure and guidance for financing banks for impacts and risks alike.

The indicator uses publicly available information and is easy for users to understand. In addition to the size of the plot of land itself, the indicator is based on the agricultural value from the financial value estimation of the ground or from the use categories indicated prior to any construction. This ensures that not just the plot of land's area, but also the lost value for agriculture and ecosystem services is approximated.

The project results show that the indicator reliably indicates whether a project is efficient in terms of land use. However, room for improvement still exists regarding consideration of development areas or only partial development.

The results of the pilot study with four Austrian banks indicate that information on the exact location of funded objects and collateral is currently not systematically included in the data infrastructure. If the plot numbers or coordinates associated with loans and loan commitments are collected structurally and in a standardised manner in the financial and collateral data, it is possible to calculate the financial land take-up indicator.

¹¹⁴ Boldrini et al., *ECB Occasional Paper Series No. 333*.

¹¹⁵ Cf. EC, *EU Biodiversity Strategy for 2030, COM(2020) 380 final*.

¹¹⁶ See BMK, *background and objective*. (In German only)

¹¹⁷ See <https://github.com/hpisa/Finanzierte-Flaecheninanspruchnahme>.

2.6 ENVIRONMENTAL OBJECTIVES UNDER THE TAXONOMY REGULATION

The Taxonomy Regulation sets out, as a key piece of legislation in the European regulation on sustainable finance, whether an economic activity qualifies as environmentally sustainable to determine the degree of environmental sustainability of an investment.

It is essential that the legal definition of environmentally sustainable economic activities laid down in the Taxonomy Regulation in Article 3 in conjunction with Articles 10 to 18 of the Taxonomy Regulation, according to which an environmentally sustainable economic activity is an economic activity which makes a substantial contribution pursuant to Articles 10 to 16 Taxonomy Regulation (special criteria for each environmental objective) to one or more of the environmental objectives (Article 9 Taxonomy Regulation) that does not lead to the significant harm of other environmental objectives (Article 17 Taxonomy Regulation), minimum safeguards (Article 18 Taxonomy Regulation) and the technical screening criteria laid down by the EC in delegated acts.

The environmental objectives defined by the Taxonomy Regulation are climate change mitigation, climate change adaptation, sustainable use and protection of water and marine resources, transition to a circular economy, pollution prevention and control, and protection and restoration of biodiversity and ecosystems. Chapter 4.4.3 contains further information on the assessment of significant harm to environmental objectives.

2.7 SOCIAL AND GOVERNANCE RISKS

Events or conditions arising from social and governance factors may also have a negative impacts on assets or on the financial situation and earnings. In particular, potential impacts exist on a company's reputation. In addition to environmental sustainability risks, risks arising from social and governance factors must therefore be adequately considered by supervised entities. The SFDR refers in particular to social and employee matters, respect for human rights, and the fight against corruption and bribery (Article 2 (24) SFDR).¹¹⁸ The following sections deal separately with legal and reputational risks associated with social and governance risks, as well as greenwashing risks.

¹¹⁸ See also the minimum safeguards of the EU Taxonomy; See also Platform on sustainable finance, [Final Report on Minimum Safeguards \(2022\)](#).

2.8 LEGAL AND REPUTATION RISKS/LITIGATION RISKS

Furthermore, sustainability risks may manifest themselves as legal and reputational risks for companies. A global increase in judicial proceedings can be observed, in which aggrieved parties or activists are using lawsuits to affect a change in the behaviour of individual companies¹¹⁹, authorities or governments¹²⁰ (in a broader sense “*strategic litigation*”¹²¹ or “*strategic nature-related litigation*”, and in relation to climate risks in a narrower sense “*climate litigation*”, “*climate change litigation*”). Parallel to such proceedings environmental or nature-related litigation is being conducted (“*traditional nature-related litigation*”) aimed at ensuring that an applicable (environmental) legal framework is complied with, addressing pollution-related damages and protecting endangered species and habitats. The increasing number of such proceedings has a direct impact on the economic activity of companies and entails significant reputational and legal risks, just like “*strategic nature-related litigation*”.¹²² As a result, financial market participants face risks, both directly as well as indirectly through their client relationships. These risks have to be addressed in undertakings’ risk management by means of adequate safeguards. In this context, legal disputes often directly involve reputational risks.¹²³

Practical example 4: Global overview on Climate Litigation

As of May 2023, the “*Global Climate Change Litigation Database*” collated by the Sabin Center for Climate Change Law of Columbia Law School¹²⁴ lists 2,341 relevant proceedings, of which around two thirds have been initiated since the conclusion of the Paris Agreement on Climate Change¹²⁵ in 2015. These proceedings particularly affect the USA (1,590 cases), Australia (130 cases) and the United Kingdom (102 cases) as well as the European Union (67 cases) or its Member States (e.g. Germany 59 cases).¹²⁶

As a graphical overview: Number of Climate Litigation Cases worldwide¹²⁷

¹¹⁹ Cf. NGFS, *Climate-related litigation: recent trends and developments* (2023), p. 9 et seq. (non-financial institutions) and 13 et seq. (financial institutions).

¹²⁰ Cf. NGFS, *Climate-related litigation: recent trends and developments*, p. 6 et seq. (states and public entities).

¹²¹ Cf. Setzer/Higham, *Global trends in climate change litigation: 2023 snapshot* (2023), p. 19 et seq.

¹²² Cf. NGFS, *Nature-related litigation: emerging trends and lessons learned from climate-related litigation* (2024), p. 5 and p. 21.

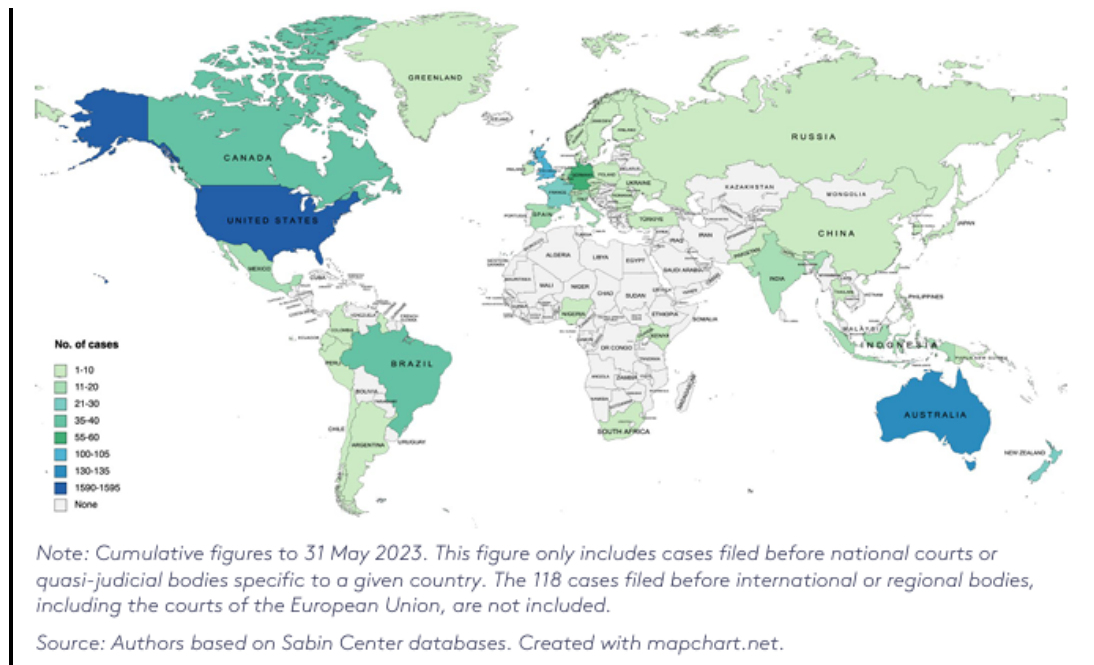
¹²³ Cf. NGFS, *Nature-related litigation: emerging trends and lessons learned from climate-related litigation*, p. 17.

¹²⁴ Cf. Columbia Law School (Sabin Center for Climate Change Law), *Global Climate Change Litigation Database*.

¹²⁵ Cf. the Paris Agreement, which was concluded as part of the United Nations Framework Convention on Climate Change and ratified by the EU on 5 October 2016. For further information, see BMK, *The Paris Agreement and Council of the EU, Paris Agreement on Climate Change*.

¹²⁶ Setzer/Higham, *Global trends in climate change litigation: 2023 snapshot*, p. 11 et seq.

¹²⁷ Setzer/Higham, *Global trends in climate change litigation: 2023 snapshot*, p. 12.



litigation” and recent regulatory developments¹³¹. As a result, a variety of transmission channels concerning reputational situations for supervised entities have arisen because of their direct business activity or those of their customers.

The analysis conducted by the NGFS¹³² of the legal grounds for direct action against financial and non-financial institutions revealed the following thematic areas (based on a wide range of specific bases for claims): Breach of corporate due diligence obligations,¹³³ claims under compensation law or liability for risk, (injunction) claims under fair trading law,¹³⁴ claims under the rights of shareholders or partners,¹³⁵ breach of anti-money laundering and counter-terrorism financing provisions.¹³⁶

Victims and activists try, among other things, to enforce claims for damages or detentions at risk against economic operators whose behaviour increases the likelihood of physical risks occurring (e.g. by high carbon emissions). In addition to conducting litigation for addressing climate risks, in recent times biodiversity loss, deforestation, maritime degradation and plastic pollution have taken on increasingly important roles in litigation conducted.¹³⁷

In addition to legal risks, reputational risks, such as boycott calls on consumers to stop buying certain products or services considered to be harmful to the climate or made based on child or forced labour, increase (in some cases as a result of these risks). In extreme cases, reputational risks may place the medium- to long-term of business models in question.

¹³¹ Cf. i.a. the German Supply Chain Due Diligence Act (LkSG; Lieferkettensorgfaltspflichtengesetz), published in the German Federal Law Gazette I p. 2959, or the CSDDD.

¹³² Cf. NGFS, *Climate-related litigation: recent trends and developments* (2023), p. 13 et seq., NGFS, *Nature-related litigation: emerging trends and lessons learned from climate-related litigation*, p. 9 et seq.

¹³³ Cf. in this regard the arguments regarding the case *Comissão Pastoral da Terra and Notre Affaire à Tous v. BNP Paribas* in NGFS, *Nature-related litigation: emerging trends and lessons learned from climate-related litigation*, p. 10.

¹³⁴ Columbia Law School (Sabin Center for Climate Change Law), *Global Climate Change Litigation Database*: *Verbraucherzentrale Baden-Württemberg e.V. vs Commerz Real Fund Management S.à.r.l.* (2023), *LG Stuttgart AZ 36 O 92/21 KfH*.

¹³⁵ Cf. in this regard the arguments regarding the proceedings *Rossiter v ANZ Group Holdings Limited* in NFSG, *Nature-related litigation: emerging trends and lessons learned from climate-related litigation*, p. 10.

¹³⁶ Cf. in this regard the arguments regarding the proceedings *Sherpa v. BNP Paribas, Crédit Agricole and Others and GLAN and London Metal Network v. London Metal Exchange* in NFSG, *Nature-related litigation: emerging trends and lessons learned from climate-related litigation*, p. 10.

¹³⁷ Cf. NGFS, *Nature-related litigation: emerging trends and lessons learned from climate-related litigation*, p. 5.

2.9 GREENWASHING RISKS

As the offering of investments and financial products labelled as ‘sustainable’ or ‘green’ increases, so does the risk of ‘*greenwashing*’. This is understood in accordance with the European Supervisory Authorities’¹³⁸ understanding to mean a practice where sustainability-related statements, declarations, actions, or communications do not clearly and fairly reflect the underlying sustainability profile of an entity, a financial product or financial service. This practice may be misleading to consumers, investors, or other market participants.

It should be noted that the term “greenwashing” primarily relates to environmental (E) aspects. However, this is only one constituent part of the broader term of sustainability/ESG. Where social and/or governance criteria (S and G) are involved, then the term greenwashing could be replaced by social washing (or governance washing), ESG washing or sustainability washing. However, according to the ESAs’ understanding, the term ‘*greenwashing*’ refers not only explicitly to E aspects, but to all sustainability/ESG aspects.

The combating of greenwashing and the promotion of the transparency of sustainable financial products have been a part of the FMA’s priorities for supervision and inspections to date regarding sustainability.¹³⁹ Greenwashing constitutes a high risk for investor protection and may assume many different forms. Although the EU legal framework does not contain an explicit and binding definition of greenwashing, several regulatory instruments (e.g. the SFDR or the Taxonomy Regulation) refer to greenwashing. A significant focus is placed on the adequate disclosure of sustainability-related information. From a supervisory perspective, in the case of greenwashing, there may be a breach of the specific disclosure requirements of the SFDR/Taxonomy Regulation or a breach of the principle that information to investors must always be fair, clear and non-misleading¹⁴⁰.

In the case of sustainable financial products, the absence of regulatory requirements for specific product designs of sustainable financial products poses a challenge with regard to possible greenwashing. The current regulatory framework focuses in particular on transparency and disclosure. With a view to further developing the SFDR and regulatory product categories of

¹³⁸ Cf. EBA/EIOPA/ESMA, *Progress Reports on Greenwashing* (2023), [ESMA30-1668416927-2498](#), as well as *Final Reports on Greenwashing* (2024), [ESMA36-287652198-2699](#).

¹³⁹ See FMA, *Facts and Figures, Trends and Strategies*.

¹⁴⁰ Cf. e.g. Article 49 WAG 2018, Article 128 para. 2 VAG 2016, Articles 128 para. 2 and 134 para. 2 InvFG 2011 or Art. 4 (1) Regulation (EU) 2019/1156.

sustainable financial products, the EC conducted a consultation in 2023.¹⁴¹ ESMA published guidelines on requirements for funds regarding using ESG-related terminology in the fund name in May 2024,¹⁴² while EIOPA also published an ‘*Opinion on sustainability claims and greenwashing in the insurance and pensions sectors*’ in May 2024¹⁴³. Subsequently, in June 2024, the ESAs published a *Joint Opinion*¹⁴⁴ and ESMA issued an ‘*Opinion on the Sustainable Finance Regulatory Framework*’¹⁴⁵ in July 2024, which both contain recommendations for the introduction of regulatory product categories.

In addition to greenwashing risks under supervisory law, in particular civil law risks exist that might be associated with potential greenwashing. In particular, potential greenwashing practices especially can lead to the legal and reputational risks set out in Chapter 2.8. The information and recommendations¹⁴⁶ contained in the ESAs’ reports on greenwashing shall consider supervised entities, to avoid legal and reputational risks arising from (potential) greenwashing activities.

Practical example 5: Greenwashing

Greenwashing as unfair competition

In this context, the case of *Verbraucherzentrale Baden-Württemberg e.V. v Commerz Real Fund Management S.à.r.l.* (2023)¹⁴⁷ can be cited as an example concerning misleading environmental advertising of a financial product on the basis of the German Unfair Competition Act.

Greenwashing as a breach of obligations by supervisory or management body members

For example: *McGaughey & Anor v Universities Superannuation Scheme Ltd & Ors* (2023) for continued investments in fossil fuels and the lack of a divestment plan, despite the commitment to achieve climate neutrality by 2050, based, inter alia, on the UK Companies Act 2006.

¹⁴¹ See the European Commission’s publications on *Sustainable Finance*.

¹⁴² Cf. ESMA, *Guidelines on funds’ names using ESG or sustainability-related terms: Final Report* (2024), ESMA34-472-440.

¹⁴³ EIOPA, *Opinion on sustainability claims and greenwashing in the insurance and pensions sectors* (2024).

¹⁴⁴ EBA/EIOPA/ESMA, *Joint ESAs Opinion on the assessment of the Sustainable Finance Disclosure Regulation* (2024).

¹⁴⁵ ESMA, *Opinion on the Sustainable Finance Regulatory Framework* (2024), ESMA36-1079078717-2587.

¹⁴⁶ See EBA/EIOPA/ESMA, *Progress Reports on Greenwashing* (2023), ESMA30-1668416927-2498, as well as *Final Reports on Greenwashing* (2024), ESMA36-287652198-2699.

¹⁴⁷ Columbia Law School (Sabin Center for Climate Change Law), *Global Climate Change Litigation Database*: *Verbraucherzentrale Baden-Württemberg e.V. vs Commerz Real Fund Management S.à.r.l.* (2023), [LG Stuttgart AZ 36 O 92/21 KfH](#) as well as the [summary here](#).

3 LEGAL BASES

3.1 DEVELOPMENTS IN UNION LAW ON SUSTAINABILITY IN THE FINANCIAL MARKET

In recent years, there has been a significant increase in regulatory initiatives and other sets of measures at European level regarding sustainability in the financial market. In March 2018, the EC published the ‘*EU Sustainable Finance Action Plan*’¹⁴⁸ for achieving the objectives of the Paris Agreement and the United Nations 2030 Agenda (SDGs), based on which the ‘*Sustainable Finance Strategy*’¹⁴⁹ was subsequently published in 2021. In addition, the EC published its communication on ‘*The European Green Deal*’¹⁵⁰ in December 2019. The EC’s 2021 ‘Fit for 55’ package¹⁵¹ includes several proposals for revising and updating EU legislation, as well as proposals for new initiatives intended to ensure that EU action is in line with the climate objectives of reducing net greenhouse gas emissions by at least 55 % by 2030. In 2023, the EC also published a “*Sustainable finance package*”¹⁵² building on and strengthening the foundations of the EU’s framework for sustainable finance, as well as to ensure that the EU sustainable finance framework continues to support businesses and the financial sector, while promoting private financing of transition projects and technologies as the necessary transition towards Net Zero takes place.¹⁵³ The legal bases listed in this guide reflect the state of play of the respective legislation at the time of the guide’s publication, including the ongoing dynamism of further development and/or adaptation of the EU legal framework. In this context, reference should also be made in particular to a package of proposals presented by the EC in February 2025 for simplifying EU legislation and increasing competitiveness. Its declared objective is to make sustainability reporting simpler and more efficient and to simplify due diligence to support responsible business practices (the proposals relate to the CSRD, CSDDD, and the Taxonomy Regulation).¹⁵⁴ The FMA will monitor relevant developments closely and adjust the guide accordingly as required. Irrespective of developments in the regulatory framework, it remains essential to adequately address the risk perspective when dealing with sustainability risks; existing

¹⁴⁸ Cf. EC Communication, *Action Plan: Financing Sustainable Growth*, COM(2018) 97 final.

¹⁴⁹ Cf. EC, *Strategy for financing the transition to a sustainable economy* (2021).

¹⁵⁰ Cf. EC Communication, *The European Green Deal*, COM(2019) 640 final.

¹⁵¹ See <https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55/>.

¹⁵² Communication from the EC, *A framework for sustainable finance that works in practice*, COM(2023) 317 final.

¹⁵³ In 2021, the EC also published the ‘*Renewed Strategy*’ (*Strategy for financing the transition to a sustainable economy*).

¹⁵⁴ See the [Commission’s press release](#) of 26 February 2025 and COM(2025) 81 final and COM(2025) 80 final.

legal requirements at levels 2 and 3 must also continue to be considered and complied with by supervised entities and in operational supervision.

As regards the integration of sustainability risks in risk management and disclosure obligations of financial market participants, the European side has increasingly taken regulatory steps, including in particular the following EU legislation:

- Regulation (EU) 2019/2088 on sustainability-related disclosures in the financial services sector (**Sustainable Finance Disclosure Regulation - SFDR**) sets out harmonised cross-sectoral rules for financial market participants and financial advisers on transparency requirements in relation to disclosure about the integration of sustainability risks and consideration of adverse sustainability impacts in their processes and in providing information about the sustainability of financial products. Disclosure obligations include disclosures on website, in pre-contractual documents and in periodic reporting. The transparency provisions contained therein are being specified further by means of delegated legal acts.¹⁵⁵
- Regulation (EU) 2019/2089 amending Regulation (EU) 2016/1011 (**Benchmark Regulation**) regarding EU Climate Transition Benchmarks (CTBs), EU Paris-aligned Benchmarks (PABs) and sustainability-related disclosures for benchmarks. The provisions contained therein are being specified further by means of delegated acts.¹⁵⁶
- Regulation (EU) 2020/852 on the establishment of a framework to facilitate sustainable investment (**'Taxonomy Regulation'**)¹⁵⁷ supplements the SFDR with specific reporting requirements as regards disclosure requirements. Information should be published about how and to what extent the underlying investments behind a financial product are invested in ecologically sustainable economic activities in accordance with the Taxonomy Regulation.

¹⁵⁵ CDR (EU) 2022/1288 supplementing Regulation (EU) 2019/2088 with regard to regulatory technical standards specifying the details of the content and presentation of the information in relation to the principle of 'do no significant harm', specifying the content, methodologies and presentation of information in relation to sustainability indicators and adverse sustainability impacts, and the content and presentation of the information in relation to the promotion of environmental or social characteristics and sustainable investment objectives in pre-contractual documents, on websites and in periodic reports.

¹⁵⁶ CDR (EU) 2020/1818 supplementing Regulation (EU) 2016/1011 as regards minimum standards for EU Climate Transition Benchmarks and EU Paris-aligned Benchmarks; CDR (EU) 2020/1816 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards the explanation in the benchmark statement of how environmental, social and governance factors are reflected in each benchmark provided and published; CDR (EU) 2020/1817 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards the minimum content of the explanation on how environmental, social and governance factors are reflected in the benchmark methodology.

¹⁵⁷ Establishes a uniform system of criteria for determining whether an economic activity may be classified as being environmentally sustainable.

Furthermore for entities, for which an obligation applies to disclose non-financial details in accordance with Article 19a or Article 29a of Directive 2013/34/EU, should include information in their non-financial statement or consolidated non-financial statement about whether/how and to what extent the entity's activities are associated with ecologically sustainable economic activities in accordance with the Taxonomy Regulation. The provisions of the Taxonomy Regulation are further specified by means of delegated acts.¹⁵⁸

- Amendments to delegated legal acts in securities and insurance supervision law (**Solvency II, IDD, MiFID II, AIFMD, UCITS-D**) were published on 21.04.2021. They relate to the consideration of sustainability preferences in investment and insurance advice, as well as sustainability factors in product governance, as well as the explicit integration for taking into account sustainability risks in securities and investment supervision law (e.g. organisational requirements, risk management, conflicts of interest).
- The **Corporate Sustainability Reporting Directive (CSRD)**¹⁵⁹ was published in the Official Journal of the European Union on 16.12.2022. It substantially modifies the existing provisions on sustainability reporting. First and foremost, the future Article 19a of the Financial Statements Directive¹⁶⁰ as amended by the CSRD broadens its scope. Whereas only large undertakings that were public-interest entities with an average of more than 500 employees were hitherto required to submit a non-financial statement, this requirement will be extended in the future to cover all large entities, irrespective of whether or not they are exchange-listed, as well as exchange-listed small and medium-sized undertakings, although some

¹⁵⁸ CDR (EU) 2021/2139 supplementing Regulation (EU) 2020/852 by establishing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to climate change mitigation or climate change adaptation and for determining whether that economic activity causes no significant harm to any of the other environmental objectives; and CDR (EU) 2023/2485 amending CDR (EU) 2021/2139 establishing additional technical screening criteria for determining the conditions under which certain economic activities qualify as contributing substantially to climate change mitigation or climate change adaptation and for determining whether such activities cause no significant harm to any of the other environmental objectives;

CDR (EU) 2021/2178 supplementing Regulation (EU) 2020/852 by specifying the content and presentation of information to be disclosed by undertakings subject to Articles 19a or 29a of Directive 2013/34/EU concerning environmentally sustainable economic activities, and specifying the methodology to comply with that disclosure obligation;

CDR (EU) 2022/1214 amending CDR (EU) 2021/2139 as regards economic activities in certain energy sectors and CDR (EU) 2021/2178 as regards specific disclosure requirements for those economic activities;

In addition, CDR (EU) 2023/2486 supplementing Regulation (EU) 2020/852 by establishing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to the sustainable use and protection of water and marine resources, to the transition to a circular economy, to pollution prevention and control, or to the protection and restoration of biodiversity and ecosystems and for determining whether that economic activity causes no significant harm to any of the other environmental objectives and amending CDR (EU) 2021/2178 as regards specific public disclosures for those economic activities.

¹⁵⁹ Directive (EU) 2022/2464 amending Regulation (EU) 2014/537 and Directives 2004/109/EC, 2006/43/EC and 2013/34/EU, as regards corporate sustainability reporting.

¹⁶⁰ Directive 2013/34/EU on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings.

simplifications are intended for the latter. Micro-undertakings remain excluded from this requirement. Another significant regulatory aspect is the introduction of binding standards for the sustainability reporting in the future Article 29b of the Financial Statements Directive as amended by the CSRD. The purpose of these standards is to specify and harmonise the sustainability information that is to be disclosed based on the three *Environmental, Social and Governance* (ESG) reporting pillars. The CSRD also stipulates the mandatory presentation of the sustainability report in the management report – there is no longer an alternative option for a separate report. Furthermore, the obligation for external review of the sustainability report is also introduced. The national implementation of the CSRD was still pending at the time of drafting this guide.

- The *European Financial Reporting Advisory Group* (EFRAG) is responsible for the technical drafting of the **European Sustainability Reporting Standards (ESRS)**. The CSRD becomes applicable for the first time for financial years starting on or after 01.01.2024 – but staggered according to company size.
- In December 2023, the Banking Package 2021 was adopted at European level to adequately address pandemic, geopolitical and climate-related challenges and their impact on financial stability. The respective legal acts amending the *Capital Requirements Regulation*¹⁶¹, namely "**CRR III**" (Regulation (EU) 2024/1623), as well as the *Capital Requirements Directive*¹⁶², namely "**CRD VI**" (Directive (EU) 2024/1619), entered into force on 09.07.2024. In principle, CRR III is already applicable from 1 January 2025. In contrast, CRD VI needs to be nationally transposed by the Member States and will in principle be applicable from 11.01.2026. Austria's national transposition of CRD VI is still pending at this stage.¹⁶³ A key pillar of the banking package are new requirements to address environmental, social and governance (ESG) risks, including the following aspects:
 - Introducing uniform definitions of environmental, social and governance risk as the risk of any negative financial impact on an institution arising from the current or future impact of environmental, social or governance (ESG) factors on the counterparties or invested assets of that institution; ESG risks occur in the form of

¹⁶¹ Regulation (EU) No 575/2013 on prudential requirements for credit institutions.

¹⁶² Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions.

¹⁶³ Note: Since CRD VI has not yet been transposed into national law in Austria, this Guide will refer to the relevant provisions in CRD VI until transposition.

traditional categories of financial risks (cf. Article 4 (1) (52d) CRR). Detailed definitions of environmental risk, physical risk, transition risk, social risk and governance risk will then be set out.

- Introduction of specific plans in accordance with Article 76 (2) CRD VI, under which the management body shall draw up specific plans with quantifiable objectives and procedures and monitor their implementation. These include the financial risks arising from ESG factors in the short, medium and long term, including risks arising from the adaptation and transition process towards a sustainable economy.
- Article 87a regulates, in summary, further aspects of ESG risks, such as:
 - integration into all corporate governance in accordance with Article 74 (1) CRD, including risk management framework;
 - appropriate consideration of ESG risks in the institution's strategy, policies, processes and systems; reference should be made to short, medium and long-term (> 10 years) time horizons.
- Article 98 (9) CRD stipulates that competent authorities are to integrate ESG risks into ongoing supervision and to take into account ESG risks when assessing exposure to risks, but also when determining the adequacy of governance and risk management processes. ESG risks are subsequently also integrated and continuously assessed in the *Supervisory Review and Evaluation Process* (SREP). If the supervisory authority identifies an excessive exposure to ESG risks, it may order the reduction of those risks by means of various supervisory measures.
- The CRR extends the existing disclosure requirements for ESG risks to all credit institutions and introduces new reporting requirements for ESG risks. To this end, the existing EBA Pillar 3 Implementation Standard on ESG risk disclosure¹⁶⁴ will be revised and a separate implementation standard developed for ESG risk supervisory reporting.

- On 13.06.2024, the **Corporate Sustainability Due Diligence Directive (CSDDD)**¹⁶⁵ was published in the Official Journal of the EU, which requires companies and

¹⁶⁴ CDR (EU) 2022/2453.

¹⁶⁵ Directive (EU) 2024/1760 on Corporate Sustainability Due Diligence.

upstream/downstream business partners (including suppliers, production, distribution) to prevent, eliminate and mitigate adverse human rights and environmental impacts. In addition, it also includes, inter alia, the obligation to integrate risk-based due diligence in policies and risk management systems and assumptions in line with transition plans. Regulated financial entities are also included, except for AIFs and UCITS and only upstream business partners. Entities in scope will have a phased-in application as of 2027, with exemptions regarding information obligations for entities in scope of Articles 19a, 29a or 40a of the Balance Sheet Directive in relation to sustainability reporting or transition plans.

- On 12.12.2024, the Regulation on the Transparency and Integrity of Environmental, Social and Governance Ratings ('**ESG Rating Regulation**')¹⁶⁶ was published in the Official Journal of the EU, which regulates ESG rating activities, including provisions on the disclosure of credit rating agencies regarding the assessment of risks. The ESG Rating Regulation adds para. 3 to Article 13 SFDR, in accordance with which a financial market participant or a financial adviser that issues and discloses an ESG rating to third parties, as defined in Article 3, point (1) of the ESG Rating Regulation shall be required to include on its website the same information as that required by point 1 of Annex III to the ESG Rating Regulation and it shall make a link available in marketing communications to such disclosures on its website. The ESAs will develop Regulatory Technical Standards in this regard.

More information on the relevant national legal bases can be found in the relevant sections of this guide.

3.2 MATERIAL LEGAL BASES FOR RISK MANAGEMENT ON SUSTAINABILITY RISKS

Sectoral regulations apply for all supervised entities addressed by this guide that oblige them to identify, measure, assess, control, monitor and limit risks, with sustainability risks to be explicitly considered in part.¹⁶⁷ At this, the responsibility lies with the respective supervised entity to possess internal methods or their own risk indicators. In assessing the risks, supervised entities are required in accordance with the prevailing legal situation to take into account all relevant influencing factors, including any risk factors related to sustainability, as set out below.

¹⁶⁶ Regulation (EU) 2024/3005 on the transparency and integrity of Environmental, Social and Governance (ESG) rating activities, and amending Regulations (EU) 2019/2088 and (EU) 2023/2859.

¹⁶⁷ The legal bases referred to in Chapter 3 of this Guide should therefore not be considered as an exhaustive list of all (sectoral) legal bases.

On a cross-sector basis, the Sustainable Finance Disclosure Regulation (SFDR) provides for a harmonised legal framework for financial market participants and financial advisers on transparency in the integration of sustainability risks. This concerns, in particular, transparency in strategies for integrating sustainability risks at corporate level (Article 3 SFDR) and financial products (Article 6 SFDR).

For **credit institutions**, Article 39 of the Austrian Banking Act (BWG; *Bankwesengesetz*) stipulates the general due diligence regulations to be observed by directors. They are required, inter alia, to obtain information on and to control, monitor and limit the risks of banking transactions and banking operations using appropriate strategies and mechanisms, and have in place plans and procedures pursuant to Article 39a BWG. For this purpose, administrative, accounting and controlled procedures must be implemented that are appropriate for the nature, scope and complexity of the banking transactions conducted. Article 39 para. 2b BWG lists the types of risk that must be considered (e.g. credit risk, market risk or operational risk). Sustainability risks¹⁶⁸ are seen as a risk driver of the relevant risk categories and are therefore considered accordingly. Furthermore, the FMA's Regulation on Credit Institution Risk Management (KI-RMV) defines the minimum requirements for the orderly identifying, assessing, controlling and limitation of types of risk pursuant to Article 39 para. 2b BWG.¹⁶⁹ It should be noted that Article 39 BWG is required to be observed irrespective of the dynamically changing legal framework in the field of sustainable finance.

In the case of **payment institutions**, the directors of a payment institution in their management of the payment institution pursuant to Article 20 para. 2 ZaDiG 2018 shall apply the due diligence and care of a prudent and conscientious director as defined in Article 84 para. 1 of the Stock Corporation Act of 1965 (AktG 1965; *Aktiengesetz 1965*). In so doing, they shall, in particular, inform themselves of the risks associated to payment services business and operations and manage, monitor and limit those risks through adequate strategies and procedures while also ensuring the solid and prudent management of the payment institution. For this purpose, appropriate measures are to be

¹⁶⁸ It should be noted that sustainability risks, as have already been defined in this Guide, should not be confused with the risks that arise from the "non-sustainable lending". In contrast to sustainability risks, which take into consideration ESG factors, the otherwise used term "sustainable lending" relates according to the definition of the Financial Market Stability Board (FMSG) to the aspects of requiring borrowers to have an adequate down-payment, ensuring that the term of the loan is not disproportionately long, and taking into consideration the conservatively estimated development of borrowers' income situations across their lifetime, cf. Finanzmarktstabilitätsgremium (FMSG), [Press Release relating to the 17th Meeting of the Financial Market Stability Board 2018](#).

In the interests of completeness, we also refer to EBA, *EBA Final Report on the EBA Guidelines on loan origination and monitoring*, EBA/GL/2020/06. The report contains provisions regarding ESG risks in point 4.3.5 "Environmental, social and governance factors" as well as in point 4.3.6 on "Environmentally sustainable lending".

implemented for governance arrangements, accounting and control procedures to ensure that the payment institution can fulfil its obligations. For **electronic money institutions**, pursuant to Article 13 of the Electronic Money Act 2010, the due diligence requirements defined in ZaDiG 2018 shall generally apply.

Insurance and reinsurance undertakings are required to establish an effective risk management system covering all necessary strategies, processes and reporting procedures in order to be able to detect, measure, monitor, manage and report about all actual and potential risks, both on an individual and aggregated basis as well as the mutual interdependencies between these risks (Article 110 Insurance Supervision Act 2016 (VAG 2016)).¹⁷⁰ Own risk indicators must be developed, which are to be used as part of the investment that cover all key risk indicators (Article 124 para. 1 no. 1 VAG 2016 in conjunction with Article 7 VU-KAV).

Where ecological, social and governance-related factors are taken into account in investment decisions, **Pensionskassen (pension companies)** are required to assess risks that have recently arisen or that are to be expected, inter alia risks in relation to climate change, the use of natural resources, and the environment, as well as social risks and risks in conjunction with a reduction of the value of assets as a result of regulatory amendments. The pension company shall use methods that are appropriate with regard to the size, nature, scope and complexity of the pension company's activities and shall describe then in the own Risk Assessment, in accordance with which under the prudent person principle the potential long-term impacts on the investment of the assets allocated to an investment and risk-sharing group may be taken into account regarding factors relating to environmental, social and governance (Articles 22a para. 3 no. 8 in conjunction with Article 21a para. 3 no. 9 PKG in conjunction with Article 4 para. 3 no. 7 PK-RiMaV 2019 as well as Article 25 para. 1 no. 9 PKG). The written declaration on the investment policy principles for every investment and risk-sharing group shall cover the selection of assets in accordance with ethical, ecological and/or social criteria (Article 25a para. 1 no. 6 PKG).

With regard to risk management, **corporate pension companies** – in addition to the general due diligence obligations pursuant to Article 39 BWG as special credit institutions – are required pursuant to Article 30 BMSVG to conduct their corporate provision company business in the interest of the entitled beneficiaries. At this, particular consideration must be taken in relation to security,

¹⁷⁰ With regard to sustainability risks see also Articles 260 and 269 of CDR (EU) 2015/35 supplementing Directive 2009/138/EC on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) as well as Article 44 of the Solvency II Directive in the version amended by Directive (EU) 2025/2.

profitability as well as the need for liquid means as well as an appropriate mix and diversification of assets. In accordance with Article 26a BMSVG, effective risk management established that is appropriate for the size, nature, scale and complexity of the corporate provision company's activities. Risk management shall explicitly take environmental, social, and governance risks related to the assessment of the assets assigned to the investment community into account.

Under Article 85 InvFG 2011, **investment fund management companies** (KAGs) are required to use risk management procedures that allow them to monitor and measure the risk associated with the investment position at all times. To achieve this, documented risk management principles are to be defined and implemented pursuant to Article 86 InvFG 2011 and safeguards, processes and procedures initiated pursuant to Article 87 InvFG 2011, to be able to measure and manage the risks to which the UCITS managed by the KAG is exposed. Sustainability risks shall also be considered. KAGs are required in this context to conduct periodical stress tests and scenario analyses for every UCITS managed for capturing risks arising from potential changes in market conditions, which might have negative effects on the UCITS.

Alternative Investment Fund Managers (AIFMs) are required under Article 13 AIFMG to deploy appropriate risk management systems, so that all risks that are material for individual AIF investment strategies and those which every AIF is or may be subject to, are adequately identified, assessed, controlled and managed. To do so, under Article 44 of CDR (EU) 2013/231 AIFMs are required to establish and implement quantitative or qualitative risk limits or both taking into consideration all relevant risks with regard to exceptions, the conditions for performing the activity as an AIFM, depositories, leveraged financing, transparency and oversight for every AIF managed. Within the scope of risk measurement and risk management pursuant to Article 45 of CDR (EU) 2013/231 inter alia regular stress tests and scenario analyses are to be conducted to address risks arising from potentially detrimental changes in market conditions. AIFMs are also required to consider sustainability risks for meeting organisational requirements in accordance with Article 57 (1) of CDR (EU) 2013/231 (as amended by CDR (EU) 2021/1255).

Investment firms or credit institutions that provide investment services are required to have efficient risk assessment processes in place pursuant to Article 32 of the Securities Supervision Act 2018 (WAG 2018; *Wertpapieraufsichtsgesetz 2018*). To that end, under Article 23 of CDR (EU) 2017/565¹⁷¹ (as amended by CDR (EU) 2021/1253), they shall be required to establish and

¹⁷¹ CDR (EU) 2017/565 as regards organisational requirements and operating conditions for investment firms and defined terms for the purposes of that Directive.

implement, on a permanent basis, appropriate risk management policies and procedures to capture the risks associated with the firm's business, processes and systems and, where appropriate, to set a risk tolerance threshold. Sustainability risks shall also be considered. Effective arrangements, processes and mechanisms are to be adopted to manage the risks relating to the firm's activities, processes and systems, based on the level of the risk tolerance threshold. In addition, under Article 21 of CDR (EU) 2017/565 (as amended by CDR (EU) 2021/1253), sustainability risks are generally to be considered when complying with the general organisational requirements. Appropriate arrangements should therefore be put in place for the identifying and consideration of sustainability risks in the securities sector.

Market infrastructures shall also be required to comply with provisions about risk management. Market operators of regulated markets (in Austria, Wiener Börse AG) shall be required pursuant to Article 47 MiFID II¹⁷², to establish adequate arrangements and systems to identify all risks that are material to their operation and to take effective measures to limit those risks. Article 21 para. 1 BörseG 2018 transposes this into national law. Further detailed requirements for trading venues supplementing those in MiFID II are defined in Article 3 et seq. of CDR (EU) 2017/584. Under EMIR¹⁷³, central counterparties (CCPs) (CCP.A in Austria) are required to ensure a sound risk management framework to manage credit, liquidity, operational and other risks, including the risks they bear or represent for other entities because of interdependencies. Many articles in EMIR reflect the strong anchoring of a comprehensive risk management system. Together with CCPs, central securities depositories (CSDs) (in Austria: OeKB CSD) also play a major role in maintaining the post-trade infrastructure. For this reason, many provisions in the Central Securities Depositories Regulation (CSDR)¹⁷⁴ also enshrine a strong risk management for central securities depositories. See Article 43 et seq. CSDR for a typical example.

Custodian banks or custodians of funds under the InvFG 2011 and AIFMG are required to performing monitoring and controlling obligations regarding assets held in custody. Under Article 40 para. 2 no. 1 InvFG 2011, the custodian bank of an investment fund must ensure that the sale, issue, re-purchase, redemption and cancellation of units carried out on behalf of the investment fund or by the management company take place in accordance with the provisions of the InvFG 2011 and the fund rules in the interests of unitholders. Under Article 19 para. 9 no. 3 AIFMG,

¹⁷² Directive 2014/65/EU on markets in financial instruments.

¹⁷³ Regulation (EU) No 648/2012 on OTC derivatives, central counterparties and trade repositories.

¹⁷⁴ Regulation (EU) No 909/2014 on improving securities settlement.

the depositary AIF shall ensure that the AIFM's instructions are executed, unless they would breach applicable national law or the AIF's terms and conditions or articles of association. Where the investment rules, fund rules, terms and conditions or articles of association consider sustainability matters, the custodian bank shall monitor the fund's or the investment company's compliance with those sustainability matters. By including sustainability aspects in the fund rules, sustainability matters are guaranteed to be considered by the entitled beneficiaries, investors or beneficiaries, so that they are entitled to compliance with the principles and are monitored by the custodian bank or the depositary.

3.3 LEGAL BASES RELATED TO NATURE-RELATED RISKS

CRD VI in particular contains relevant legal bases related to nature-related risks. According to Article 3 (1) (68) CRD VI "*environmental, social and governance risk*" or "*ESG risk*" is defined as per the definition in Article 4 (1) point 52d CRR III.¹⁷⁵ In addition, Member States shall ensure that the management body approves and at least every two years 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, and those resulting from the current and short-, medium- and long-term impacts of environmental, social and governance (ESG) factors. Member States may, taking into consideration the principle of proportionality, allow the management bodies of small and non-complex institutions to review the strategies and policies referred to in the first subparagraph every two years. (Article 76 (1) CRD VI).

Due to the physical impacts of climate change, biodiversity loss and the overall degradation of ecosystems in particular, sustainability risks pose an unprecedented challenge to the EU economy and to the stability of the financial system.¹⁷⁶ It is also noted that these risks present specificities such as their forward-looking nature and their distinctive impacts over short-, medium- and long-term time horizons. Due to their specific nature, both in terms of transition and physical risks, climate-related and other environmental risks (e.g. environmental degradation and biodiversity loss) need to be managed over a long-term time horizon of at least 10 years. Recital 39 CRD VI states that climate risks and, more broadly, environmental risks, should be considered together with social

¹⁷⁵ Article 4 (1) point 52d CRR III reads: "*environmental, social and governance risk*" or "*ESG risk*" means the risk of any negative financial impact on an institution stemming from the current or prospective impact of environmental, social or governance (ESG) factors on that institution's counterparties or invested assets; ESG risks materialise through the traditional categories of financial risks".

¹⁷⁶ Cf. Recital 38 CRD VI.

risks and governance risks under a single category of risk to enable a comprehensive and coordinated integration of those factors. Recital 40 CRD VI states that priority shall be given to environmental factors within the assessment of ESG factors.

The EBA Guidelines on ESG risk management also include some references to the management of nature-related risks, they generally refer to the importance of institutions gradually developing tools and practices aimed at assessing and managing the impacts of a sufficiently comprehensive range of environmental risks, as defined in Article 4 (1) point 52e CRR, which go beyond climate-only risks and include more general environmental risks. The Guidelines also refer to the importance of institutions understanding the potential physical and transition risks arising from the degradation of nature and from measures to protect and restore nature. For example, the Guidelines aim to enable institutions to properly understand, inter alia, financial risks that may arise from other types of environmental risks (e.g. nature degradation, including loss of biodiversity and loss of ecosystem services, or from the misalignment of activities to measures aimed at protecting, restoring and/or reducing negative impacts on nature), among others. Furthermore, large institutions should also develop, inter alia, methodologies to identify sectors that are highly dependent on or significantly affect ecosystem services, tools to measure the financial impact of nature degradation and measures aimed at protecting, restoring and/or reducing negative impacts on nature. Institutions should also set milestones at regular intervals to monitor and address ESG risks arising from the short, medium and long-term regulatory objectives of the jurisdictions in which they operate, including in relation to other environmental factors such as nature restoration or deforestation.

In addition, the ECB Guide regarding supervisory expectations relating to risk management and disclosure refers to climate-related and environmental risks,¹⁷⁷ which recognises that environmental factors include factors such as water stress, biodiversity loss and resource scarcity. As a result, the expectation is that banks should assess all environmental risk information beyond pure climate risks. In addition, ECB Banking Supervision has determined that the management body committees of banks should have an adequate understanding of climate-related and environmental risks, which is considered in the “*Fit and Proper*” assessment.¹⁷⁸ The degradation of nature and biodiversity loss have already been integrated as a risk component into the ECB’s supervisory methodology.¹⁷⁹

¹⁷⁷ ECB, [Guide on climate-related and environmental risks Supervisory expectations relating to risk management and disclosure](#) (2020).

¹⁷⁸ ECB [Guide to fit and proper assessments](#) (2021).

¹⁷⁹ O’Connell, *Birth of a Naturalist? Nature-related risks and biodiversity loss: legal implications for the ECB* (2024), [ECB Legal Working paper Series No. 22](#), p. 33.

Similarly, CDR (EU) 2021/1256 amending CDR (EU) 2015/35 is also relevant regarding the integration of sustainability risks in the governance of insurance and reinsurance undertakings. CDR (EU) 2021/1256 supplements the definition of ‘sustainability risk’ in Article 1 (55c) of CDR (EU) 2015/35.¹⁸⁰ Recital 5 of CDR (EU) 2021/1256 states that the Commission seeks to ensure that climate and environmental risks are managed and integrated into the financial system. Remuneration policies play an important role in ensuring that the staff of insurance and reinsurance undertakings who effectively manage risks identified through the risk management system should include information on how they consider the integration of sustainability risks in the risk management system in insurance and reinsurance undertakings’ remuneration policy. Article 275 CDR (EU) 2015/35 was further supplemented by para. 4, according to which the remuneration policy shall include information on how the integration of sustainability risks in the risk management system is considered. Furthermore, Recital 6 of CDR (EU) 2021/1256 states that under the prudent person principle laid down in Article 132 of Directive 2009/138/EC insurance and reinsurance undertakings are only allowed to invest in assets the risks of which they can identify, measure, monitor, manage, control and report properly. In order to ensure that climate and environmental risks are effectively managed by insurance and reinsurance undertakings, the implementation of the prudent person principle should consider sustainability risks, and insurance and reinsurance undertakings should reflect in their investment process the sustainability preferences of their customers as taken into account in the product approval process. Article 275a of CDR (EU) 2015/35 stipulates that insurance and reinsurance undertakings shall also take sustainability risks into account when identifying, measuring, monitoring, managing, controlling, reporting and assessing risks arising from investments, as referred to in the first subparagraph of Article 132 (2) of the Solvency II Directive¹⁸¹. To that end, insurance and reinsurance undertakings shall take into account the potential long-term impact of their investment strategy and decisions on sustainability factors and, where relevant, that strategy and those decisions of an insurance undertaking shall reflect the sustainability preferences of its customers taken into account in the product approval process referred to in Article 4 of CDR (EU) 2017/2358.

Furthermore, CDR (EU) 2023/2772 supplementing the Balance Sheets Directive¹⁸² as regards sustainability reporting standards is relevant, while the European Sustainability Reporting

¹⁸⁰ Article 1 (55c) of CDR (EU) 2015/35 reads: “‘sustainability risk’ means an environmental, social or governance event or condition that, if it occurs, could cause an actual or a potential negative impact on the value of the investment or on the value of the liability”.

¹⁸¹ Directive 2009/138/EC.

¹⁸² Directive 2013/34/EC.

Standards (ESRS) specify the information that an undertaking is required to disclose about its material impacts, risks and opportunities in relation to environmental, social and governance sustainability matters. ESRS do not require undertakings to disclose information on environmental, social and governance matters covered by ESRS when they have assessed those topics as not being material. The information disclosed allows users of the sustainability declaration to understand the undertaking's material impacts on people and the environment and the material impacts of sustainability matters on the undertaking's development, performance and position (for example, in terms of impacts and dependencies on ecosystem services). ESRS E1 (climate change), E2 (pollution), E3 (water and marine resources), E4 (biodiversity and ecosystems), E5 (circular economy) are particularly relevant. Furthermore, in the context of the criteria for environmentally sustainable economic activities, Articles 17 and 18 Taxonomy Regulation are relevant regarding 'do no significant harm' to environmental objectives (inter alia, protection and restoration of biodiversity and ecosystems, sustainable use and protection of water and marine resources, and pollution prevention and control).

The definition of 'sustainable investment' in Article 2 (17) SFDR, which includes investment in an economic activity that contributes to the achievement of an environmental objective, as measured, for example, by key biodiversity impact indicators, is also relevant.

4 HANDLING SUSTAINABILITY RISKS IN RISK MANAGEMENT

4.1 GENERAL REQUIREMENTS

Sustainability risks should not be considered as a separate type of risk but should be reflected in the existing risk categories, as they affect existing types of risk to which regulated entities are exposed in their business. A sound understanding of company-specific sustainability risks is a prerequisite for considering them adequately in risk management. Business and risk strategies should be reviewed regularly for this purpose and proactively adapted where required to the objective of business activity that is sustainable in the long-term.¹⁸³

- The first step is for supervised entities to identify the sustainability risks that are relevant for them, by checking their complete business activities for them.
- In a second step, it examines and documents how sustainability risks can pass through to the existing risk categories (transmission channels) and is also measured and assessed.
- In a third step, the identified, measured and assessed sustainability risks are adequately managed, monitored and limited, and appropriate accounting safeguards are taken where necessary.

Appropriate methodologies should be defined for the identification, measurement, evaluation and management of risks that are in line with the business and risk strategy, and they should be integrated into existing methodologies and processes, or new methodologies and processes established – see the Annex: Indicators, methodologies and tools for sustainability risks.

¹⁸³ Regarding credit institutions we also refer to the [supervisory expectation](#) published by EBA on 06.12.2019.

Practical example 6: Risk indicators and rating systems for credit institutions

Credit institutions shall include sustainability accordingly in the definition of appropriate general risk indicators or ratings and included in internal rating systems as integrated financial and sustainability ratings. Additional sustainability ratings are applied where the ratings of external credit rating agencies do not adequately consider sustainability risks.

Credit institutions shall include sustainability accordingly in the definition of appropriate general risk indicators or ratings and included in internal rating systems as integrated financial and sustainability ratings. Additional sustainability ratings are applied where the ratings of external credit rating agencies do not adequately consider sustainability risks.

In relation to credit institutions, EBA – based on a mandate pursuant to Article 87 (5) lit. a, b and c CRD VI – Guidelines on the Management of ESG Risks¹⁸⁴, including a specification for the content of the specific plans pursuant to Article 76 (2) CRD VI for the monitoring and management of financial risks arising from ESG factors from short-, medium and long-term perspectives (see also Chapter 5.9). The EBA Guidelines on ESG risk management also include qualitative and quantitative criteria for assessing the short-, medium- and long-term impact of ESG risks on institutions' risk profile. The consideration of the proportionality principle is fundamentally already laid down in the CRD and has also been explicitly included in the EBA guidelines on ESG risk management; in particular as regards the scope of the methods, parameters and indicators to be used.

In addition, in January 2025, EBA published a consultation paper on ESG Scenario Analysis Guidelines¹⁸⁵, covering the outstanding aspects under Article 87a (3) CRD, describing the criteria for the scenarios and the parameters and assumptions for the scenario analysis of ESG risks.

It should be noted that EBA has continuously integrated ESG risks in relevant places when revising existing Guidelines or already integrated them in the past, as has been done, for example, in the EBA Guidelines on loan origination and monitoring¹⁸⁶. This includes the expectation that institutions include ESG factors and associated risks in their credit risk appetite and credit risk management, as well as in their credit risk policies and procedures. Furthermore, ESG factors and associated risks are also considered in the overall loan origination and monitoring process. Institutions should assess

¹⁸⁴ EBA, *Guidelines on the management of environmental, social and governance (ESG) risks: Final Report*, [EBA/GL/2025/01](#).

¹⁸⁵ EBA, *Consultation Paper Guidance on ESG Scenario Analysis (2025)*.

¹⁸⁶ EBA Guidelines on loan origination and monitoring, [EBA/GL/2020/06](#).

the risks of the borrower associated with ESG factors, as well as the borrower's mitigating measures. A more detailed analysis must be performed for customers with an increased ESG risk.

Practical example 7: Sustainability risks and processes relating to the granting of credit

For supervised entities for which lending processes are part of the business model, sustainability risks are integrated into credit risk management both ex ante and ex post. This includes inter alia the determining and ongoing monitoring of limits, the mitigation of concentration risks, the application of scenario-based analyses and stress tests. In addition, Key Performance Indicators and Key Risk Indicators are fully integrated into the lending decision process to consider relevant, sustainability-related factual circumstances in relation to the customer or underlying asset in the risk assessment and, at most, to take account of the actual cost of risk in the pricing of the funding.

In 2020, the ECB, as the competent supervisory authority for significant institutions, published its Guide on climate-related and environmental risks¹⁸⁷ communicating how climate and environmental risks should be managed safely and prudently in line with the ECB's expectations. On this basis, the ECB carried out an extensive supervisory programme (e.g. SSM-wide standardised and structured surveys on the state of implementation of supervisory expectations (known as a "thematic review"), addressing the findings of climate and environmental risk management in supervisory dialogue with the institution's management body, etc.) with the aim of achieving full implementation of ESG risk management expectations in significant institutions by 2024.

The FMA has acknowledged the ECB's recommendation to also apply the expectations of the ECB's Guidance on Climate and Environmental Risk Management for the supervision of less significant institutions in a way that is appropriate to the scale and complexity of the concerned institution's activity and without directly replicating all expectations stemming from the ECB Guidance in the FMA Guide. This will further promote a harmonised application of the standards towards supervised institutions, taking the principle of proportionality into account. Furthermore, institutions can also use relevant ECB publications (e.g. 'Good practices for climate-related and environmental risk management – observations from the 2022 thematic review'¹⁸⁸) as guidance on how to improve understanding of expectations, as well as for communicating various *good practices* and standards and methodologies.

¹⁸⁷ See ECB, [Guidance on climate and environmental risks: Supervisory expectations relating to risk management and disclosure](#) (2020).

¹⁸⁸ See ECB, [Good practices for climate-related and environmental risk management: Observations from the 2022 thematic review](#) (2022).

Institutions shall therefore implement the requirements for the management of sustainability risks by applying the proportionality principle. It should be emphasised that in addition to the aspects relating to the application of the principle of proportionality, especially in relation to the size and complexity of the institution,¹⁸⁹ the outcome of the institution-specific significance or materiality assessment is also relevant, as smaller institutions may also be disproportionately exposed to sustainability risks due to concentrations in their portfolios. In summary, an adequate materiality analysis is always conducted prior to applying the principle of proportionality to ensure that institutions adequately address the risks that are most material to them.¹⁹⁰

4.2 MATERIALITY ANALYSIS / MATERIALITY ASSESSMENT

Systematic collection and evaluation of sustainability risks require a comprehensive and credible materiality analysis (also referred to as a ‘materiality assessment’)¹⁹¹ of all sustainability risks relevant to the supervised entity in the short, medium, and long term. The result forms the starting point for a critical appraisal of existing business models in terms of their resilience to sustainability risks and is to be explicitly integrated into the business strategy and supervised entity’s strategic planning derived from it. The materiality analysis is the basis for assessing the impact of sustainability risks both in terms of identifying and measuring such risks, and is also crucial for adequately and effectively managing, monitoring and limiting sustainability risks. The assessment of materiality is the responsibility of the supervised entities and requires a detailed justification and documentation.

A sound materiality analysis is essential for all supervised entities regardless of size, as smaller entities may also be disproportionately exposed to sustainability risks, for example due to portfolio composition or business model. The materiality analysis therefore forms the basis for applying proportionality in relation to strategy, policies, processes and plans. All risk categories established to date must be considered. Qualitative and quantitative factors for physical and transition risks shall be considered, as well as an appropriate selection of environmental factors, including climate-related factors, ecosystem destruction, and biodiversity loss.

¹⁸⁹ Cf. EBA Guidelines on internal governance (EBA/GL/2021/05) para. 18.

¹⁹⁰ See EBA, EBA/GL/2025/01, para. 23.

¹⁹¹ See EBA, EBA/GL/2025/01, para. 11 et seq. It should be noted that “materiality analysis” and “materiality assessment” are used synonymously hereafter.

The risk identification process shall identify the drivers of sustainability risks, as well as the specific transmission channels for the supervised entity, which have an impact on the risk profile. For the materiality assessment, the impact on an entity's capital or liquidity base, risk concentrations or qualitative aspects such as legal or reputational risks will be applied.

Account shall be taken of an entity-specific assessment and consistency with other materiality analyses carried out based on other legal requirements (e.g. due to disclosure requirements or in the context of the internal capital adequacy process [ICAAP]).

Practical example 8: Materiality analysis for credit institutions

Credit institutions are required to update their materiality analysis annually in accordance with EBA Guidelines on ESG risk management (para. 11), while SNCIs update it every two years. SNCI and other non-complex institutions may make use of more qualitative assessments when drawing up their materiality analysis, and make use of estimates and proxies¹⁹², with the aim of further developing the use of quantitative methodologies in the medium term. Simpler and less granular risk management methods and monitoring indicators may also be applied.

It should also be considered that the materiality analysis' results serve as a basis for further aspects related to the management of sustainability risks. For example, as part of transition planning and, in particular, the commitment strategy, priority should be given to addressing portfolios and other counterparties which, according to the materiality analysis, are particularly significant. The result of the materiality analysis is also crucial for integrating sustainability risks into the policies and processes of the individual risk categories. Activities that display a particularly high vulnerability for sustainability risks according to the materiality analysis, are also particularly significant in the monitoring process. The integration of sustainability risks into the internal governance, business strategy and the setting of objectives and indicators also build on the materiality analysis. In this context, institutions may also refer to the ECB's identified *Good Practices* for details about implementing the materiality analysis.¹⁹³

4.3 SUSTAINABILITY-RELATED DATA

The creation of robust and reliable data is essential to effectively apply methodologies to manage and mitigate sustainability risks and to comply with existing transparency obligations. Due to the legal requirement to adequately consider sustainability risks within the scope of existing risk

¹⁹² These are verified approximations or estimates using internal or external data sources, see *ECB Compendium of Good Practices*, p. 36.

¹⁹³ ECB, *Good practices for climate related and environmental risk management* (2022), p. 4 et seq.

categories, the collection of sustainability-related information, especially with regard to climate risks by supervised entities must be ensured. Location-related data are also relevant. In light of their dimension, more information should be collected on nature-related risks, with identification of geo-specific exposure and vulnerability being particularly relevant in this context.

In order to create adequate data, strategies are needed to systematically identify and collect information on sustainability risk factors, both in the context of operational activity (e.g. in the context of lending processes or underwriting of insurance contracts) and by including relevant external sources, with particular benefits in relation to sustainability-related data. In so doing, it is necessary to conduct an assessment about the suitable quantity, quality and granularity of the data basis. It is advisable to consider that especially in the case of longer-term contractual relationships or longer-term investments that the danger exists that physical risks or transition risks (including legal risks and reputational risks) may increase or materialise. It is helpful to process forward-looking data for this reason. Such risks may materialise in a deterioration of credit quality as a result of changed economic/legal environment, and ultimately as a result of “*stranded assets*”. Conversely, when financing sustainable projects (e.g. green bonds, green loans¹⁹⁴) internal processes are necessary to check that funds have been used sustainably. Mapping of such information flows necessitates adapting operative business processes – from collecting data from business partners through to the monitoring of sustainability risks in risk management.

Practical example 9: Using external data providers

When using external sustainability ratings or sustainability-related or climate-related data from external providers it must be ensured that such data is subjected to a plausibility check that is appropriate for its risk situation, and that the risks arising from business activities with third parties are also adequately managed.¹⁹⁵

The plausibility check is used to check whether the individual factors that feed into the sustainability rating are suitable for assessing the individual risk situation. Sustainability ratings providers use different influence factors and different weightings. Therefore, a single company will have different sustainability scores from one rating provider to the next.¹⁹⁶ An appropriate plausibility check therefore also applies

¹⁹⁴ Green Bonds according to EU Green Bond Standard, Green Loans: Although there is currently no uniform definition of green lending, the Taxonomy Regulation provides a classification system for economically sustainable activities under the EU Sustainable Finance Framework. Accordingly, for example, EBA recommends in its Report on green loans and mortgages, EBA, to classifying financing as ‘green’ that is also deemed to be ‘aligned’ under the EU Taxonomy Regulation.

¹⁹⁵ Cf. in this case e.g. The FMA Minimum Standards for Special Credit Institutions, Pension Companies and AIFMs for undertaking Due Diligence, 10.11.2023 (available in German only).

¹⁹⁶ Cf. Kim/Yoon, Analyzing Active Fund Managers’ Commitment to ESG: Evidence from United Nations Principles for Responsible Investment (2020).

disaggregated assessments at the level of the individual factors. The EU Regulation on ESG Ratings intends to ensure better comparability.¹⁹⁷

In order to obtain and process the data needed for sustainability risk management, it is generally necessary for supervised entities to step up their efforts to improve data with their counterparts in the real economy. The FMA expects that the data situation of supervised entities will also improve as the quality of sustainability and climate-related data increasingly improves.

Practical example 10: Adequate data basis review

The review of qualitative and quantitative data, as well as the inclusion of external sustainability ratings or climate- or sustainability-related data providers, shall be carried out on a regular basis in order to ensure firm-specific data to account for sustainability risks. Any data gaps are gathered and documented, and efforts made to address them as part of a structured process. Where relevant information is not available at short notice, then for internal reporting and risk quantification purposes, the necessary (missing) data are identified and a plan developed about how this gap can be addressed quickly. Until reliable and up-to-date real data are available, in the meantime proxies¹⁹⁸ are used for certain data points.

In addition to sustainability-related company data, robust and reliable scenario data are also needed to address sustainability risks. Such scenarios are used, inter alia, for climate risk and vulnerability analyses (see practical example 11 below). In particular, geographical scope is to be considered when selecting appropriate climate scenarios. Austrian climate scenarios (ÖKS; *Österreichische Klimaszenarien*) may be relevant for activities in Austria. An updated version, ÖKS26, is planned for release in 2026.¹⁹⁹ Furthermore the Second Austrian Assessment Report on Climate Change (AAR) is planned to be published in Summer 2025. This will include a chapter on transformation pathways based, inter alia, on Austria's greenhouse gas budget and sectoral scenarios.²⁰⁰

¹⁹⁷ Cf. the European Parliament's legislative decision of 24 April 2024 to the proposal for a Regulation on the transparency and integrity of Environmental, Social and Governance (ESG) rating activities, [COM\(2023\) 314 final](#), C9-0203/2023, 2023/0177(COD).

¹⁹⁸ These are verified approximations or estimates using internal or external data sources, see ECB, [Compendium of Good Practices](#) (2022), p. 36.

¹⁹⁹ See <https://klimaszenarien.at/ueberblick/>.

²⁰⁰ See <https://aar2.ccca.ac.at/>.

4.4 PATHWAYS AND MANAGEMENT OF SUSTAINABILITY RISKS IN RISK MANAGEMENT

4.4.1 CLIMATE RISKS

Climate risks can affect existing risk categories through different means of transmission. Regarding their treatment in risk management, the following table shows the (demonstrative) impact of climate risks on existing risk categories, together with examples:²⁰¹

<i>Financial Risks</i>	<i>Physical Risks</i>	<i>Transition Risks</i>
Credit / Counterparty Risk	■ Natural catastrophes reduce the value of collaterals ■ Natural catastrophes reduce sustainability of debt ■ Increase in temperature / loss of biodiversity reduces productivity / income	■ High write-offs on CO₂-intensive plants ■ Low revenues from creditors/investments due to CO₂ tax ■ More investment needed in new, more risky technologies
Market risk	■ Natural catastrophes increase price volatility ■ Natural catastrophes ravage entire regions ■ Increasing insecurity due to disasters ■ Natural catastrophes lead to rapid outflow of capital ■ Rising sea level increases country risks	■ Changes in consumer behaviour as well as technologies ■ Missing the turnaround towards climate-neutral plants ■ Increasing inflation expectations due to CO₂ taxes ■ Downgrading of country ratings for country causing a lot of CO₂ ■ Increased uncertainty about future technologies/laws
Liquidity risk	■ Sudden outflows due to catastrophes ■ Sudden demand for emergency loans	■ <i>Stranded assets</i> are no longer able to be traded
Operational risk	■ Destruction of infrastructure required for the business activity ■ Increased insurance costs ■ Increased costs for adapting to climate change ■ Lack of available data and costs (esp. also for outsourcing)	■ Price increases due to levying of CO₂ taxes ■ Increased reporting obligations about emissions
Legal and Reputational Risk	■ “Contagion” due to proximity to affected regions ■ Increase in judicial proceedings (“<i>Strategic/climate litigation</i>”)	■ Lack of attention to sustainability risks ■ Stigmatisation of businesses by consumers

²⁰¹ See, for example, S. Saria, *Green Insurance: Versicherungsgeschäft in Zeiten des Klimawandels*, ZVers 2/2020, p. 69 et seq.; Pointner/Ritzberger-Grünwald, *Climate change risk as a risk to financial stability: Financial Stability Report (2019)*, p. 38.

		■ Sale of financial products that are only apparently sustainable (“Greenwashing”)
Underwriting risk	■ Higher damage from storm, floods, frost, hail, etc. ■ Risk that increased damages are not adequately taken into consideration in the technical provisions of premium-based risks.	■ Changes in underwriting risk esp. as a consequence of selection effects
Strategic and Governance Risk	■ Sustainability risks are either not taken into consideration or are only afforded insufficient consideration in the company’s business continuity management (loss of an essential building, servers, access roads, connection to public transportation) ■ Absence of ESG strategy, or a strategy that is not far-reaching enough ■ Absence or lack of implementation of group-wide minimum standards ■ Absence or lack of monitoring of the ESG strategy by the compliance and internal audit functions.	■ Lack of addressing of or incorrect pricing of sustainability risks ■ A company specialising in the financing of CO₂-intensive economic activities losing its business base as a result of CO₂ taxes.
Systemic risk	■ Abrupt climate change ■ Underestimation of effects in risk models	■ Carbon bubble²⁰² ■ Simultaneous selling of affected asset titles

Table 4: (Demonstrative) depiction of the impact of climate risks on existing risk categories

The risk categories listed in the table may reach potentially systemic levels. This may be the case were the losses due to the realisation of physical risks or transition risks of systemically relevant financial market participants (or otherwise where a significantly large number of participants are affected) is so high, that financial market stability is threatened (e.g. due to an increase in the number of non-performing loans of borrowers with CO₂-intensive business models). Systemically relevant (e.g. Regional or sectoral) concentration risks arising due to sustainability risks, or contagion risks between sectors of the real economy and between financial market participants (knock-on effects) are also considered.

²⁰² “Carbon bubble” means a structural long-running valuation of entities, that were unable to date to (adequately) absorb the negative externalities of fossil fuels. Were the framework conditions to change (e.g. Due to the introduction of a higher CO₂ price) the current valuations would become an “overvaluation”, and the corresponding correction would be expected to be made.

At the same time, physical risks that are already visible due to climate change also require timely and effective adaptation to climate change. The IPCC, for example, defines adaptation in human systems as the process of adjustment to actual or expected climate and its effects to moderate harm or take advantage of beneficial opportunities. In natural systems, adaptation is the process of adjustment to actual climate and its effects; human intervention may facilitate this.²⁰³ Due to the expected further increase in global CO₂ emissions and the associated progress of climate change, the urgency and scale of the need for all affected stakeholders to adapt to a changing climate will further increase. At the same time, it should be noted that current adaptation efforts are still insufficient or unevenly distributed,²⁰⁴ which in turn poses follow-on risks also for financial and non-financial institutions, and potential implications for financial stability. Therefore, it seems advisable to address the issue of adaptation also from a risk management perspective, in particular with regard to exposures and vulnerabilities (e.g. also in the context of the *Insurance Protection Gap*).

4.4.2 NATURE-RELATED RISKS

Chapter 2.5 addresses nature-related risks in detail. Transmission methods and impacts on existing risk categories are also classical channels of financial risk for the aforementioned nature-related risks. The NGFS has developed an overview of this (see Figure 5 below).

²⁰³ IPCC, *Summary for Policymakers*, p. 5, in: *Climate Change 2022: Impacts, Adaptation and Vulnerability: Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (2022)*, Page 3 et seq.

²⁰⁴ IPCC, *Summary for Policymakers*, Page 20, C.1.

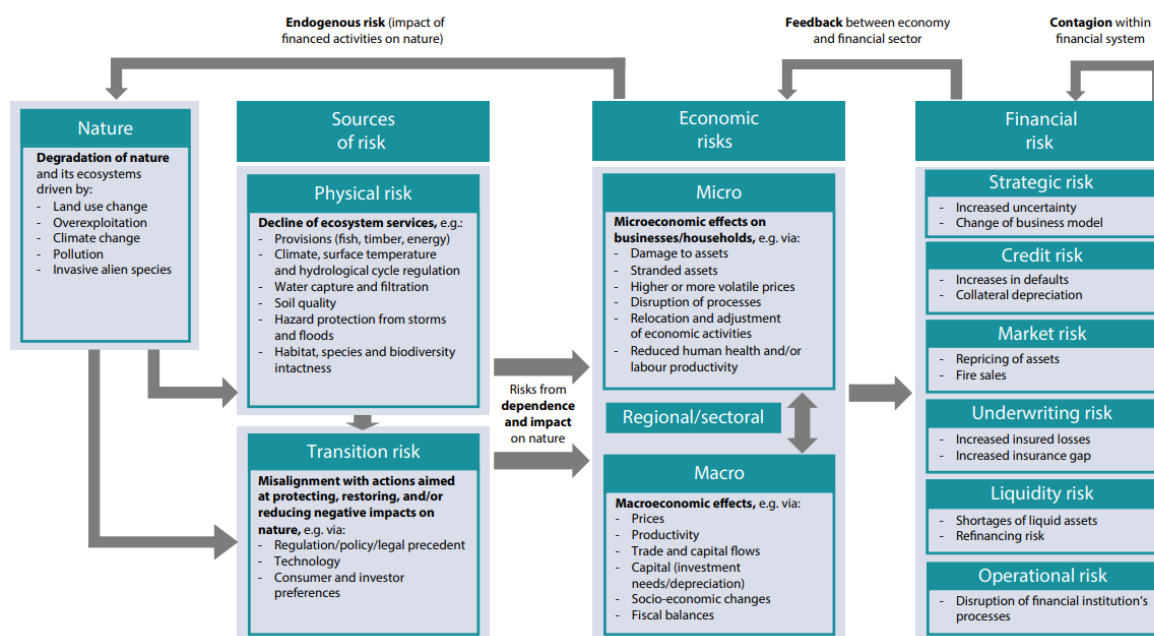


Figure 5: Transmission channels for nature-related risks²⁰⁵

In the context of nature-related risks, the following risks are relevant: I) credit risk (in particular in certain sectors, such as real estate and agriculture, which rely either directly or through the supply chain on ecosystem services, or arising from financial portfolios that finance activities for entities operating in protected areas or that lead to natural degradation), II) market risk, III) insurance risk (e.g. higher claims by policyholders, changes in the provision of insurance services such as in terms of premiums and availability) and IV) other types of risk (e.g. legal and reputational risks). Indirect effects (e.g. due to key ecosystems collapsing or due to pandemics) may also lead to systemic risks related to nature-related risks.²⁰⁶ At the same time, the complexity of understanding potential hazards and transmission channels to financial risks from nature-related risks should be noted, since nature-related risks have a variety of causes and impacts at both global and very localised levels and with highly uncertain time horizons, as well as extreme risks of a corresponding non-linear nature.²⁰⁷

The annex to this guide also contains some methods and tools to address the complex issue of nature-related risks from a risk management perspective, noting that further progress is needed,

²⁰⁵ NGFS, *Nature-related Financial Risks: a Conceptual Framework to guide Action by Central Banks and Supervisors* (2023), Fig. 2.

²⁰⁶ FSB, *Stocktake on Nature-related Risks: Supervisory and regulatory approaches and perspectives on financial risk* (2024), P.10 et 10 et seq.

²⁰⁷ FSB, *Stocktake on Nature-related Risks: Supervisory and regulatory approaches and perspectives on financial risk* (2024), p. 33.

especially in relation to climate risks, and in particular in the area of awareness and knowledge building. Nevertheless, in light of the dimension of the potential extent of nature-related risks materialising, they should not be neglected when addressing sustainability risks and should be gradually integrated into existing risk management processes, in particular regarding risk identification (under special consideration of geographical specificities) and identifying relevant transmission channels to existing risk categories. Existing significant knowledge and know-how gaps in addressing nature-related risks, and the need to maintain proportionality, are recognised and taken into account in the FMA's operational supervisory activities, with the FMA operating in accordance with the relevant legal bases listed as examples in Chapter 3.

4.4.3 ENVIRONMENTAL RISKS UNDER THE EU TAXONOMY

Regarding the environmental objectives defined in the Taxonomy Regulation, as already stated in Chapter 2.6, a robust climate risk and vulnerability assessment under the EU Taxonomy is also necessary to assess the significant harm to them. As a minimum, this analysis shall include climate hazards in the categories temperature, wind, water, and solid mass in acute or chronic forms. The robust climate risk and vulnerability assessment shall be proportionate to the scale of the activity and its expected lifetime. To avoid significant harm to the environmental objective of sustainable use and protection of water and marine resources, risks of environmental degradation related to preserving water quality and avoiding water stress shall be identified to guarantee good water status. To avoid significant harm to the environmental objective of pollution prevention and control, the activity shall not lead to the manufacture, placing on the market, or use of specific chemicals. The environmental impact assessment shall address the prevention of significant harm to the environmental objective of protecting and restoring biodiversity and ecosystems.²⁰⁸

²⁰⁸ See Article 18 of the Taxonomy Regulation, CDR (EU) 2021/2139, and CDR (EU) 2023/2486.

Practical example 11: Conducting a robust climate risk and vulnerability analysis according to the EU Taxonomy

In July 2024, the Austrian Institute of Technology GmbH (AIT), Geosphere Austria, the Technical University of Vienna, and Environment Agency Austria (*Umweltbundesamt*) published a Guide for carrying out a robust climate risk and vulnerability analysis under the EU taxonomy, which was drawn up as part of a joint project.²⁰⁹

The Guide provides recommendations for the implementation of the climate risk analysis within the EU Taxonomy.

As data from climate models need to be used for economic activities with a lifetime > 10 years, the Guide lists possible datasets specifically for Austria as well as for other European countries. In addition, it also describes which of the hazards listed in Annex I, Appendix A to the Taxonomy Regulation can be derived from the existing models from a scientific perspective for the future. In addition, appropriate indicators and bases are given to determine the hazards, which may vary depending on the risk examined.

4.4.4 SOCIAL AND GOVERNANCE RISKS

Social and governance risks are also covered by risk management, such as e.g. human rights breaches, breaching of Core Labor Standards of the *International Labour Organization* (ILO) (especially child labour or forced labour) and corruption. In the case of existing business relationships or activities with or in countries that have neither ratified nor implemented relevant human rights conventions in practice, increased precautionary measures are advised.²¹⁰ In particular in such cases, they are required to comply with standards such as the OECD Guidelines for Multinational Enterprises and the accompanying OECD Due Diligence Guidance.²¹¹

²⁰⁹ See <https://ccca.ac.at/en/climate-knowledge/klimtax>.

²¹⁰ Universal Declaration of Human Rights, United Nations General Assembly resolution III A (III); European Convention on Human Rights, published in Federal Law Gazette No. 210/1958; Convention (No. 87) on Freedom of Association and Protection of the Right to Organise, published in Federal Law Gazette No. 228/1950; Convention (No. 98) on the Application of the Principles of the Right to Organise and Collective Bargaining, published in Federal Law Gazette No. 20/1952; Convention (No. 105) on the Abolition of Forced Labour, published in Federal Law Gazette No. 81/1958, Convention (No. 100) on Equal Remuneration, published in Federal Law Gazette No. 39/1954; Convention (No. 111) on Discrimination (Employment and Occupation), published in Federal Law Gazette No. 111/1973; Convention (No. 138) on Minimum Age for Admission to Employment, published in Federal Law Gazette III No. 200/2001; Convention (No. 182) on the Prohibition of and Immediate Measures to Eliminate the Worst Forms of Child Labour, published in Federal Law Gazette III No. 41/2002; United Nations Convention against Corruption, published in Federal Law Gazette III No. 47/2006.

²¹¹ Cf. OECD, [OECD Guidelines for Multinational Enterprises](#).

5 HANDLING ON SUSTAINABILITY RISKS IN STRATEGY AND GOVERNANCE

Adequate integration of sustainability risks into business and risk strategy and operational risk management requires sufficient resources, expertise and ongoing training to fully understand the broad implications of sustainability factors. Where relevant the handling of sustainability risks is also taken into consideration in the case of outsourcing.²¹²

Practical example 12: Establishing a “Sustainability Management Function” or a “Sustainability Organisational Unit”

A few supervised entities have established their own “sustainability management function” or “sustainability organisational unit” with overall responsibility towards the ultimately responsible management body. In such cases, their integration in processes and interfaces to other functions and organisational units should be clearly defined.

Initiatives that provide concrete guidance on the integration of sustainability risks can support financial undertakings in integrating sustainability factors into risk management.

Practical example 13: Managing climate risks and promoting resilience through the Green Finance Alliance (GFA)

The GFA is an initiative for a sustainable financial market in Austria launched by the BMK. The GFA’s members voluntarily commit to gradually making their core business climate-neutral by implementing predefined measures. The GFA states that the following actions will contribute significantly to managing climate risks and resilience:

- Introduction and publication of a holistic climate strategy, including climate mainstreaming, remuneration policies and transition plans
- Implementation of an engagement strategy including annual progress reporting
- Phasing out of fossil fuels by means of specific trajectories
- Collecting and publishing the portfolio’s greenhouse gas footprint.

Implementing these measures helps financial undertakings to identify their climate risks at an early stage and to proactively limit them. Members will be supported on their path towards climate neutrality by means of ongoing support from an expert help desk and regular skills training in workshops and webinars.²¹³

²¹² Cf. ECB, *Guide on climate-related and environmental risks, Supervisory expectations relating to risk management and disclosure* (2020).

²¹³ For more information on the Green Finance Alliance (GFA), see <https://www.bmluk.gv.at/en/topics/climate-environment/sustainable-development/green-economy-und-green-finance/green-finance/alliance.html>.

5.1 THE RELEVANCE OF SUSTAINABILITY RISKS IN STRATEGY AND GOVERNANCE

Supervised entities are confronted with sustainability risks from various different perspectives in their activity. In addition to the physical and transition risks that may materialise in a supervised entity's area of activity, or of its counterparties, sustainability risks arising from investment, the customer's internal relationships or the financial products marketed should also be mentioned in this context. Furthermore, within the scope of pre-contract information for customers (collective consumer protection) and ongoing reporting information about sustainability as well as the supervised entity itself shall increasingly be required to be disclosed.²¹⁴

Governance shall ensure a clear attribution of responsibility for integrating sustainability risks into the business strategy and the risk management framework. Ultimate responsibility for taking sustainability risks into account lies with the management body. Based on this responsibility, directors also ensure the implementation of a sound risk culture for group-wide management of sustainability risks and a corresponding '*tone-from-the-top*'.

Practical example 14: Group activities

In the case of a group of entities the consideration of sustainability risks in the business and risk strategy should be undertaken consistently throughout the group. Where there is a "sustainability management function" or an "organisational unit for sustainability" in the parent undertaking then this may support the entities that belong to the group in this regard.

The general need to create an adequate data basis as an overarching theme has already been referred to in Chapter 4.3.

5.2 IMPLEMENTATION OF THE STRATEGY BY THE MANAGEMENT BODY

The legal obligation for supervised entities to consider sustainability risks as part of their entity's general risk management also requires them to be substantively addressed within the scope of their business strategy. Objectives are achieved by establishing appropriate key performance and risk indicators ('KPIs/KRIs'), which are monitored and subsequently managed in a targeted manner.

²¹⁴ See the provisions of the SFDR and the Taxonomy Regulation.

Practical example 15: Integrating sustainability risks into the business strategy

Integrating sustainability into risk management requires an understanding by the management body of the short-, medium- and long-term sustainability risks affecting the undertaking. The corresponding internal procedures and support instruments may facilitate the integration of a strategic sustainability perspective into the risk management. The following considerations could be considered as part of the materiality analysis, for example:

- identifying effects of sustainability issues on internal and external stakeholder value;
- actively including sustainability in objective setting and cascading objectives across the levels of the organizational hierarchy; and
- developing concrete support for identifying, assessing, and managing economic sustainability risks.

Supervised entities may be able to enhance their competitiveness through such considerations, and to facilitate the integration of the strategic sustainability perspectives into risk management.²¹⁵

Regardless of how it is taken into consideration, internal responsibilities within the enterprise (persons or units) are determined in writing and therefore traceably with regard to sustainability risks, with it never being possible to exclude the management body from ultimate responsibility. The risk management function informs the management body both within the scope of regular reporting as well as on an ad hoc basis about entity-specific sustainability risks, which cover short-, medium-, and long-term business perspectives, so that they can make informed decisions. Business strategy adaptation to adequately address sustainability risks also directly affects in-house functions required under supervisory law.²¹⁶ In addition, it is also the management body's responsibility to proactively request up-to-date information on exposure to and adequate management of sustainability risks. Sustainability risks should also be addressed in Fit & Proper training.

²¹⁵ Cf. Schulte/Hallstedt, *Company Risk Management in Light of the Sustainability Transition*, Sustainability 2018/10, 4137.

²¹⁶ Cf. ECB, *Guide on climate-related and environmental risks. Supervisory expectations relating to risk management and disclosure* (2020), p. 22.

5.3 THE ROLE OF THE SUPERVISORY BOARD OR OTHER COMPETENT SUPERVISORY BODY

The supervisory board²¹⁷ or other competent supervisory body of the supervised entities has a central role in the supervision of top management, strategy and governance. Within the scope of the control, monitoring and oversight over the management body, it should be noted that the supervisory board's monitoring duty related to the management function itself and therefore covers all management function-relevant conduct. Thus, the supervisory board is also responsible for the short-, medium- and long-term integration and effective monitoring of sustainability risks in business strategy, internal governance and risk management in the company. This does not just extend to the conduct of the management body itself, but also examining those of key functions assigned to them. The discretionary business decisions taken by the management body are measured in terms of the manifesting risks for the supervised entity. Within the context of sustainability risks it is therefore sensible in performing the legal duties of the supervisory board, that this body proactively deals with sustainability risks that are specific to the undertaking. From a management body perspective, it is advisable to comprehensively and regularly inform the supervisory board about the sustainability risks that are specific to the undertaking as well as the measures taken by risk management. Sustainability risks are adequately covered in Fit & Proper training for supervisory board members, including further-reaching aspects such as applicable climate scenarios and sustainability risk and stress testing methodologies.

Practical example 16: Establishment of a 'sustainability risk committee'

In addition to explicitly addressing sustainability risks in the supervisory board in its entirety or, as applicable, in the risk committee (including the underlying reporting), a few supervised entities have set up a separate sustainability committee at the level of the supervisory board, which actively shapes the sustainability strategy and the sustainability risk management framework.²¹⁸

²¹⁷ To ensure a consistent terminology, the terms "executive director" and "non-executive director" shall be used to apply to all members of the management body in its respective management or supervisory function respectively, with the term "supervisory board" being used for the competent supervisory body under law or under the entity's articles of association, with separate references for any deviations.

²¹⁸ Cf. ECB, [Good practices for climate-related and environmental risk management: Observations from the 2022 thematic review](#) (2022).

5.4 THE ROLE OF THE RISK MANAGEMENT FUNCTION

In addition to the management body's ultimate responsibility for ensuring that sustainability risks are adequately taken into consideration within the scope of the respective risk categories, the risk management function takes on a central role in this context, since it also has a complete overview of the manifestation of all types of risk and the entity's risk situation. The organisational unit that is responsible for risk management shall be involved in the development of the risk strategy and in all material decisions and activities related to sustainability risk management, e.g. the systematic identification, measurement and management of sustainability risks. It supports the management body by monitoring and tracking existing sustainability risks, to enable a well-founded decision-making process and acting in a risk-aware manner. In so doing it also contributes towards establishing the corresponding risk culture. Especially the evaluation of the business model, the capital base and liquidity assuming various strategies in this way creates a strong operation data basis, upon the basis of which management decisions may be established. Consideration should be taken regarding the adequate provision of resources for the risk management function. The entity's risk appetite must also be considered when assessing sustainability risks, including risks associated with securities business or asset management, and sustainability risks should also be defined reciprocally in a structured manner in the undertaking's risk appetite.

Practical example 17: Sustainability risks and Internal Capital Adequacy Assessment Process (ICAAP)

Supervised credit institutions to which an internal capital adequacy process applies are encouraged to identify material sustainability risks that may result in economic losses and a reduction in the entity's capital position and adequately integrate them into ICAAPs. Where there is no assumption of materiality, the classification of materiality is justified and documented in a transparent manner.

5.5 THE ROLE OF THE COMPLIANCE FUNCTION

Processes are established within the remit of the compliance function established in accordance with respective material act that permit the effective reviewing of the observance of legal and regulatory rules, to cover risks arising from their non-observance and to limit them. In particular, the SFDR creates sustainability risk transparency obligations for financial market participants and financial advisers (see chapter 6.1). Under the MiFID II CDR (EU) 2017/565, sustainability risks are also to be considered in the organisational rules on the compliance function and conflict of interest management.

5.6 THE ROLE OF THE INTERNAL AUDIT FUNCTION

The internal audit function reviews the specific implementation of the risk strategy and the risk appetite in relation to sustainability risks to achieve its objectives and to deal with disclosure and customer information obligations. Sustainability risks are integrated into the annual internal audit planning accordingly as part of the ongoing audit planning, as well as on an individual case-by-case basis.

5.7 KNOWLEDGE AND PERSONNEL MANAGEMENT

Where necessary, adaptations are made to the company's internal knowledge and personnel management due to the integration of sustainability risks in the business and risk strategy. Employees, whose activities entail sustainability risks, require suitable knowledge about the relevant sustainability risks that are applicable to their job profile. On the one hand this relates to employees of the supervised entity that are responsible in relation to customer communication for the data collection about sustainability risks and customer advice (pre-contract disclosure obligations). On the other hand, the creation of know-how and having adequate staffing resources especially with regard to managerial functions and in risk management is an integral component for implementing the entity's internal sustainability strategies.

5.8 REMUNERATION POLICIES AND CONFLICTS OF INTEREST

Sustainability risks should also be considered in the remuneration policy and in the management of conflicts of interest. The SFDR requires financial market participants and financial advisers to disclose²¹⁹ the extent to which their remuneration policies are in line with the integration of sustainability risks. This disclosure requirement is to be observed within the remuneration policies defined for the sector, including inter alia the relevant applicable proportionality criteria such as the size, internal organisation and the nature, scope and complexity of the relevant activities. It is however expedient, from either a qualitative or quantitative perspective to create greater transparency about the remuneration policy that promotes sound and effective risk management with respect to sustainability risks whereas the structure of remuneration does not encourage

²¹⁹ Cf. Article 5 SFDR.

excessive risk-taking with respect to sustainability risks and is linked to risk-adjusted performance.²²⁰

Supervised entities shall take sustainability risks into account when meeting organisational requirements for guaranteeing investor protection in securities distribution.²²¹ Furthermore, when determining the types of conflicts of interest that may arise in the provision of investment services, supervised entities shall also take clients' sustainability preferences into account.²²² This may include conflicts from arise from the remuneration or personal transactions of the staff concerned, conflicts of interest that could lead to greenwashing, sales with false or misleading claims or misrepresentation of investment strategies, and conflicts of interest between different clients. In particular, the supervised entity's long-term interest should be ensured. When identifying the types of conflicts of interest, supervised entities shall consider their own interests, including those arising from the regulated entity's membership of a group or from the provision of services and activities, as well as the interests of clients.

5.9 TRANSITION PLANNING

Transition planning describes the undertaking's internal planning for strategy, risk and process management necessary for adequate management of sustainability risks and company-specific transition to a sustainable economy. This includes the internal process for developing its own transition strategy and integrating short-, medium- and long-term sustainability risks into the risk management process and business strategy. It should be stressed that the transition planning process goes beyond merely preparing the transition plan for transparency purposes²²³. Therefore, the transition planning process is to be integrated with the undertaking's risk management and integrated into the corporate strategy. Transition planning addresses physical and transition risks and increasingly integrates nature-related risks in a forward-looking perspective.

Transition plans under the CSRD and CSDDD address the disclosure and comparability of business models and transition processes for achieving the critical +1.5 C climate target and the policy objective at European level to achieve climate neutrality by 2050, thereby creating transparency for different target groups. Specific plans under Article 76 (2) CRD VI address the monitoring and risk

²²⁰ Cf. Recital 22 SFDR.

²²¹ See Article 21 (1) of CDR (EU) 2017/565, as amended by CDR (EU) 2021/1253.

²²² See Article 33 of CDR (EU) 2017/565, as amended by CDR (EU) 2021/1253.

²²³ NGFS, [NGFS: Transition Plan Package](#) (2024), p. 5.

management of the short-, medium- and long-term ESG factors that are relevant for the undertaking through the adaptation and transition process to achieve relevant policy objectives (e.g. achieving climate neutrality by 2050) and binding legal bases. The management body shall establish an implementation strategy and quantifiable objectives to do this. In addition to the environment, social and governance factors, nature-related risks and biodiversity should also be addressed in this context. Therefore, where a supervised entity is required to draw up multiple plans due to different regulatory requirements, the coherence and consistency of the plans shall also be ensured.²²⁴

The following section on transition planning is based on the documentation package published by the NGFS on transition planning²²⁵ and is intended to provide supervised entities with an overview of what elements of the transition planning process and a credible transition plan may address. It should also provide guidance in addition to existing binding legal requirements. It should also be acknowledged that complementary products to specific requirements relating to transition planning are still under development in a broad array of relevant institutions.

In accordance with Article 76 (2) CRD VI, the management body required to draw up specific plans with quantifiable objectives and processes stemming from the short-, medium- and long-term ESG factors, including the risks arising from the adaptation process and transition trends related to the relevant regulatory objectives and legal acts under Union and national law in relation to ESG factors, in particular the objective of achieving climate neutrality and monitoring their implementation.

It should be noted that the obligation to draw up transition plans under CSRD, CSDDD and CRD VI only affects a restricted subset of supervised entities.²²⁶ Companies for which there is no regulatory requirement to draw up transition plans can also benefit from a structured approach towards transition planning and the impact of the transition to a sustainable economy on their own business and to document this. A structured approach to transition planning can also help, in terms of cooperating with other companies to meet the requirements for data and target collection in a consistent and efficient manner.

It can be observed that the development of the European legal framework, as well as of guidelines and methodologies on transition planning and transition plans, is still at an early stage and will continue to evolve in the coming years. Although a uniform definition currently does not exist,

²²⁴ Cf. Article 87a para. 5 point b CRD VI that explicitly stipulates this for credit institutions.

²²⁵ See the NGFS [press release](#).

²²⁶ Cf. with regard to (re)insurance undertakings, for example, the amendment of Article 44 of the Solvency II Directive by Directive (EU) 2025/2.

corporate governance, engagement, risk assessment, credible business activities, and ongoing monitoring, are key elements for the informed assessment of transition plans.

	Process: Transition planning	Outcome: Transition plan
Governance	Responsibility of management and supervisory bodies and senior management for the development, implementation, monitoring and updating of the transition plan	Internal governance process for the decision on, implementation, monitoring and updating of the transition plan
Engagement – Structured Dialogue	Active engagement with customers/clients and investors about the credibility of transition plans	Engagement strategy for customers/clients and investors including data collection procedure and strategy
Risk assessment	All relevant climate risk aspects are adequately considered in the risk appetite and risk management process	Results from the entity's risk assessment and customers/clients' and investors' risk assessment
Credible business activities	Clear documentation in line with the business and risk strategy	Action plans in interdisciplinary teams in line with the risk management strategy
Ongoing monitoring	- Establishing and documenting a monitoring and review process - Measuring effectiveness and implementation measures	- Process and benchmarks for regular monitoring - Integration in internal control functions' work programme

Figure 6: Overview of key elements of credible transition planning²²⁷

As a result, institutions should analyse technological, business and customer aspects and their opportunities and risks and impacts in a structured planning process. In any case, the long-term perspective should include a planning horizon of 10 years or longer and also refer to the EU 2050 target.²²⁸ In this context, companies shall set transition targets and a strategy and implementation plan. Institutions' governance and risk management processes related to sustainability risks are aligned with the set objectives.²²⁹

The transition plan includes quantifiable targets (including KPIs and KRIs) and defines corresponding processes to address sustainability risks in the short-, medium- and long-term. In this plan, the company outlines its sustainability-related product offering, all policies related to transition finance (including the lending standards) and sustainability-related objectives and limits. Where relevant, companies also reflect international legal developments and objectives in this context. The undertaking shall analyse and document all sustainability-related aspects related to strategy, policies and risk management processes for ensuring the undertaking's resilience to that effect. When drawing up transition plans, smaller undertakings can choose simplified versions under

²²⁷ NGFS, *Credible Transition Plans: The micro-prudential perspective* (2024), p. 4.

²²⁸ NGFS, *Credible Transition Plans: The micro-prudential perspective*.

²²⁹ Cf. Article 98 (9) CRD VI.

proportionality aspects that consider proportionality more in terms of exposure to sustainability risks rather than based on size criteria.

5.9.1 MANAGEMENT

Responsibility for the development, approval and monitoring of transition plans is assigned to the management and supervisory body (including relevant remuneration aspects). The management and supervisory body should have adequate know-how and expertise in assessing sustainability risks. The senior management²³⁰ is responsible for the implementation of the plan. Roles and responsibilities for transition planning are clearly defined and documented. Sustainability risks should also be addressed by all three “lines of defence” and integrated into their structures and processes. Adequate training and continuing professional development measures for staff form the basis for carrying out the relevant tasks related to transition planning.²³¹

5.9.2 ENGAGEMENT – STRUCTURED DIALOGUE WITH CLIENTS AND INVESTORS

Structured dialogue with customers and investors is also part of an informed transition plan. The purpose of the dialogue is the systematic collection of relevant data as an essential input for risk management and disclosure, for assessing the counterparty’s sustainability risks, but also, where possible, to support the customer’s own transition process. Subsequently, clients’ relevant data and information are collected (e.g. sustainability risk profile, transition objectives, etc.) and compared with the institution’s sustainability objectives and the defined sustainability risk appetite.²³² Greenhouse gas emissions and potential physical and transition risks are collected and processed to create a robust analysis. Where a permanent deviation from the transition objectives in the client’s transition plans analysis is identified, adjustments to the client relationship may be necessary throughout the relevant risk management hierarchy, for example by reducing exposures or adjusting terms and conditions. As a last resort, institutions may consider terminating the client relationship, while observing all legal requirements under other substantive laws. Institutions shall step up their engagement efforts proportionally to clients’ exposure to sustainability risks. The institutions’ established processes to prevent greenwashing should also be considered in order to avoid legal and reputational risks.

²³⁰ See Article 2 para. 1 no. 1b BWG for the definition.

²³¹ NGFS, *Credible Transition Plans: The micro-prudential perspective* (2024).

²³² ECB, *Good practices for climate-related and environmental risk management* (2022), EBA Guidelines on ESG risk management, paras. 57ff.

5.9.3 RISK ASSESSMENT

The risk assessment in transition planning covers the aspects set out in Chapter 4 on managing sustainability risks in risk management. Transition plans should address both “*Climate Mitigation*” aspects (reducing emissions) as well as “*Climate Adaptation*” (adaptation measures that are required in response to global warming).²³³

For example, an appropriate risk assessment is used for individual clients and investors or (partial) portfolios, which assesses exposure to physical and transition risks and compares them with the predefined sustainability risk appetite. The collection of accurate location data at individual exposure level is recommended for analysing physical risks. Climate scenario analysis and stress testing are appropriate methods for assessing the nature and extent of risks to groups of clients and portfolios. This perspective is complemented by relevant and up-to-date benchmarks and KPIs from climate research (e.g. relevant developments and calculations for specific economic sectors or regions).

5.9.4 CREDIBLE BUSINESS ACTIVITIES

In the context of transition planning, credible business activities shall be pursued. For this purpose, it should be clarified how future funding activities are consistent with the set transition objectives and how they fit into risk management. It also considers which staff members in the organisational units are involved in the implementation of business activities and how they are able to contribute towards achieving transition objectives.

5.9.5 ONGOING MONITORING

Sustainability risks shall be monitored on an ongoing basis and integrated into all relevant processes. KPIs and sustainability risk management benchmarks are included in the risk monitoring and risk escalation process. Relevant updates of climate scenarios are monitored and updated in transition planning. Sustainability risks shall be integrated into the internal control functions’ work programme.

²³³ For details on the ‘climate risk management approach’, see e.g. <https://www.adaptationcommunity.net/climate-risk-assessment-management/what-is-climate-risk-management-crm-and-which-steps-does-it-include/>.

Practical example 18: Transition support in the Green Finance Alliance (GFA)

The GFA's objective is to accompany and proactively support participating financial undertakings on their path towards climate neutrality. Over 70 criteria have been defined for members. This will enable them to plan and implement their transition in a structured way. Key issues are addressed, such as:

- What is necessary to achieve the long-term climate targets through specific short- and medium-term measures in the company?
- What internal processes and structures require being adapted or redesigned due to climate ambitions (e.g. governance, remuneration policies, policies)?
- What elements are important for structured engagement with clients and how can they be implemented?
- What should annual reporting on transition progress look like?

Regular dialogue formats featuring experts and guidance are used to support dealing with these transition issues in a substantive manner.²³⁴

6 HANDLING OF SUSTAINABILITY RISKS IN THE CASE OF TRANSPARENCY OBLIGATIONS AT ENTITY LEVEL

6.1 SUSTAINABLE FINANCE DISCLOSURE REGULATION, SFDR

The SFDR introduced transparency obligations for supervised entities²³⁵. The SFDR regulates (inter alia) the transparency of:

- strategies for managing sustainability risks;
- the adverse sustainability impacts at company and product level;
- remuneration policies related to the integration of sustainability risks;
- how sustainability risks are integrated into market participants' investment decisions; and
- the promotion of environmental or social characteristics or transparency in financial products aiming to attract a sustainable investment (both pre-contractual information, as well as on websites and in regular reports).

²³⁴ For more information on the Green Finance Alliance (GFA), see <https://www.bmluk.gv.at/en/topics/climate-environment/sustainable-development/green-economy-und-green-finance/green-finance/alliance.html>.

²³⁵ Cf. Article 2 points 1 and 11 SFDR for the legal definition of the terms "financial market participant" and "financial adviser", to which the transparency obligations relate.

In addition, the Taxonomy Regulation extends the disclosure requirements of the SFDR to include information on whether/how and the extent to which the financial product's underlying investments have been invested in sustainable economic activities under the Taxonomy Regulation.

Disclosures under the SFDR are provided alongside the existing disclosures in the management report (Articles 243 and 267 UGB) and the sustainability report and should be consistent with the information in these report formats. Information requirements stipulated by the SFDR are also the subject of the disclosure in the sustainability report, then the information contained in such reports may also be used for the purposes of fulfilling the SFDR requirements (cf. also Article 11 (3) SFDR).

Conversely, the disclosures under the SFDR do not replace the *sustainability report* (see more below). Where linkages exist in terms of the information that is contained in the respective other reporting instruments that are available publicly and free of charge, it is recommendable in the interests of the coherence of disclosures to refer to these connections by means of direct and precise references. The information to which the reference relates must not be disclosed again.

Practical example 19: Investor protection in relation to greenwashing risks

Amid increasing demand for products with sustainability characteristics²³⁶, investor protection also receiving increased attention from the European legislator. In particular, the rules on marketing for financial institutions, in particular credit institutions, investment firms and insurance companies, include investor and client protection requirements. These include rules intended to ensure distribution in accordance with the target groups, as well as the prohibition of misleading advertising. Financial institutions are also required to identify potential conflicts of interest in advance when distributing sustainable products and to consider clients' sustainability preferences in the advisory process and in the provision of individual asset management. Furthermore, when distributing sustainable products, it is necessary to ensure that clients sufficiently understand the various levels of sustainability characteristics of products to allow them to make informed investment decisions. Where such requirements are not complied with sufficiently greenwashing and legal risks may arise for financial institutions. The FMA has published an information series for consumers "Let's talk about money" about what clients should consider when investing sustainably.²³⁷

²³⁶ EBA, *Greenwashing Monitoring and Supervision: Final Report*, [EBA/REP/2024/09](#), p. 9.

²³⁷ FMA, *Let's talk about money - Greenwashing*, *Let's talk about money - sustainability when investing*, *Let's talk about money- sustainable financial products*.

6.2 CORPORATE SUSTAINABILITY REPORTING DIRECTIVE (CSRD)

Following the introduction of the CSRD, the transparency of sustainability information in corporate reporting, compared to the *Non-Financial Reporting Directive*²³⁸ that previously applied, has significantly increased both in terms of content and scope of users addressed and has been harmonised for the first time in the form of reporting standards. *European Sustainability Reporting Standards* (ESRS)²³⁹ are currently available in the form of 12 standards. Two standards refer to the fundamentals (*cross-cutting standards*) and ten other standards about ESG topics (*topical standards*). Further sector-specific sustainability reporting standards are being developed. Individual disclosure requirements, such as about greenhouse gas emissions, require a holistic disclosure that also includes the upstream and downstream value chain. This may and is intended to lead to intensified cooperation throughout the value chain, both in terms of data collection and the joint development and implementation of climate protection measures. Subsequently, that affects the extension of the effectiveness of this rulebook beyond the EU's territorial borders.

The CSRD sustainability reports shall clearly present the undertaking's material impacts on humans and the environment, as well as the material financial impact of sustainability matters on the undertaking's development, performance and position. For this purpose, as part of its disclosure obligations under the ESRS, the undertaking shall assess the materiality of impacts, risks and opportunities in relation to the environmental, social and governance sustainability matters specified by the standards. Analysis of both positive and negative impacts, as well as actual, potential and expected impacts, should be conducted involving the stakeholders and users of the sustainability report.

The reporting obligation only covers only those sustainability aspects assessed as material. A justification may be disclosed for sustainability matters assessed to be immaterial, except where assessing climate change impacts, risks and opportunities: a detailed depiction of the conclusions of the materiality assessment must occur that also includes an analysis of the conditions for a climate change to become material in the future. The procedure used to determine and assess materiality must in any case be explained to provide an understanding of the procedure.

Regarding the extensive information content of sustainability reporting, a number of simplifications are stipulated in the form of transitional provisions for the first years of reporting: simplifications

²³⁸ Directive 2014/95/EU.

²³⁹ CDR (EU) 2023/2772.

relate to the companies' upstream and downstream value chain to be included, to company-specific disclosures and also to the disclosure requirements set out in the ESRS (this largely relates to the social standards and anticipated financial effects related to the environment standards).

The information to be reported under Article 8 Taxonomy Regulation since 1 January 2022, will form part of the sustainability report in the future and must be disclosed there, in addition to information on environment standards, in the section about environmental information. This information reflects the undertaking's contribution to the achievement of the six environmental objectives that have been set (see Chapter 2.6) by carrying out or financing environmentally sustainable economic activities (taxonomy alignment). Non-taxonomy-aligned but taxonomy-eligible economic activities, on the other hand, illustrate the untapped potential for achieving environmental objectives.

The change in terminology for reporting from a *non-financial report* to a *sustainability report* also puts any implication to rest that the reported information is not financially relevant. The exact opposite is the case: by anchoring the concept of double materiality makes it clear that sustainability information has a substantial impact on the financial position and financial performance of an undertaking. Including the sustainability report as a separate chapter in the management report also underpins the strong connection between sustainability aspects and the financial report. For example, the EC stresses the need to develop binding common sustainability reporting standards to afford sustainability information a comparable status to financial information.²⁴⁰ In the interests of the credibility of reporting, ensuring consistency between reporting parts is of key significance. Impacts of sustainability matters considered as material in sustainability reporting must be adequately reflected and disclosed in the undertaking's annual financial statements. In addition, the assumptions, judgements and estimates applied in drawing up the financial statements need to be consistent with the information in the sustainability report to provide a consistent and coordinated picture.

The FMA expects that the constant evolution of scientific knowledge, technological progress and the learning curve, which will inevitably be followed by all parties involved in sustainability reporting, will further develop future sustainability reporting.

²⁴⁰ Directive (EU) 2022/2464.

Practical example 20: Strengthening ESG risk management by means of sustainability-related disclosure

Sustainability-related disclosure aims to incentivise sustainable economies through transparency. Empirical studies show that the introduction of non-financial reporting requirements in the EU has led to a real improvement in the sustainability performance of many companies.²⁴¹ This concerns both the positive impact on the environment and society and the strengthening of ESG risk management. Research also indicates that sustainability reporting regulations and taxonomies reduce the risk of greenwashing.²⁴²

6.3 DISCLOSURE AND REPORTING OBLIGATIONS UNDER THE CAPITAL REQUIREMENTS REGULATION (CRR III)

As a result of the Banking Package 2021 at European level being implemented in CRR III and CRD VI new reporting provisions have been introduced for all institutions regarding their exposure towards ESG risks. Disclosure requirements regarding environmental, social and governance risks (ESG risks) under Article 449a CRR III are being extended to all institutions. Distinctions are made between Environmental, Social and Governance Risks, with environmental risks subdivided into physical risks and transition risks. Institutions must disclose information about ESG risk, including the total risk exposures towards entities in the fossil fuels sector, as well as how the institutions integrate the identified ESG risks in their business strategy and processes, their governance and risk management. In addition, the Implementing Technical Standards as regards the disclosure of environmental, social and governance risks²⁴³ published in December 2022 are being updated and a new implementing technical standard on the reporting of ESG risks is to be drawn up within twelve months of CRR III entering into force. The specific formulation of indicators for supervisory reporting and disclosure of ESG risks observing the principle of proportionality is therefore still outstanding.

²⁴¹ Cf. Cuomo et al., *The effects of the EU non-financial reporting directive on corporate social responsibility (2024)*, *The European journal of finance* 30(7), p. 726 et seq.; Fiechter et al., *Real effects of a widespread CSR reporting mandate: Evidence from the European Union's CSR Directive (2022)*, *Journal of Accounting Research* 60(4), p. 1499 et seq.

²⁴² Cf. Papathanassiou/Nieto, *Different Shades of Green: EU Corporate Disclosure Rules and Their Effectiveness in Limiting "Greenwashing" (2025)*, *ECB Occasional Paper Series No. 370*.

²⁴³ CDR (EU) 2022/2453.

ANNEX: INDICATORS, METHODOLOGIES AND TOOLS FOR SUSTAINABILITY RISKS.

The indicators, tools and methods set out in this Annex for identifying, measuring, assessing and managing sustainability risks serves as guidance and information for supervised entities.²⁴⁴ Due to the large number of metrics, tools and methods, its aim is not to present a complete list, but to highlight relevant examples to facilitate the assessment and selection of certain metrics, tools and methodologies for risk management.²⁴⁵ The evaluation is to be performed by the entity itself, and in the interests of proportionality based on the size, internal organisational structure and the nature, scale and complexity of the activities or transactions, as well as the risk structure of the respective supervised entity.

Primarily indicators, tools and methods relating to environmental or nature-related risks related to climate change and biodiversity loss are treated thereafter.

IDENTIFICATION AND MEASUREMENT OF SUSTAINABILITY RISKS

The table below presents an overview of the methods and indicators presented in this Annex:

Category	Methods and metrics
Initial risk assessment: Indicators and methods primarily taking risk exposure into account	• Sustainability risk heat maps • Footprint and environmental impact • Exposed assets • ESG and environmental ratings
Extended risk assessment: Indicators and methods that take into account the reciprocal	• Scenario analysis and stress tests • Sensitivity analysis²⁴⁶

²⁴⁴ The FMA would like to thank the Environment Agency Austria for its significant substantive input, especially in preparing this annex.

²⁴⁵ The metrics presented here may go beyond the minimum indicators listed in ESAs' Level 3 products, this should be seen as guidance for a risk-based application.

²⁴⁶ Sensitivity analyses may also be used in other categories of methods and indicators.

effects between sustainability hazards, exposure and vulnerability	• Value at Risk
Portfolio orientation: Assessment of climate transition risks and opportunities associated with climate alignment	• Binary target measurement • Maturity scores • Benchmark deviation ratios • Implicit temperature increase
Risk monitoring/early warning indicators: Indicators for early detection of potential risks	• Indicators from the categories above
Opportunities: Indicators for identifying environmental opportunities	• Indicators for the expansion of green activities • Financing positive environmental impacts

SUSTAINABILITY RISK HEAT MAPS

Potential usage: Initial assessment of physical risks and transition risks.

Description: Heat mapping describes the visualisation and identification of potentially risky sectors and regions, and the level of exposure. Most heat maps are presented using different colours.

A heat map generally describes the visualisation and identification of risky sectors and regions and the level of exposure using different colours. Potential or actual sustainability risks are summarised qualitatively. Quantitative data can also be used for classification and used increasingly in the future in the sense of necessary further development to be able to assess a quantitative data basis.

With regard to nature-related risks, a heat map shows which activities are significantly dependent on, or affect, nature. Organisations can use heat maps to identify sectors with multiple material dependencies and impacts.

Standards and cross-references: While heat maps are already a common tool for climate risk analysis, looking at nature-related risks with a heat map may be uncharted territory for financial institutions.

The TNFD Guidance²⁴⁷ on methods to identify nature-related risks contains a step-by-step process description including practical usage examples for financial institutions that are not yet familiar with the process.

Advantages and disadvantages:

Advantages	Disadvantages
Publicly and freely available data sources that are relatively easy to apply and interpret	Qualitative risk indicators are based on sector-specific averages and are not adapted to individual firms. Heat maps therefore display potential risks rather than actual risks
Possible integration of value chains, e.g. by combining with input-output tables	Heat map data sources often provide information for aggregated sectors (and rarely cover unconventional sectors)
Possible combination with scenarios to also capture medium- and long-term risks (especially for climate risks)	Standard heat maps often do not consider the value chain
	Heat maps cannot always be combined with scenario analyses and often focus on short-term risks (especially for nature-related risks)
	Focus on risk, not on opportunities

Examples of nature-related risks of the TNFD:²⁴⁸

SASB Sectors	Dependencies		Impacts						AUM (% of total)	
	Soil quality	Water	Land use		Water use		Pollution		Low	High
			Land use	Water use	Air pollution	Solid waste pollution	Soil pollution	Water pollution		
1 Agricultural Products & Tobacco	High	High	High	High	Low	Low	High	High	2%	
2 Consumer Goods	Low	Low	Low	High	Moderate	Low	Moderate	Moderate	5%	
3 Extractives & Minerals Processing	Low	Moderate	High	High	High	High	Moderate	High	14%	
4 Financials	Low	Low	Low	Low	Low	Low	Low	Low	16%	
5 Food & Beverage (ex. Agriculture & Tobacco)	Low	Moderate	Low	High	Low	Moderate	Low	Low	11%	
6 Health Care	Low	High	Low	High	Low	Moderate	High	High	6%	
7 Infrastructure (ex. Utilities & Generators)	Low	High	High	Low	Low	High	Low	Low	2%	
8 Renewable Resources & Alternative Energy	Low	High	Low	High	Low	Low	High	High	3%	
9 Resource Transformation	Low	Low	Low	High	Moderate	High	High	High	6%	
10 Services	Low	Low	Low	Moderate	Low	Low	Moderate	High	12%	
11 Technology & Communications	Low	Low	Low	Low	Low	Low	High	High	15%	
12 Transportation	Low	Low	Moderate	High	Moderate	Moderate	High	High	5%	
13 Utilities & Electricity Generators	High	High	High	High	High	High	High	High	3%	
AUM: Assets under management										

AUM: Assets under management

Figure 7: Illustrative presentation of a heat map with sector-specific exposure to nature-related risks of the TNFD

²⁴⁷ See TNFD, *Nature-related Risk and Opportunity Management and Disclosure Framework* (2023).

²⁴⁸ See TNFD, *Nature-related Risk and Opportunity Management and Disclosure Framework* (2023).

FOOTPRINT AND ENVIRONMENTAL IMPACT

Environmental impacts (e.g. GHG emissions) can be used as a proxy of the current risk exposure of companies and portfolios. Forward-looking measures, reduction targets and companies' transition risk reduction strategy are not considered. Environmental impacts may be used to estimate the risk of different environmental issues.

Carbon footprint, funded emissions and emission intensities

Potential usage: Initial estimation of level of exposure to climate transition risks.

Description: The carbon footprint (also known as the CO₂ footprint, GHG footprint, or climate footprint) of portfolios is an indicator to measure exposure to GHG-intensive assets and is based on the portfolio's financed emissions.

Emissions financed are those GHG emissions associated with the investment and financing of a financial institution. Financed emissions include both, direct and indirect emissions (scope 1, 2 and 3) of the undertakings in the portfolio.

Standards and cross-references: Established and recognised standards for accounting for GHG emissions of companies and financial institutions form the basis for calculating the carbon footprint and the emissions financed. The *Greenhouse Gas (GHG) Protocol* provides a comprehensive framework for accounting for Scope 1, 2 and 3 GHG emissions.²⁴⁹ The *Partnership for Carbon Accounting Financials* (PCAF) provides a standard for calculating financial institutions' financed emissions.²⁵⁰ Financial institutions subject to CSRD shall take into account the PCAF standard for the calculation and disclosure of their Scope 3 emissions in Category 15 (investments).²⁵¹

The following figures are defined in the Delegated Regulation to the SFDR:²⁵²

■ GHG emissions (tCO₂e) – comparable to financed emissions under PCAF

$$\sum_n^i \frac{\text{position value } i}{\text{issuer's value } i} \times \text{Scope (x) GHG emissions issuer } i$$

²⁴⁹ Further information can be found on the [GHG Protocol](#) website.

²⁵⁰ See Part A of the [PCAF Standard](#), [Financed Emissions for calculating financed emissions](#).

²⁵¹ CDR (EU) 2023/2772.

²⁵² CDR (EU) 2022/1288. Alternative versions of the formulas defined in the SFDR with slightly different formulations can be found, for example, in [TCFD/ISSB](#) and [MSCI](#).

■ GHG footprint (tCO₂e/million euro invested)²⁵³

$$\sum_n^i \frac{\text{present value of investment } i}{\text{Issuer's value } i} \times \frac{\text{Scope 1, 2 \& 3 GHG emissions Issuer } i}{\text{present value of all investments}}$$

■ GHG intensity of invested companies (tCO₂e/EUR million turnover)²⁵⁴

$$\sum_n^i \frac{\text{present value of investment } i}{\text{present value of all investments}} \times \frac{\text{Scope 1, 2 \& 3 GHG emissions Issuer } i}{\text{Total turnover issuer } i}$$

Advantages and disadvantages:

Advantages	Disadvantages
Increasing data availability and quality through disclosure regulations (e.g. CSRD) and recognised standards as basis for calculation (GHG Protocol, PCAF)	Failure to take into account past developments, forward-looking measures, reduction targets and strategies of companies to reduce transition risks
In addition to transition risks, opportunities, e.g. in the form of resource and energy-efficient companies, can also be identified.	Funded emissions and related metrics use corporate values (e.g. EVIC) for the allocation of emissions that are exposed to significant volatility. Metrics may be subject to market fluctuations that are not related to climate risk
Carbon footprint can serve as a basis for setting reduction targets and risk control methods	Lack of comparability of assets based on issuance intensities per turnover due to sectoral differences, turnover fluctuations and different business models. Such disadvantages can be limited by looking at intensities with sector-specific physical reference points

Examples of applications:

- Disclosure of the *Task Force on Climate-Related Financial Disclosures* (TCFD) indicators, such as the investment carbon footprint and Deutsche Bundesbank's *Weighted Average Carbon Intensity* (WACI) in its 2023 climate-related reporting,²⁵⁵
- Best practice examples of calculation and disclosure of funded emissions under the PCAF Standard.²⁵⁶

²⁵³ Only the investments of the analysed portfolio should be taken into account for calculating the present value of all investments.

²⁵⁴ CDR (EU) 2022/1288; alternative versions of the formulae defined in the SFDR with slight variations in formulations can be found for example at TCFD/ISSB and MSCI.

²⁵⁵ Cf. Deutsche Bundesbank, *Climate-related disclosures* (2023).

²⁵⁶ Cf. PCAF, *Best practice examples*.

Insurance-related emissions

Potential usage: Initial estimate of exposure to climate-related transition risks in (re)insurance undertakings' underwriting portfolios.

Description: Insurance-related emissions refer to the emissions caused by an undertaking's insurance activities. These issues result from the business activities of the insured undertaking or asset.

The issuances of the insured assets may reflect their exposure to transition risks and thus help insurance companies to evaluate those risks of their underwriting portfolio. Similarly to funded emissions, intensity may also be calculated for insurance-related emissions as additional metrics, e.g. sector-specific physical emission intensities, insurance-related WACIs.

Standards and cross-references: The PCAF standard on insurance-related emissions provides a more detailed description about the calculation of absolute emissions and associated emission intensities.²⁵⁷

Advantages and disadvantages:

Advantages	Disadvantages
In addition to transition risks, opportunities can also be identified (e.g. by insurance of green activities)	Limited data quality and availability (in particular scope 3 emissions) Market volatility and related influences on insurance-related emissions (see disadvantages of funded emissions)

Biodiversity Footprint

Potential usage: Initial assessment of exposure to biodiversity and nature-related transition risks.

Description: In general, the biodiversity footprint and funded biodiversity impacts (or nature-related impacts) can be viewed as a counterpart to the carbon footprint and financed emissions. While climate impacts focus on a limited number of greenhouse gases and benefit from a single unit of measurement with broad acceptance (CO₂ equivalent), the calculation of impacts and risks on biodiversity is more complex. Biodiversity impacts and impacts on nature refer to four areas (land, freshwater, ocean, atmosphere) and five influencing factors²⁵⁸:

²⁵⁷ See PCAF, *Insurance-Associated Emissions Standard* (2022).

²⁵⁸ Cf. IPBES, *Global Assessment Report on Biodiversity and Ecosystem Services* (2019).

- Land use change, freshwater and marine use change;
- Climate change;
- Direct exploitation of organisms;
- Environmental pollution;
- Invasive alien species.

Biodiversity footprints try to simplify this complexity through various assumptions. This should be considered when interpreting the footprint. Different footprint indicators' meaning should also be considered:

<i>Status of nature – Category</i>	<i>State of nature – Indicator</i>	<i>Footprint ID</i>	<i>Description</i>
Ecosystem – magnitude	Land use conversion	Extent of land use change	Measures the area change of a given ecosystem, usually measured in terms of area (e.g. in km ²).
Ecosystem – state	Condition of composition	Mean Species Abundance (MSA)	MSA estimates the state of ecosystems (i.e. integrity) as a function of selected anthropogenic impacts on terrestrial and freshwater ecosystems. It measures the status based on the average presence of the species in selected groups compared to a natural reference state.
Ecosystem – state	Functional status	Potentially Disappeared Fraction (PDF) of Species	PDF is a measure of the local loss of ecosystem condition due to certain anthropogenic pressures. PDF can also be used as a proxy for species extinction risk.
Extinction risk of species	Contribution to extinction risk	Species Threat and Restoration Metric (STAR)	STAR makes it possible to quantify the potential contribution of activities and measures that increase or reduce the extinction risk of species.

Table 5: Overview of selected biodiversity footprint indicators²⁵⁹

Standards and cross-references: The *Partnership for Biodiversity Accounting Financials* (PBAF) defines how funded biodiversity impacts can be calculated from different asset classes (similar to PCAF standard for funded emissions).²⁶⁰

A discussion paper by the *Task Force for Nature-related Disclosure* (TNFD) describes the benefits and limitations of the biodiversity footprint in general and compares different *footprinting* approaches.²⁶¹

TNFD recommends 14 key nature disclosure indicators. These include metrics that directly refer to any of the five factors mentioned above (e.g. GHG emissions for climate change, or land use for land use change), as well as metrics that have an impact on the state of nature (e.g. impacts on the condition of ecosystems).²⁶²

Advantages and disadvantages:

<i>Advantages</i>	<i>Disadvantages</i>
Quantification of nature-related impacts can help identify hotspots in portfolios and supports qualitative information	Current low availability of data (especially for SMEs) Calculations of nature impacts are often complex, and results can be highly dependent on assumptions No single, standardised indicator quantifying the biodiversity footprint

For resources to compare tools used to calculate the biodiversity footprint, see section Tools for identification and measurement of sustainability risks.

²⁵⁹ For a more detailed overview, see TNFD, *Discussion paper on Biodiversity Footprinting approaches for financial institutions* (2024).

²⁶⁰ The *PBAF Standard on biodiversity impact assessment* consists of three publications: *Q&A*, *Overview of approaches*, *Footprinting*.

²⁶¹ Cf. TNFD, *Discussion paper on Biodiversity footprinting approaches for financial institutions* (2024).

²⁶² Cf. *Recommendations of the TNFD* (2023).

EXPOSED ASSETS

Total or share of GHG-exposed assets

Potential usage: Initial estimation of level of exposure to climate transition risks.

Description: This indicator describes the total or proportion of assets with a GHG exposure in a portfolio either in millions of Euros or as a percentage of the value of the portfolio. The total or the proportion of GHG-exposed assets is an indicator that is comparatively easy to identify, in order to obtain an initial estimation of level of exposure to transition risks. In doing so, assets are allocated to economic (sub-) sectors. Assets in (sub-) sectors with high GHG emissions may provide indications about the degree of exposure towards transition risks, since significant GHG reductions are necessary in these (sub-) sectors.

Some financial institutions use existing sector classifications that identify (sub-)sectors that face a particularly relevant exposure to transition risks, such as Climate Policy Relevant Sectors (CPRS)²⁶³. Another way to identify exposed assets is to classify activities that harm the climate and the environment. Financial institutions and/or climate data providers often use their own classifications, due to a lack of a recognised taxonomy for climate and environmentally harmful activities. In general, activities that harm the climate and the environment are defined as activities that hinder the achievement of climate and environmental objectives. The share of these investments (known as the ‘brown share’ or ‘harmful activity share’) usually includes the extraction and burning of fossil fuels and thus also provides insights into dependence on them.

In addition to GHG exposure, financial institutions should also include company-specific information on energy technologies used, strategic orientations and forward-looking metrics in their analysis. These complement the assessment of current GHG exposure. Relevant indicators include, for example, corporate targets, capital expenditures (CapEx) plans and investments in specific energy technologies.

In addition, where possible, company-specific data on physical assets (e.g. production facilities of the portfolio companies) should be considered. This includes, in particular, location data that provide information on risk exposure and vulnerability to natural and climate risks. Location-related information is of particular importance for risk assessment of various environmental topics, including physical climate risks, dependencies on ecosystem services, and transition biodiversity

²⁶³ For further information about CPRS see Universität Zürich, <https://www.df.uzh.ch/en/people/professor/battiston/projects/CPRS.html>.

risks. In addition to the identification of exposed assets, these data also form the basis for further analytical methods, such as scenario analysis and value-at-risk models.

For the real estate portfolio, GHG exposure can be estimated using the energy efficiency of the property in the portfolio. Financial institutions can, for example, calculate the average energy performance certificate of the real estate loan portfolio as a metric.

Standards and cross-references: *United Nations Environment – Finance Initiative – UNEP FI’s Technical Supplement of 2023 Climate Risk Landscape* provides a general description of ‘brown shares’ (and ‘green share’) and a list of various data providers to calculate ‘brown’ (and ‘green’) ‘share’, including criteria used for classifying ‘brown’ activities.²⁶⁴ A tool to compare portfolio companies and their production developments with technology-specific climate scenarios and thus identify exposed assets is the *Paris Agreement Capital Transition Assessment* (PACTA) tool.

Advantages and disadvantages:

Advantages	Disadvantages
Relatively simple calculation of the initial assessment of invested companies with high exposure to transition risks	No standardised classification of sectors or activities harmful to the climate and the environment

Total or proportion of biodiversity-exposed assets

Potential usage: Initial assessment of exposure to biodiversity and nature-related risks.

Description: The share of a portfolio with high exposure to biodiversity and nature-related risks can be evaluated through exposure to certain key sectors and *biodiversity-sensitive areas*²⁶⁵. In practice, heat maps are often used to present exposure to key sectors (see usage examples in the section on sustainability risk heat maps).

Standards and cross-references: For this purpose, TNFD defines two key indicators for financial institutions²⁶⁶:

- Exposure to key sectors,
- Exposure to sensitive sites.

²⁶⁴ Cf. UNEP FI, *The 2023 Climate Risk Landscape, Technical Supplement* (2023).

²⁶⁵ While the TNFD lists a wide range of “sensitive locations” in the *Additional guidance for financial institutions*, sites with vulnerable biodiversity under the SFDR designate the Natura 2000 network of protected areas, UNESCO World Heritage Sites and Biodiversity Focus Areas, as well as other protected areas in accordance with Appendix D of Annex II to CDR (EU) 2021/2139.

²⁶⁶ See *TNFD – Additional guidance for financial institutions*.

There are different lists of sectors or data sources and tools that identify sectors with significant, potential impacts and/or dependencies. Common resources are:

- TNFD (see [TNFD – Additional guidance for financial institutions](#) Annex 1): TNFD’s selection of priority sectors is based on the impacts and dependencies of those sectors. Therefore, a distinction between exposure to transition or physical risks is not possible,
- ENCORE (see [ENCORE website](#)): ENCORE provides a qualitative assessment (from ‘very low’ to ‘very high’) of the nature-related impacts and dependencies of around 100 economic activities from different sectors. By mapping their portfolio positions with ENCORE data, financial institutions can calculate the share of their portfolio with high to very high impact and dependencies,
- Science Based Targets Network – SBTN (see [SBTN Materiality Screening Tool](#)): SBTN’s tool is based on ENCORE data on nature-related impacts and assesses the nature-related materiality of sectors with a score between 3 (low materiality) and 9 (high materiality). Unlike ENCORE, SBTN’s tool takes into account not only direct impacts (activities within the sector under consideration), but also impacts in the upstream value chain,
- UNEP FI (see [UNEP FI – Key sector mapping & action guidance](#)): UNEP FI identifies key sectors and compares them with the sector lists of TNFD, ENCORE and SBTN. In addition, UNEP FI provides sector-specific recommendations to investors (“challenge”, “engage”, “seek out”) and for the engagement process.

The resources listed are used to identify potential impacts and dependencies and allow conclusions to be drawn as to possible risk exposure. However, asset-specific information is required for an in-depth risk assessment. For example, additional factors should be taken into account when assessing physical, nature-related risks related to reliance on ecosystem services. These include the probability of default of ecosystem services, the intensity of possible damage, the vulnerability of affected companies, and the geographical exposure of physical assets.

As regards sensitive sites, different types of regions should be taken into account (e.g. protected areas, high biodiversity areas, unharmed ecosystems). To analyse exposure to these key regions, financial institutions need two types of data: I. location data (e.g. GPS coordinates²⁶⁷) of

²⁶⁷ Cf. TNFD, *Guidance on the identification and assessment of nature related issues: The LEAP approach (Locate, Evaluate, Assess, Prepare)* (2023).

invested/funded companies and II. data on the location of areas with vulnerable biodiversity. While locations of larger companies are often available through external data providers, SME location data are often missing. For data on protected areas and other key regions, different external data sources can be used:

■ Protected areas:

- Federal Environment Agency: Austrian nature reserves,²⁶⁸
- European Environment Agency: European protected sites,²⁶⁹
- UNEP-WCMC: World Database on Protected Areas (Accessible via *Integrated Biodiversity Assessment Tool* – IBAT),²⁷⁰

■ Key Biodiversity Areas (KBA):

- KBA Partnership: *World Database of Key Biodiversity Areas* (available via IBAT),²⁷¹

■ Habitats of endangered species:

- *International Union for Conservation of Nature* (IUCN): IUCN Red List of Threatened Species (available via IBAT).²⁷²

Advantages and disadvantages:

Advantages	Disadvantages
Calculation of the initial assessment ratio of invested/funded sectors with high exposure to nature-related risks possible based on open access tools and data sources	Low availability of data, especially regarding location of SMEs
Relatively simple calculation of the ratio compared to the calculation of a biodiversity footprint	Complexity of nature-related issues that look at multiple types of ecosystems, ecosystem services and drivers of biodiversity loss
Consideration of exposure to material natural risks contributes to compliance with legal regulations (e.g. CSRD)	Additional information on business vulnerability and the probability and intensity of nature-related events is necessary for an in-depth risk assessment

Examples of applications: See usage examples in the section on sustainability risk heat maps.

²⁶⁸ See <https://www.data.gv.at/katalog/dataset/cf4dbd37-b09c-4795-aff4-d72c3bcfacfe>.

²⁶⁹ See <https://www.eea.europa.eu/en/analysis/maps-and-charts/european-protected-areas-1>.

²⁷⁰ See <https://www.protectedplanet.net/en>.

²⁷¹ See <https://www.keybiodiversityareas.org/kba-data/request>.

²⁷² See <https://www.iucnredlist.org/resources/spatial-data-download>.

ESG RATINGS/SCORES

Potential usage: Evaluation of exposure to multiple sustainability risks.

Description: ESG ratings or scores are assessments of undertakings and other asset classes depending on different sustainability matters (subdivided into the three ESG categories: environmental, social and governance). Depending on the methodology, the ESG criteria considered, and their weighting, different ESG ratings may give different messages (see also the section on ESG integration). Disaggregated consideration of different ESG criteria provides an opportunity to estimate the materiality of different sustainability risks.

Advantages and disadvantages:

Advantages	Disadvantages
Results are relatively easy to interpret	Lack of data availability (especially for SMEs) Differences in assumptions, key assumptions and weightings used may significantly impact results ²⁷³

SPECIALISED SUSTAINABILITY RATINGS/SCORES

Potential usage: Evaluation of exposure to various sustainability risks, in particular physical climate risks.

Description: Specialised sustainability risk ratings consider only one sustainability issue. While different sustainability risks can generally be assessed using risk ratings, risk ratings are one of the most common indicators for assessing physical climate risks.²⁷⁴

Physical climate risk ratings are used to assess the potential impact of climate change on specific assets, depending on asset type and location, and consider one or more climate scenarios. External data providers are generally used for calculating risk ratings. Depending on the provider, different climate impacts (e.g. forest fires or floods) are considered.

²⁷³ Differences between ESG ratings from different providers have also been identified in academic publications, see e.g. Berg et al., [Aggregate Confusion: The Divergence of ESG Ratings](#) (2022). Future EU regulation could lead to increased transparency and comparability of ESG ratings.

²⁷⁴ Cf. UNEP FI, [The 2023 Climate Risk Landscape, Technical Supplement](#) (2023).

SCENARIO ANALYSIS

Potential usage: Estimation of risks, impacts or the resilience towards future sustainability-related developments and shocks

Description: Scenario analyses refer to using (climate) scenarios to evaluate their potential impact on the economy and on financial undertakings' assets.²⁷⁵ Together with stress tests, they are essential tools for dealing with sustainability risks by financial undertakings as they provide forward-looking information.

It is essential that scenario analyses cover different time horizons, i.e. consider short-, medium- and long-term scenarios. Although short-term scenario analyses are in principle an important part of risk management, their application to climate risks is not yet widespread in practice. The main reason for this is the challenge to adequately reflect climate change and its risks in short-term scenarios. At the same time, relevant short-term scenarios are crucial to adequately present long-term risks. They allow for the consideration of *compound risks* and the non-linearity of climate and other sustainability risks. Financial undertakings should take the complementary nature of short- and long-term scenario analyses into account and can exploit synergies by using experience from long-term scenario analyses to conduct short-term scenario analyses.

Scenario analyses are also used to assess different sustainability risks (biodiversity, environment, social and good governance), which may also include short- and medium-term horizons.

Standards and cross-references: UNEP FI's Technical Supplement to the 2023 Climate Risk Landscape provided an overview of various applications of scenario analysis (and stress tests) by external data providers.²⁷⁶ Due to the high explanatory power of this method, its application is also suggested in the TCFD's recommendations.²⁷⁷ In cooperation with climate scientists and economists, the NGFS develops annually updated climate scenarios taking both physical and transition risks into account. The latest NGFS scenarios are publicly available through the *NGFS Phase 5 Scenario Explorer*.²⁷⁸ A report published by the NGFS highlights the relevance of short-term climate scenarios and their role in climate risk analysis. It describes the development of short-term

²⁷⁵ In addition to the 'scenario analysis' tool described here, (climate) scenarios are the basis for other approaches to dealing with sustainability risks, such as portfolio alignment analysis or physical climate risk and vulnerability analysis.

²⁷⁶ Cf. UNEP FI, *The 2023 Climate Risk Landscape, Technical Supplement* (2023).

²⁷⁷ Cf. TCFD, *Recommendations of the Task Force on Climate-related Financial Disclosures* (2017).

²⁷⁸ *NGFS Phase 5 Scenario Explorer*.

NGFS scenarios²⁷⁹ that can be used, inter alia, for financial undertakings' risk assessment. Such scenarios consider events occurring within a short-term observation period (within the next three to five years) and which may have medium to long-term effects (e.g. through feedback loops and accumulated risks).²⁸⁰ UNEP FI has made publicly available an Excel-based tool for scenario analysis of short-term climate risks and a related report. The tool and report are intended to help financial institutions understand and integrate impacts and drivers of various short-term shocks in risk management.

Regarding nature-related risks, the TNFD guidance on methods for identifying nature-related risks provides a step-by-step description of how to carry out a scenario analysis of nature-related risks, as well as practical examples of application.²⁸¹ Standard nature scenarios, which can also be used for stress tests, are currently rarely available and under development; e.g. in the context of the Horizon Nature 3B project.²⁸²

Advantages and disadvantages:

<i>Advantages</i>	<i>Disadvantages</i>
High, forward-looking information content, including for medium- and long-term risks	For all sustainability risks: Relatively complex models and application
Possibility to evaluate financial risks (e.g. use of scenario analysis as a basis for value at risk calculation)	For climate risks: insufficient modelling of reciprocal effects between investor expectations, credibility/linearity of climate policy and risk materialisation in climate scenarios. The mapping of links between physical and transition risks were incomplete. Financial actors can overcome this limitation by including the endogeneity of risks. ²⁸³ In addition, scenarios such as those of the NGFS do not consider tipping points in the climate system ²⁸⁴ .
Financial undertakings that have experience in scenario analyses (medium- and long-term) can use them to conduct short-term scenario analyses to develop a more robust understanding of risks	For nature-related risks: standard scenarios are rarely available for scenario analysis, therefore requiring development of separate scenarios

Examples of applications: See examples of application in the section Value at Risk.

²⁷⁹ Short-term NGFS scenarios had not yet been published when this Guide was published.

²⁸⁰ Cf. NGFS, [Conceptual note on short-term climate scenarios](#), [Conceptual note on short-term climate scenarios](#) (2023).

²⁸¹ TNFD, [Nature-related Risk and Opportunity Management and Disclosure Framework](#) (2023).

²⁸² [Nature-3B: Including Nature in decision making of central Banks, investment Benchmarkers & Bond issuers](#).

²⁸³ Battiston et al., [Accounting for finance is key for climate mitigation pathways](#) (2021).

²⁸⁴ NGFS, [NGSF long-term climate scenarios – Phase V](#).

STRESS TESTS

Potential usage: Estimation of the (tail) risks, impacts or the resilience towards future sustainability-related shocks.

Description: Sustainability-related stress tests are a specific form of scenario analysis but go a step further by simulating the impacts of extreme or severe scenarios ('stress test scenarios'). This can test financial undertakings and their portfolios' resilience to potential, severe changes in influencing factors, such as climate change, macroeconomic market conditions or regulations. Sustainability-related stress tests are therefore a good tool to improve financial undertakings' sustainability risk management and to support financial undertakings in quantifying possible financial losses under different scenarios.

Standards and cross-references:

The NGFS' short- and long-term scenarios are suitable for stress testing applications of financial undertakings and for assessing tail risks.

Advantages and disadvantages: See scenario analysis.

Examples of applications:

- Joint scenario analysis of European Supervisory Authorities (EBA, EIOPA, ESMA) and the ECB climate stress test for assessing risks related to the EU's 'Fit for 55' ambitions. These aim to reduce EU GHG emissions by 55 % by 2030 and to achieve climate neutrality by 2050. NGFS scenarios form the basis for the scenario analysis.²⁸⁵

SENSITIVITY ANALYSES

Potential usage: Gauging the impact of specific influence factors on the exposure of portfolios towards sustainability risks and especially climate risks.

Description: Sensitivity analyses permit a better understanding of the impact of individual influence factors on a company's own business model or on product, investment and credit portfolios. In contrast to the scenario analysis, the sensitivity analysis isolates individual input parameters and quantifies the relationship to a specific output parameter (e.g. *non-performing loans*, *loss given*

²⁸⁵ EBA/EIOPA/ESMA/ECB, *Fit-for-55 climate scenario analysis by the European Supervisory Authorities and the European Central Bank* (2024).

default, net asset value, or return on equity). The spectrum of potential input parameters is diverse, and the following influence factors, among others, may be relevant for identifying them:

- political-regulatory changes (increasing CO₂ prices, bans on oil-based heating or the registration of new vehicles with combustion engines etc.),
- market-related changes (reducing the cost of renewable energy and energy storage, increasing the cost of environmentally harmful products, establishing new or environmentally friendly services, changing value chains, etc.),
- technological innovations (energy-efficient industrial processes, drive technologies, storage technologies etc.),
- changes in physical environmental and climate-related risk drivers (loss of biodiversity, extreme weather events, temperature increases, water shortages etc.); potential input parameters include the number of days with a natural snow covering, the number of heat days (> 30°C), the number of days with interruption to production due to the supply chain being interrupted, etc.,
- new scientific findings about the physical and economic effects of the destruction of the environment and climate change, as well as
- social influence factors (increasing risk of pandemic as a result of destruction of the environment, conflicts due to poor harvests or water shortages, changes in behaviour in the areas of mobility, nutrition, consumption, etc.).

Advantages and disadvantages:

<i>Advantages</i>	<i>Disadvantages</i>
Identification of critical input parameters that may, for example, have a significant impact on the results of a scenario analysis. This creates transparency on uncertainties and assumptions of (sustainability) risk models Multi-purpose applicability of the methodology to different sustainability risks	Potentially relatively burdensome and complex

VALUE AT RISK

Climate Value at Risk (Climate VaR)

Potential usage: Estimation of loss potential (and profit potential) from climate risks.

Description: A forward-looking evaluation of the potential loss (or profit) at asset or portfolio level due to climate risks. Calculation assuming different climate scenarios.

Climate VaR parameters can be expressed as a percentage or a selected currency. Different types of risk (physical or transition risks) can be aggregated or considered separately.

Standards and cross-references: UNEP FI's Technical Supplement to the 2023 *Climate Risk Landscape* describes and compares Climate VaR models from different providers.²⁸⁶

Advantages and disadvantages:

Advantages	Disadvantages
Possibility to identify opportunities in addition to risks	Complex method
Aggregate consideration of different types of risk possible	Results can be very sensitive to modelling assumptions

Nature-related VaR (nVaR)

Potential usage: Evaluation of exposure to nature-related risks.

Description: A forward-looking evaluation of the potential loss (or profit) at asset or portfolio level due to climate risks. Calculation under different scenarios.

Nature-related VaR parameters may be expressed as a percentage or a chosen currency. Different types of risk (physical or transition risks) can be aggregated or considered separately.

Standards and cross-references: The NGFS describes the practical application of scenarios for determining physical nature-related risks. This includes the calculation of sector-specific nVaRs.²⁸⁷

Advantages and disadvantages:

Advantages	Disadvantages
Possibility to identify opportunities in addition to risks	Results can be very sensitive to modelling assumptions
Aggregate consideration of different types of risk possible	Hardly any practical examples of applications
	Lower maturity than Climate VaR

Examples of applications:

²⁸⁶ Cf. UNEP FI, *The 2023 Climate Risk Landscape, Technical Supplement* (2023).

²⁸⁷ Cf. NGFS, NGFS Occasional Paper, *The Green Scorpion: the Macro-Criticality of Nature for Finance* (2023).

- Calculation of sector-specific physical nVaRs based on the dependencies on ecosystem services of UK investment portfolios;
- Calculation of a transition nVaR based on the company values of fertiliser manufacturers, assuming different policy scenarios to reduce the use of fertilisers.²⁸⁸

PORTFOLIO ALIGNMENT

Portfolio alignment indicators provide financial institutions with information on whether portfolios are more or less in line with Paris Agreement objectives. Alignment indicators are generally forward-looking and vary widely in terms of their complexity. As a general rule, portfolio alignment methods can also be used to target and thus manage and mitigate risks.

Regarding climate risk management, TCFD recommends using alignment indicators only in combination with other risk indicators to cover a wider range of scenarios (e.g. through stress tests).²⁸⁹

In the future, the Climate Transition Plan, which companies subject to CSRD will have to implement under ESRS-E1 standards, will be an important source of information for assessing invested companies' alignment. Companies will be required to describe how the strategy and business model are aligned with the 1.5°C objective of the Paris Agreement in this transition plan.

Standards and cross-references: The *Glasgow Financial Alliance for Net Zero* (GFANZ) provide further descriptions of the alignment indicators and their application as do TCFD in relevant guides.²⁹⁰

Institut Louis Bachlier presents and compares selected portfolio alignment models (including coverage of sectors and asset classes).²⁹¹

Binary target measurement

Potential usage: Assessment of transition risks and opportunities linked to the alignment of the invested companies with the Paris Agreement.

²⁸⁸ Cf. University of Cambridge Institute for Sustainable Finance, Deutsche Bank and Union Bancaire Privée (UBP), *Nature-related financial risk: use case* (2022).

²⁸⁹ Cf. TCFD, *Measuring Portfolio Alignment – Technical Considerations*.

²⁹⁰ Cf. GFANZ, *Measuring Portfolio Alignment*.

²⁹¹ Cf. Institut Louis Bachlier, *The Alignment Cookbook*.

Description: Share of the portfolio of companies that have set science-based and validated emissions targets.

Binary target measurement is mainly used in the area of climate change. With an increasing number of companies also setting targets for other environmental issues (e.g. biodiversity), using this method may become more important also when looking at other environmental issues.

The *Science-based Target Initiative* (SBTi) publishes a freely accessible list of companies with SBTi-validated climate targets that can serve as a basis for *binary target measurement*.²⁹²

Advantages and disadvantages:

Advantages	Disadvantages
Easy to apply and little need for information	Limited gain of knowledge

Maturity scale alignment metrics

Potential usage: Assessment of transition risks and opportunities linked to the alignment of the invested/funded companies with the Paris Agreement.

Description: Grouping undertakings in a portfolio into alignment categories, such as ‘aligned’, ‘aligning’ and ‘not aligned’ with a 1.5°C path, using qualitative and quantitative indicators.²⁹³

Advantages and disadvantages:

Advantages	Disadvantages
Extended insight gain from increased granularity of information compared to <i>binary target measurement</i>	No universally used approach to grouping companies

Benchmark divergence metrics

Potential usage: Assessment of transition risks and opportunities linked to the alignment of the portfolio and invested companies with the Paris Agreement.

Description: Evaluation of a company’s difference in a portfolio from a benchmark, e.g. net zero.

²⁹² Cf. SBTi, *Companies taking action*.

²⁹³ Cf. *Net Zero Investment Framework (NZIF) of the Paris-Aligned Investment Initiative (PAII)* for examples of qualitative and quantitative indicators used.

Advantages and disadvantages:

Advantages	Disadvantages
Possibly enhanced knowledge gain compared to binary target measurement and maturity scale alignment metrics	Complex application based on climate scenarios Limited data availability, especially for SMEs

Implied temperature rise (ITR)

Potential usage: Assessment of transition risks and opportunities linked to the alignment of the portfolio and invested companies with the Paris Agreement.

Description: Calculation of a projected increase in temperature associated with an entity, based on a benchmark divergence model.

Advantages and disadvantages:

Advantages	Disadvantages
Result easy to interpret, even with limited technical background Alignment parameters can be aggregated at portfolio level	ITR models can be complex and opaque with regard to the influence of material underlying assumptions

RISK MONITORING AND EARLY WARNING INDICATORS

Potential usage: Early detection of potential risks.

Description: The likelihood, impact and time horizon of sustainability risks can change rapidly. With increasing climate change and biodiversity loss, disruptive climatic, political and regulatory, and technological development becoming more probable. This requires a consistent monitoring and establishing early warning indicators to detect changes in risk potentials in a systematic manner.

For example, the indicators described above (in particular GHG footprint, GHG-exposed assets) can be used as indicators for monitoring transition risks. It should be noted that metrics about GHG emissions relate to the status quo of an entity. It is therefore also advisable to include metrics about the planned future alignment of an entity towards global and national sustainability targets in the risk assessment. This may include information on climate strategy, climate-friendly investments and the transformation of the business model.

Trends in the development of prices for CO₂, renewable energies or energy storage, as well as the proportion of assets exposed to GHGs can serve as early warning indicators for transition risks. Indications of physical risks may be gained from the proportion of assets in flood risk zones, the

development of total losses from natural catastrophes or the development of temperature and precipitation (amount, intensity, seasonal distribution). It is important to identify the relevant metrics and early warning indicators for the individual risk profile. These should also be oriented towards the sectoral and regional focuses of the entity's business model taking into consideration the entire value creation chain.

Advantages and disadvantages:

<i>Advantages</i>	<i>Disadvantages</i>
Early detection of potential risks enabling proactive risk mitigation measures	Effectiveness of monitoring depends on data quality and availability

INDICATORS OF OPPORTUNITIES

Climate-related opportunities

TCFD recommends companies to disclose indicators to estimate climate-related opportunities.²⁹⁴

These indicators measure the share of assets that are aligned to opportunities related to the transition to a low-carbon economy. Examples of these indicators are:

- Share of turnover of invested companies in a portfolio of green activities ('green share' or EU taxonomy-aligned share);
- Share of the portfolio invested in renewable energy.

Natural opportunities

TNFD provides the following examples of metrics regarding natural opportunities:²⁹⁵

- Exposure to natural opportunities: The size of portfolio positions (investment, credit or insurance) in companies or sectors that contribute to the transformation to a more nature-friendly economy (e.g. circular economy),
- Financing of positive impacts: size of portfolio positions (investments, loans or insurance) that target measurable, positive nature impacts. A limitation of this indicator to be taken into

²⁹⁴ Cf. TCFD, *Guidance on Metrics, Targets and Transition Plans* (2021).

²⁹⁵ Cf. TNFD, *Nature-related Risk and Opportunity Management and Disclosure Framework* (2023), Annex 4.5 Financial institutions metrics supplement.

account in the interpretation is that the measurement of positive nature-related impacts is complicated, e.g. based on the evolution of the indicators presented in Table 5.

TOOLS TO IDENTIFY AND MEASURE SUSTAINABILITY RISKS

Given the variety of tools available to identify and measure climate and biodiversity risks, there is no comprehensive list of specific tools here. Instead, the table below provides an overview of five existing external resources and tool catalogues. These resources cover a wide range of climate and biodiversity risk assessments. The aim is to make it easier for financial institutions to find the appropriate tools for their specific needs, and the aforementioned examples for application.

<i>Organisation & Resource</i>	<i>Environmental Issue</i>	<i>Description</i>
UNEP FI The 2023 Climate Risk Landscape - Physical and Transition Risk Providers	Climate Change	UNEP FI's 2023 Climate Transition Risk Landscape consists of three publications: - the Report containing the general overview of climate risk tools - the Technical Supplement, including comparison of different providers' climate risk analysis results - an Excel file comparing different tools The comparison considers 16 transition risk tools and 19 physical climate risk tools. The comparison covers external data providers' paid tools
	Climate Change	Dashboard to support financial institutions in navigating the way through the constantly evolving variety of climate risk tools. The dashboard is based on a database comparing over 40 tools based on, inter alia, risk types, metrics, methods, geographical coverage and use cases (including 9 free open-source tools)
TNFD Tools Catalogue	Biodiversity	Overview of a wide variety of tools for evaluating nature-related topics
	Biodiversity	The SBTN Step 1 (Assess) Toolbox contains three types of tools to assess nature-related topics: 5 tools for creating heat maps and for screening material nature-related impacts and dependencies 18 tools to evaluate the influence factors created by different activities 22 tools to evaluate the state of nature values relevant for the assessment of business activities

Biodiversity	FFB provides an overview of nine tools, divided into three different groups, which evaluate the interactions of financial institutions with biodiversity
Climate change, biodiversity and others	ESG Data Cartography provides a continuously evolving overview of organisations that develop sustainability data and tools specifically for the financial sector

Table 6: Overview of external resources describing and comparing tools for identifying and measuring sustainability risks

CONTROLLING AND LIMITING OF SUSTAINABILITY RISKS

The points set out below represent a selection of established methods to manage and mitigate sustainability risks. It should be noted that a combination of several instruments may be necessary to adequately control risks.

STANDARDS-BASED SCREENING

Standard-based screening checks investment compliance with certain international standards and norms (e.g. UN Global Compact, OECD Guidelines for Multinational Enterprises, ILO core working standard). This screening may take either negative (criteria for exclusion) or positive (e.g. *best-in-class*) approaches. Standards-based screening may be suitable as an initial risk screening approach for identifying major outliers (e.g. enterprises that systematically breach human rights), however such an approach might prove insufficient as the only instrument for managing sustainability risks.

EXCLUSION CRITERIA AND LIMITS

Excluding or limiting risky assets in the portfolio is an effective strategy for controlling sustainability risks. By doing so, it is above all possible to cushion transition risks since economic sectors with business models that are significantly depending on fossil fuels are exposed to an impairment risk due to “*stranded assets*” and/or the bursting of the “*carbon bubble*”. Ideally, the criteria for exclusion will be very narrowly defined, to not be diluted, and the value creation chains incorporated.

DIVESTMENT

Divestment is the strategically planned exit from, for example, investments that are harmful to the environment and the climate. The difference between divestment and the application of exclusion criteria is that in the case of divestment investments are already held in risky assets and must plan an orderly exit, whereas in the application of exclusion criteria from the outset there is no investment

in defined risky assets. Divestment is associated with transparent timelines; non-binding letters of intent for unspecified dates in the future are not suitable.

BEST-IN-CLASS APPROACH

In this approach, the pioneers within an economic sector are identified based on ESG criteria. This approach allows a sector-neutral investment strategy while partially reducing sustainability risks. The *Best-in-Class* approach is widespread, with it being important regarding sustainability risks that their weighting in (sustainability) rating agencies' ESG scores also corresponds to the actual risk potential. A risk may arise from lock-in effects that should particularly be considered. Such lock-in effects may lead to institutions staying invested in certain areas that ultimately are not sustainable for too long and that therefore become "*stranded assets*". There are also sectors that display high overall transition risks. It is therefore recommendable to question whether entities classified as "*Best in Class*" have actually implemented a sustainability or climate strategy that is science-based, and whether the GHG reduction targets are compatible with national, European and international climate objectives in accordance with the Paris Agreement.

BEST-IN-UNIVERSE APPROACH

An alternative to the *best-in-class* approach is the *best-in-universe* approach, which reduces the risk of lock-in effects. The best-in-universe approach selects the best companies, regardless of their sector, based on selected sustainability criteria. This means that investments are concentrated on those companies that have the highest sustainability performance across the investment spectrum, instead of selecting only the best companies within a given sector. This allows investors to reduce their exposure to sectors that may become obsolete during sustainability transformation.

BEST-IN-PROGRESS APPROACH

The *best-in-progress* approach, also known as the '*best effort*' approach, focuses on selecting companies that have made the greatest efforts and have made significant progress towards sustainable development, even if they have not yet achieved the best sustainability assessments (and are thus potentially not included in the best-in-class or best-in-universe approaches). This approach recognises companies' efforts and enables financial support to transform business models and practices.

ESG INTEGRATION

In the application of ESG integration, ESG criteria are explicitly included in the traditional financial/risk assessment process. Sustainability aspects are incorporated in the assessment of assets. It is material that the ESG integration is systematically anchored in the investment/lending process for the entire portfolio. To be able to assess risks appropriately, the respective relevant regional, sectoral and enterprise-specific ESG factors must be identified and compared against the enterprise's strategy and sustainability performance. It is relevant that primarily forward-looking information is included in the ESG risk assessment. Externally purchased ESG scores may be helpful as an initial indicator, but do not however replace the individual analysis. Since the scores of individual ESG rating agencies deviate in some cases significantly from one another, it is necessary to handle such information in a reflected manner. The significant aspect is to identify the detailed ESG factors and their weighting.

POSITIVE LISTS

Unlike the identification of exclusion criteria, when creating positive lists, the deliberate decision is to invest in assets that have a positive performance in terms of ESG criteria and lower sustainability risks (e.g. using a best-in-class approach). Thresholds for ESG evaluations or the implementation of specific sustainability standards may for example be defined as positive criteria.

ENGAGEMENT AND EXERCISING OF VOTING RIGHTS

While the methods presented above relate to “*pre-investment*” strategies (excluding divestment), engagement and voting rights apply “*post-investment*” and represent investors' active exercising of interests (“*active ownership*”). Engagement means that institutional investors and financial institutions engage in a constructive and purposeful dialogue with the entities in which they have invested. This dialogue offers the opportunity to encourage entities, whose business model is currently not sustainable, or only to a certain extent, and that are affected by sustainability risks, to adapt their business strategy. The exercising of shareholder rights at general meetings should be focused on positively influencing the corporate policy regarding sustainability.

Shareholder engagement and the exercising of shareholder rights are tools that can enable a company that is currently active in a way that is detrimental to the climate or the environment to reorient its business model towards sustainability.