Wissenschaftsplattform Sustainable Finance

Gefördert von STIFTUNG MERCATOR

Policy Brief 5/2024

Biodiversity and Financial Risk Assessments

Timo Busch, Alexander Bassen, Kerstin Lopatta, Lisa Knob, Sven Remer

At a glance

- The rapid loss of biodiversity is threatening the ecosystem services that many industries rely on, also posing significant risks to financial institutions and the overall financial system.
- Regulations like the SFDR, Taxonomy, and CSRD, therefore, aim to push companies and financial institutions to be more transparent about how their activities affect and depend on biodiversity.
- But financial institutions have been slow to account for biodiversity risks in their decision-making, often blaming the complexity of the issue and the lack of reliable, high-quality data.
- While several tools and metrics exist to help assess biodiversity risks, each has limitations and often needs to be used in combination to be effective.
- In addition, gaps and inconsistencies in current disclosure requirements do make this task even more daunting.
- This policy brief offers recommendations to policymakers, financial institutions, and businesses on how they can better analyse and manage biodiversity risks.

We thank Myriam Rapior, Renè Wagner, Bernhard Zwergel, Malte Hessenius and Christian Klein for your valuable comments and remarks, as well as your helpful tips and expertise.

Universität Augsburg University · DIW BERLIN · Frankfurt School of Finance & Management · German Excellence. Global Relevance. · Universität Hamburg · DER FORSCHUNG | DER LEHRE | DER BILDUNG · UNIKASSEL VERSITÄT

Introduction

Relevance of Biodiversity Loss

Biodiversity, the variety of life within species, between species, and ecosystems (CBD, 2018), is declining rapidly. Nearly one out of eight million species face extinction, with the current extinction rate 100 to 1,000 times higher than the background extinction rate, potentially leading to ecosystem breakdowns (IPBES, 2019). Driven by factors like climate change, pollution, and habitat destruction, the biodiversity loss poses severe economic consequences. For instance, biodiversity underpins crucial ecosystem services, such as pollination and water purification, valued in trillions of dollars annually (WRI, 2013; Dasgupta, 2021). Companies across various industries rely heavily on such ecosystem services. Agriculture, forestry, fishing, water supply, tourism, and pharmaceuticals are some obvious examples. Approximately half of the global GDP depends on nature (WEF, 2020). But ecosystems, worth $125 trillion annually, are rapidly losing value, potentially leading to losses in global GDP of $2.7 trillion per year by 2030 (Costanza et al., 2014; World Bank, 2021).

Implications for the Financial Sector

The economic reliance on biodiversity and ecosystem services also presents significant risks for both private and public financial institutions, ultimately threatening the stability of the entire financial sector. This is confirmed by several recent studies. For instance, according to Kedward, Buller and Ryan-Collins (2021), from the European Central Bank (ECB), point out that the ECB's corporate bond portfolio's heavy dependence on nature, poses substantial financial risks. Svartzman et al. (2021) note that 42% of the market value of securities held by French financial institutions is linked to issuers highly dependent on ecosystem services. The ECB (2023) further finds that nearly 75% of euro area bank loans are to companies reliant on these services. Also, the European Commission's Joint Research Committee, JRC (2023), warns that environmental degradation could impact the creditworthiness of firms dependent on natural resources. As a consequence, OECD (2023) and the

Network for Greening the Financial System, NGFS (2024), stress the importance of including nature-related risks in financial stability assessments.

Political and Regulatory Initiatives

Recognizing the existential risk of biodiversity loss, over the past years, policymakers have launched ambitious plans to safeguard biodiversity. For instance, on an international level, two of the seventeen Sustainable Development Goals (SDG), published in 2015, address biodiversity, namely SDG 14 "Life below water" and SDG 15 "Life on Land". And, in 2023, the international state community agreed upon 23 ambitious targets for protecting biodiversity within the Kunming-Montreal Global Biodiversity Framework. Further, the European Union has enacted several programs and regulations aimed at protecting biodiversity, such as the Green Deal, in 2019, or the Nature Restoration Law, in 2024.

While corporate reporting traditionally only touched upon biodiversity-related impacts and risks, new voluntary standards and regulatory files drastically extend reporting requirements. International frameworks include those by the Global Reporting Initiative (GRI/GRI 101: Biodiversity), Natural Capital Protocol, Partnership for Biodiversity Accounting Financials (PBAF), Sustainability Accounting Standards Board (SASB), Science Based Targets for Nature (SBTN), and the Taskforce on Nature-related Financial Disclosures (TNFD). In Europe, the Sustainable Finance Disclosure Regulation (SFDR), the Taxonomy, and the Corporate Sustainability Reporting Directive with its accompanying European Sustainability Reporting Standards (CSRD/ESRS, incl. ESRS E4 on biodiversity and ecosystems) mandate disclosures on biodiversity impacts, risk, opportunities and dependencies. The EU Deforestation Regulation (EUDR) and the Corporate Sustainability Due Diligence Directive (CSDDD) further add to the biodiversity reporting requirements for companies.

Status Quo of and Challenges for Biodiversity Integration in Financial Risk Assessment

Whilst there is growing recognition of the link between financial stability and environmental sustainability, particularly biodiversity (e.g. Garel et al., 2023), financial institutes are just starting to engage with biodiversity-related risks – and

various experts highlight the need for stronger biodiversity risk management by financial institutes (e.g. DNB, 2020; Svartzmann et al., 2021; PwC, 2022; ECB, 2023; JRC, 2023).

The apparent hesitance of financial institutes in terms of biodiversity integration in financial risk assessments can be attributed to various factors. Some of these challenges are related to the broader difficulties in assessing sustainability-related risks, while others are particularly pronounced when it comes to biodiversity.

Sustainability-related risks - whether physical (such as climate change or natural disasters) or transitional (like regulatory changes or market shifts) - typically affect multiple risk categories, including strategic, operational, and financial. This makes integrating these risks into traditional risk management systems particularly complex (Svartzman et al., 2021; Garel et al., 2023). In addition, they are difficult to monetize and often require a long-term perspective, conflicting with short-term profit goals. Importantly, these risks also necessitate a double materiality perspective, taking into account both the impact and the dependencies of economic activities on sustainability related aspects.

The above also applies to biodiversity-related risks, but their assessment is further complicated, for instance, by factors such as

- Complexity and interconnectivity: Biodiversity involves numerous species, interactions and environmental variables, making it challenging to capture the full scope of impacts and risks.
- Causal relationships and indirect effects: Biodiversity loss often arises from indirect drivers, such as land use change, making it hard to attribute specific risks directly to biodiversity loss.
- Temporal and spatial variability: Biodiversity changes over time and varies across locations, meaning risks may differ significantly between ecosystems.

In short, adequately assessing the financial risks linked to biodiversity requires a vast amount of data, ranging from local specifics to global trends. Due to this complexity, many financial institutions hesitate to take on this challenge, often citing a perceived lack of available, reliable data and of standardized metrics as a key reason for not yet

fully engaging with this daunting task (UNEP FI and Global Canopy, 2020; PwC, 2022; ECB, 2023; NGFS, 2024).

If true, this could have serious implications for financial institutes, not only in terms of financial and business but also compliance risks, as they may struggle to meet the new disclosure requirements. Moreover, inadequate disclosure and management of biodiversity risks could pose challenges for policymakers, regulators, and supervisors concerned with financial stability.

Objective & Structure of this Policy Brief

In this policy brief, we will concentrate on the issue of the perceived lack of high-quality data. To address this, we will first review the biodiversity-related disclosure requirements outlined in key EU Sustainable Finance regulations. Next, we will explore the principal availability of biodiversity-related data by examining existing indicators/metrics and tools/approaches, while also identifying practical challenges and gaps. Finally, we will provide recommendations for policymakers and other stakeholders to help improve data availability and quality.

Biodiversity-related Disclosure Requirements of Key EU Sustainable Finance Regulations

In Europe, several new compulsory regulations aim to enhance the transparent and standardized disclosure of organizations' biodiversity-related impacts and dependencies. These regulations are designed to improve the availability and quality of data for financial institutions, enabling them to better assess related risks. Key among these are the Sustainable Finance Disclosure Regulation (SFDR), the Taxonomy, and the Corporate Sustainability Reporting Directive (CSRD), each accompanied by delegated acts or regulations. The section below will summarize their key requirements regarding biodiversity-related data disclosure.

Summary of data requirements of the three Regulatory Files

The data requirements under SFDR, Taxonomy, and CSRD/ESRS can be categorized into six broad areas. The first four focus on biodiversity-related aspects in a narrow sense:

1. Areas (e.g., biodiversity-sensitive, protected),
2. Ecosystems (e.g., condition, extent, functioning, services, structure),
3. Habitats (e.g., condition, structure, type),
4. Species (e.g., condition, extinction/threat level, population size, range in ecosystem).

Additionally, the requirements also refer to:

5. Impact Drivers (e.g., climate change, exploitation, freshwater use, invasive species, land and sea use changes), and
6. Risks (e.g., financial, acute, chronic, material, systemic, transition risks).

Requiring disclosure on such information, the above regulations (and esp. ESRS E-4) could eventually help provide financial institutes with improved data availability and quality for the assessment of financial risk associated with the impacts and dependencies on biodiversity of the companies they finance or invest in.

However, overall, the files focus on outlining the information to be disclosed, without going into much detail on how and where the relevant data should be obtained.

Hence, the key issue is whether there is sufficient high-quality data available for this purpose. This will be the focus of the next session.

Availability and Quality of Data - Existing Indicators/Metrics and Tools/Approaches

Against the above regulatory requirements on data for assessing the financial risks associated with biodiversity, in the following, we look at the current availability and quality of data available, at least in principle, to financial institutes for the assessment of biodiversity-related financial risks, to then identify corresponding gaps and challenges.

Several publications provide good overviews of currently available indicators/metrics and tools/approaches for this purpose, for example: Scholes and Biggs (2005),

Crenna et al. (2020), Marques et al. (2021), WWF (2021), WWF, World Bank and Global Canopy (2022), OECD (2023), and Finance for Biodiversity (2024).

Indicators/Metrics

There are several indicators and metrics that could also provide financial institutes with data to assess the biodiversity-related risks of companies. Amongst them are four prominent ones:

- Biodiversity Intactness Index (BII)
- Mean Species Abundance (MSA)
- Potential Disappearing Fraction of Species (PDF)
- Species Threat Abatement and Recovery (STAR)

In this brief, it is impossible to describe those indicators/metrics in detail, but it is important to note that each comes with its own set of strengths and weaknesses, some of which will be summarized further below (s. "Gaps and Challenges").

Tools/approaches

There are at least 20 tools and approaches available to assess the risks of companies resulting from their impacts and/or dependencies on biodiversity and ecosystem services. They are predominantly aimed at companies in general, with very few exceptions developed specifically for financial institutes (marked by a "*"):

• Biodiversity Risk Filter by WWF • Biodiversity Impact Index • Biodiversity Indicators for Extractive Companies • BioScope • Corporate Biodiversity Footprint (CBF) • Corporate Ecosystem Services Review (ESR) • Critical Habitat Layer • ENCORE	• Biodiversity Impact Index • Biodiversity Indicators for Extractive Companies • Healthy Ecosystem Metric • Integrated Biodiversity Assessment Tool (IBAT) • Natural Capital Protocol • Partnership Biodiversity Accounting Financials (PBAF) * • Picterra

• Global Biodiversity Score • Global Biodiversity Score for Financial Institutes (GBSFI) * • Global Forest Watch Pro • Green Infrastructure Support Tool	• Product Biodiversity Footprint • Science-Based Targets for Nature • TRASE (Transparency for Sustainable Economies)

Again, in this policy brief, it is impossible to describe those tools/approaches in detail, but they also come with respective strengths and weaknesses in terms of their ability to produce data for assessing the financial risks associated with biodiversity-related aspects. This is summarized below.

Gaps and Challenges

To summarize, financial institutions need to assess the financial risks associated with the biodiversity impacts and dependencies of the companies they finance or invest in. This is not only essential for sound business practices ("know your customer"), but also to comply with new regulations requiring disclosure of material information in this area.

Although there are many indicators, metrics, tools, and approaches available to help generate the necessary data, significant gaps and challenges remain.

Some gaps and challenges are conceptual. As already outlined in the introduction, they stem from the intricacies of measuring biodiversity impacts and dependencies. Factors such as the interconnectedness of ecosystems, the variability of impacts across different locations, and the difficulties of determining planetary boundaries, make assessing biodiversity-related risks far more complex than other sustainability risks, such as climate change.

However, there are also more practical gaps and challenges related to both the availability of data and the regulatory data requirements, which are highlighted below.

Gaps and Challenges related to Existing Indicators/Metrics & Tools/Approaches

Whilst there are various indicators/metrics and tools/approaches available today that can help financial institutes to identify biodiversity-related risks, they all have their respective (combinations of) shortcomings, such as:

- **Limited Applicability:** Some tools are tailored for specific industries or focus areas, limiting their usefulness for financial institutions with diverse investment portfolios.
- **Coverage Limitations:** Some tools are limited to specific biodiversity aspects or habitats, such as forests, and do not provide a comprehensive view of all relevant biodiversity impacts.
- **Focus on impacts:** Most available tools focus on impacts, not dependencies on biodiversity or ecosystem services, neglecting one half of the "double materiality".
- **Macro-perspective:** Several tools take a macro-perspective on ecosystems or habitats, making it difficult to assess any site-specific risks for individual companies.
- **Lack of integration with financial metrics:** Most tools are not developed for assessing financial risks associated with impacts and dependencies on biodiversity.
- **Complexity:** The methodologies and data interpretation required by many tools are complex, demanding high levels of specialized expertise.
- **Data Intensity:** Many tools require significant amounts of detailed data input, making them resource-intensive and potentially challenging to implement and maintain.
- **Technological Needs:** Advanced technologies like remote sensing and GIS tools are key for impact assessment and monitoring but beyond the capacity of smaller firms.
- **Costs:** The costs associated with data gathering can be prohibitive, especially for smaller institutions or those with limited budgets.

In addition, financial institutes deal with a large number of companies across various sectors, both directly and through capital markets. And they not only need data on

the individual companies they finance or invest in, but also on their value chains that often include small and medium sized enterprises (SMEs) outside the European regulatory and disclosure framework.

But there is no one-size-fits-all indicator/metric or tool/approach available for financial institutes for this purpose yet, and given the complexity of biodiversity, it is unlikely that there ever will be one.

Therefore, to assess biodiversity-related financial risks effectively, depending on the particular task at hand, they need different indicators/metrics and tools/approaches for various levels of analysis, from company/site-specific data to value chain and portfolio perspectives.

So, it is fair to say, given both the conceptual challenges involved in measuring biodiversity impacts and dependencies and the limitations of the current indicators/metrics and tools/approaches, there remains a significant gap in the availability and quality of the necessary data for financial institutions.

Gaps and Challenges related to Regulatory Data Requirements

There are several regulatory gaps and challenges that need to be addressed to foster data availability and quality and, thus, facilitate the assessment of biodiversity-related financial risks:

- **Capital Market Orientation**: Current corporate sustainability regulations address large corporations, yet they are often cascaded down to SMEs. However, SMEs are not able to gather the biodiversity data required, thus the SME perspective needs to be strengthened in regulations.
- **Voluntary Nature of Guidelines:** Biodiversity-related disclosures often remain voluntary or rely on materiality analyses. There are no binding guidelines for conducting these analyses or assessing biodiversity risks. The TNFD recommendations could help but are voluntary.
- **Inconsistency and Lack of Standardisation:** Although regulations specify what biodiversity-related data should be disclosed, they do not mandate standardized data collection methods, resulting in inconsistent data that complicates analysis.

- **Incoherent Regulations:** Differences among the SFDR, EU Taxonomy, and CSRD/ESRS in definitions, materiality assessments, reporting requirements, and metrics lead to fragmented and inconsistent biodiversity disclosures, making it harder to assess and compare biodiversity impacts and risks.
- **Enforcement Gaps:** The lack of harmonization and enforcement in SFDR, EU Taxonomy, and CSRD results in inconsistent disclosures. SFDR's subjective approach, the voluntary nature of the EU Taxonomy, and the incomplete integration of CSRD contribute to these gaps, reducing the effectiveness of biodiversity-related disclosures.

These challenges significantly contribute to the difficulties in measuring biodiversity impacts and the resulting lower data availability and quality for assessing biodiversity-related risks.

Recommendations to Policy Makers, Regulators and Other Stakeholders

Based on the above, in this final section, we provide recommendations both to policy makers and regulators as well as to other stakeholders.

Policy makers and regulators

Based on the identified challenges, appropriate recommendations for policy makers and regulators to improve data availability and quality for assessing financial risks associated with companies' biodiversity impacts and dependencies:

1. **Align and Harmonize Regulatory Frameworks**

- Regulatory Coherence: Work towards aligning the definitions, materiality assessments, reporting requirements, and metrics across SFDR, Taxonomy, and CSRD/ESRS. A coherent regulatory framework will help streamline biodiversity-related disclosures and make it easier for financial institutions to assess and compare biodiversity risks.
- Cross-Framework Integration: Encourage integration and cross-referencing between existing frameworks to create a more unified approach to biodiversity risk management.

2. Enhance Disclosure Requirements for High-Impact Sectors and SMEs

- Expand Coverage: Mandate comprehensive biodiversity-related disclosures for sectors with significant impacts on land and sea use change. Next to agriculture, forestry, and fisheries, other industries, such as textiles or pharmaceuticals, have a strongly impact and depend natural resources, yet they are often neglected in biodiversity-related policy-making.
- Sector-Specific Guidelines: Develop tailored guidelines for these sectors to ensure that their biodiversity impacts and dependencies are adequately captured and reported. The European Financial Reporting Advisory Group (EFRAG) is already working on sectors standards for the ESRS, and alignment with existing standards would be helpful

3. Establish Clear and Binding Guidelines for Biodiversity Disclosures

- Mandatory Standards: Transition from voluntary to mandatory disclosure requirements on biodiversity-related risks and impacts for sectors with high impacts and dependencies on biodiversity. This would ensure more consistent and reliable data across institutions and reduce the arbitrariness of materiality analysis.
- Implement TNFD Recommendations: Encourage the adoption of the TNFD guidelines and consider integrating them into mandatory reporting frameworks to standardize the approach to biodiversity risk assessment.

4. Standardize Data Collection and Reporting Methods

- Unified Methodologies: Develop and enforce standardized indicators on biodiversity impacts and dependencies. This will help reduce inconsistencies and enable more effective analysis and comparison across companies and sectors.
- Data Harmonization: Promote the harmonization of biodiversity metrics across different reporting frameworks (e.g., SFDR, EU Taxonomy, CSRD/ESRS) to ensure comparability and reduce fragmentation.

5. Capacity Building and Support for SMEs

- **Capacity Building:** Provide resources and training to regulators and institutions to effectively implement and oversee biodiversity-related disclosures, ensuring they are robust and meaningful.
- **Support SMEs:** SMEs significantly impact biodiversity and provide essential data in supply chains but are largely excluded from regulatory frameworks. They face varied information requests with limited resources. Simplified, voluntary standards aligned with larger companies' requirements would greatly help.

6. **Strengthen Enforcement**

- **Enhanced Enforcement Mechanisms:** Improve enforcement mechanisms to ensure compliance also with biodiversity-related disclosure requirements. This could include regular audits, penalties for non-compliance, and public reporting of adherence levels.

7. **Support Data Infrastructure Development**

- **Invest in Biodiversity Data Infrastructure:** Unify existing databases on biodiversity and support the development of a centralized biodiversity data infrastructure that can provide high-quality, accessible data for financial institutions. This could include public databases, improved data sharing practices, and incentives for data collection and reporting.
- **Public-Private Partnerships:** Encourage collaboration between the public and private sectors to develop and maintain biodiversity data platforms that meet the needs of financial institutions.
- **Foster Innovation:** Provide funding and incentives for the development of new tools and technologies that can enhance biodiversity risk assessment. Collaboration with tech companies and research institutions can drive innovation in this area.

These recommendations aim to address the current gaps and challenges in biodiversity-related financial risk assessment, ultimately leading to more informed and effective decision-making by financial institutions.

Other Stakeholders

But also various other stakeholders, including data providers, the financial sector, the real economy, NGOs, think tanks, academia, and private consumers, are crucial for making progress on assessing the financial risks associated with impacts and dependencies on biodiversity.

- **Financial Sector:** Even given the current limitations in terms of data availability and quality, financial institutes must start integrating biodiversity risks into their risk management frameworks and investment strategies. This can involve various aspects:
    - *Biodiversity Awareness:* Financial institutions should prioritize raising awareness and building expertise in biodiversity, as it remains a relatively new area of focus, essential for understanding and managing related risks.
    - *Resource Allocation for Biodiversity Assessments:* It is crucial for financial institutions to allocate sufficient time, expertise, and financial resources to conduct comprehensive biodiversity assessments, particularly when dealing with small to medium-sized enterprises that may lack these capacities.
    - *Data Management Capabilities:* Financial institutions should invest in robust data management systems to effectively handle large biodiversity-related datasets, ensuring their accuracy, privacy, and relevance to risk assessments.
    - *Stakeholder Cooperation:* Engaging with stakeholders across and beyond the value chain is vital for financial institutions to assess and mitigate material biodiversity risks.
- **Real Economy:** Companies should assess their biodiversity impacts and dependencies and implement mitigation strategies. They should also collaborate with financial institutes to provide relevant data and disclosures.
- **Public Data Providers:** Organizations like UNEP, IUCN, and other environmental institutions should strengthen the cooperation with national

public data providers to improve data accuracy, accessibility, and standardization. They should engage with financial institutes to ensure the usability and comprehensiveness of data bases.

- **NGOs and Think Tanks:** These organizations can play a key role in raising awareness, conducting research, and developing best practices for biodiversity risk assessment. They can also act as intermediaries between the financial sector and other stakeholders.
- **Academia:** Academic institutions should focus on advancing research in biodiversity metrics, risk assessment methodologies, and the economic implications of biodiversity loss. They can also provide training and capacity-building programs for professionals in the financial sector.
- **Private Consumers:** Consumers can influence corporate behaviour by prioritizing products and services from companies that demonstrate strong biodiversity practices. Public awareness campaigns can educate consumers about the importance of biodiversity in financial decision-making.

By addressing the above recommendations, policy makers, regulators and others can significantly contribute to the availability and quality of data needed to assess and manage biodiversity-related risks, ultimately contributing to more sustainable financial systems and ecosystems.

References

CBD – Convention on Biological Diversity. (2018). Guidance for reporting by business on their actions related to biodiversity. URL:https://www.cbd.int/doc/legal/cbd-en.pdf

Costanza, R., Groot, R. de, Sutton, P., van der Ploeg, S., Anderson, S. J., Kubiszewski, I., Turner, R. K. (2014). Changes in the global value of ecosystem services. Global Environmental Change, 26, 152–158. URL: https://doi.org/10.1016/j.gloenvcha.2014.04.002

Crenna, E., Marques, A., La Notte, A., & Sala, S. (2020). Biodiversity assessment of value chains: state of the art and emerging challenges. Environmental Science & Technology, 54(16), 9715-9728.

Dasgupta, P. (2021). The Economics of Biodiversity: The Dasgupta Review. (London: HM Treasury). URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962785/The_Economics_of_Biodiversity_The_Dasgupta_Review_Full_Report.pdf

DNB - De Nerderlandsche Bank (2020). Indebted to nature Exploring biodiversity risks for the Dutch financial sector. URL: https://www.dnb.nl/media/4c3fqawd/indebted-to-nature.pdf

ECB (2023). The ECB Blog - The economy and banks need nature to survive; URL: https://www.ecb.europa.eu/press/blog/date/2023/html/ecb.blog230608~5cffb7c349.en.html

Finance for Biodiversity (2024). Guide on biodiversity measurement approaches. URL: https://www.financeforbiodiversity.org/wp-content/uploads/Finance-for-Biodiversity_Guide-on-biodiversity-measurement-approaches_3rd-edition-1.pdf

JRC - Joint Research Committee of the European Commission (2023). Decrypting the financial risks of climate change and biodiversity loss: a deeper understanding of ecosystem integrity and dependencies. URL: https://publications.jrc.ec.europa.eu/repository/handle/JRC135774

Garel, A., Romec, A., Sautner, Z., & Wagner, A. F. (2023). Do Investors Care About Biodiversity?. Available at SSRN 4398110.

IPBES (2019). Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. URL: https://www.ipbes.net/global-assessment

Kedward, K., Buller, A., Ryan-Collins, J. (2021) Quantitative easing and nature loss: exploring nature-related financial risks and impacts in the European Central Bank's corporate bond portfolio. UCL Institute for Innovation and Public Purpose, IPPP

Poliicy Report (IIPP 2021/02). URL: https://www.ucl.ac.uk/bartlett/public-purpose/wp2021/02

Marques, A., Robuchon, M., Hellweg, S., Newbold, T. & Beher, J. (2021). A research perspective: towards a more complete biodiversity footprint: a report from the World Biodiversity Forum. International Journal of Life Cycle Analysis 26: 238- 243.

NGFS (2024). Nature-related Financial Risks: a Conceptual Framework to guide Action by Central Banks and Supervisors. URL: https://www.ngfs.net/sites/default/files/medias/documents/ngfs-conceptual-framework-nature-risks.pdf

OECD (2023). A supervisory framework for assessing nature-related financial risks - Identifying and navigating biodiversity risks. URL: https://www.oecd.org/en/publications/2023/09/a-supervisory-framework-for-assessing-nature-related-financial-risks_1fd4b9d6.html

PwC (2022). Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy

Scholes, RJ., Biggs, R. (2005). A biodiversity intactness index. Nature 434:45–49. URL: https://doi.org/10.1038/natur e0328 9

Svartzman, R., Espagne, E., Julien, G., Paul, H. L., Mathilde, S., Allen, T., & Vallier, A. (2021). A'Silent Spring'for the Financial System? Exploring Biodiversity-Related Financial Risks in France. URL: https://publications.banque-france.fr/sites/default/files/medias/documents/wp826_0.pdf

UNEP FI and Global Canopy (2020). Beyond 'Business as Usual': Biodiversity targets and finance. Managing biodiversity risks across business sectors. UNEP-WCMC, Cambridge, UK, 42 pp. Beyond 'Business as Usual': Biodiversity Targets and Finance. URL: https://www.unepfi.org/wordpress/wp-content/uploads/2020/06/Beyond-Business-As-Usual-Full-Report.pdf

WEF – World Economic Forum. (2020) Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy. URL: https://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf

World Bank (2021) The Economic Case for Nature – A global Earth-economy model to assess development policy pathways. URL: https://documents1.worldbank.org/curated/en/445311625065610639/pdf/A-Global-Earth-Economy-Model-to-Assess-Development-Policy-Pathways.pdf

WRI. (2013). Weaving ecosystem services into impact assessment: A Step-By-Step Method (Version 1.0). World Resources Institute. URL: https://files.wri.org/s3fs-public/weaving_ecosystem_services_into_impact_assessment.pdf

WWF (2021). Assessing portfolio impacts tools to measure biodiversity and SDG footprints of financial portfolios. URL: https://wwfint.awsassets.panda.org/downloads/wwf_assessing_portfolio_impacts_final.pdf

WWF, World Bank and Global Canopy (2022). Geospatial ESG, the emerging application of geospatial data for gaining 'environmental', insights on the asset, corporate and sovereign level. URL: https://wwfint.awsassets.panda.org/downloads/geospatial_esg_report.pdf

About the project

The Sustainable Finance Research Platform is a joint project between five German research institutions conducting research on different aspects of Sustainable Finance, e.g. sustainable investments, sustainability risks and chances, and sustainability reporting. With their independent research, the project partners aim to support stakeholders in politics, the financial sector, and the real economy in understanding and shaping the central role of capital markets in achieving a net-zero economy. The researchers involved answer social, political, and business-related questions, provide established and new research findings, and participate in political and public debate. They also want to establish sustainable finance as a topic in the German research landscape and secure connections with international institutes and processes.

More information can be found on the project's website: www.wpsf.de

Partners of the Sustainable Finance Research Platform are

Universität Augsburg University · DIW BERLIN · Frankfurt School of Finance & Management · German Excellence. Global Relevance. · Universität Hamburg · UNIKASSEL VERSITÄT

The Sustainable Finance Research Platform is funded by

STIFTUNG MERCATOR

Appendix

EU Sustainable Finance Disclosure Regulation (SFDR)

Overview

The Sustainable Finance Disclosure Regulation (SFDR)i is a set of EU regulations aimed at increasing transparency of financial market participants and financial advisers with regard to the integration of sustainability (incl. biodiversity-) related risks, the consideration of adverse sustainability impacts in their decision-making processes and the provision of sustainability- (incl. biodiversity-) related information on financial products. This information has to be published in their precontractual disclosures, periodic reporting and/or on websites.

Requirements

The SFDR Delegated Regulation mandates the disclosure of biodiversity-related risks, particularly focusing on Principal Adverse Impacts (PAI) of investment decisions. This includes information on the share of investments in companies operating in or near biodiversity-sensitive areas, where their activities negatively impact natural habitats and species. Other required disclosures involve the share of investments in companies causing land degradation, affecting threatened species, or lacking biodiversity protection policies.

Additionally, for financial products promoting environmental characteristics (SFDR, Art. 8) or sustainable investments (SFDR, Art. 9), the SFDR requires disclosures on their alignment with the EU Taxonomy (s. below).

EU Taxonomy

Overview

The EU Taxonomyiii provides a science-based classification system to help companies and financial institutes identify "sustainable" economic activities that make a substantial contribution to at least one out of six environmental objectives (with "protection and restoration of biodiversity and ecosystems" being the sixth), but do no significant harm (DNSH) to any of the other environmental objectives.

Requirements

According to the Taxonomy regulation, companies subject to the CSRD (s. below) are required to also disclose their CAPEX, OPEX and revenues related to their taxonomy-aligned activities. Financial institutes have to disclose their taxonomy-aligned "green asset ratios". Eventually, this information could also be of use for financial risk assessment, assuming that those organisations with more "taxonomy aligned" activities face less (sustainability- and biodiversity-related) risks.
In this context, the taxonomy differentiates between two types of activities, depending on whether they do no significant harm (DNSH) or make a substantial contribution to biodiversity.

Under the Taxonomy and its delegated acts, to be considered "sustainable", economic activities contributing to the first five environmental objectives must comply with DNSH requirements related to biodiversity and ecosystems. This mainly includes performing Environmental Impact Assessments (EIA) and necessary mitigation measures, particularly near biodiversity-sensitive areas. Additionally, certain activities must meet specific DNSH criteria. For instance, "new constructions" should not occur on greenfield land of recognized high biodiversity value and land that serves as habitat of endangered species avoid high-biodiversity areas; the "use of concrete" should not have significant effects on Natura 2000 sites and protected species or habitats; the "remediation of contaminated sites" also

should do not harm protected species or habitats and prevent the spread invasive species.

Currently, screening criteria for significant contributions to the "Protection and Restoration of Biodiversity and Ecosystems" have been published only for two types of activities. „Environmental protection and restoration“ activities, which aim to maintain or improve the condition of ecosystems, species, and habitats, require involve, based on an detailed initial assessment of the status quo and the potential to improve it. „Accommodation“ activities, which aim for conservation or restoration of habitats, ecosystems and species, require completing an EIA and taking measures to avoid significant harm to protected areas and species, while preventing the spread of invasive species and adhering to strict rules regarding their impact on Natura 2000 sites and other protected areas.

EU Corporate Sustainability Reporting Directive (CSRD) and European Reporting Standards (ESRS)

Overview

Expanding on its predecessor, the Non-Financial Reporting Directive (NFRD), the EU Corporate Sustainability Reporting Directive (CSRD)v strives to improve sustainability reporting by organisations from the real economy and the financial sector. If subject to the CSRD, they have to report sustainability related information in their annual reports, depending on a materiality assessment. The regulation will be implemented stepwise. The first reports based on the CSRD will be published in 2025 for the financial year 2024.

The details – in terms of form and content – of reporting according to the CSRD are specified in a delegated regulation on the European Sustainability Reporting Standards (ESRS). The ESRS specify general requirements for reporting (cross-cutting ESRS 1/2) as well as ESG-specific requirements (topical ESRS S/E/G). One of those, ESRS E4, is dedicated to biodiversity and ecosystems. Reporting on E4 is mandatory only for companies that identify biodiversity as material in the prior materiality assessment. It could be of great help for delivering data for assessing financial risks related to impacts and dependencies on biodiversity.

Requirements

The CSRD requires organizations to report on various sustainability aspects: how sustainability risks and opportunities impact their business model and strategy, their sustainability goals, and the involvement and expertise of their leadership in this area. Organizations must also disclose relevant policies and due diligence processes, along with actual or potential negative impacts, risk management approaches, and key indicators.

The two cross-cutting ESRS 1 and 2 detail the disclosure requirements in terms of both content and form. ESRS 1 further elaborates on four key requirements for reporting: double materiality perspective (on impact and financial materiality), due diligence processes, value chain considerations and time horizons.

The EU Sustainability Reporting Standard Environment 4 (ESRS E4) comprises of disclosure requirements (DR) and application requirements (AR) specifically for reporting on biodiversity and ecosystems, structured into eight sections (E4-1 to E4-6, E4-SBM 3, and E4-IRO 1).

Organizations must disclose governance, strategy, and impact management related to biodiversity, possibly including transition plans (E4-1, E4-SBM 3, E4-IRO 1). In this context, materiality assessment is a key element. Organisations are required to disclose material impacts, risks, and opportunities related to biodiversity. This includes mandatory reporting on biodiversity-sensitive areas, as well as impact, dependency and risk assessments, and optional scenario analyses. The materiality assessment may follow the LEAP approach: locating relevant sites, evaluating impacts and dependencies, and assessing risks and opportunities. Organizations must further disclose policies, actions, resources, targets, impact metrics, and anticipated financial effects related to biodiversity (E4-2 to E4-6).

Under ESRS E4-5, organizations must report metrics on material impacts on biodiversity. If biodiversity-sensitive areas are affected, they shall disclose the number and area of affected sites. For land-use changes, they may disclose data via Life Cycle Assessments (LCAs). For impacts related to land-, freshwater-, or sea-use changes, relevant metrics, such as land cover conversion, shall be reported. For impacts related to invasive species, organizations may disclose metrics on risk

management. For ecosystem impacts, metrics on ecosystem extent, condition, and functioning may be disclosed. The respective metrics shall be verifiable, technically, and scientifically robust. They might involve primary, secondary, and modelled data.

Under DR ESRS E4-6, organizations must also report on the anticipated financial effects of biodiversity-related risks and opportunities. This shall include monetary quantification or qualitative information if monetary estimation is infeasible. Organizations may also voluntarily assess risks to related products and services over different time horizons.