

ESGnomics





Foreword

Climate change, reduced inequality and better governance are all challenges to making our world more just and sustainable in the future, and Rothschild & Co is committed to this goal.

The Group's economic research is part of this approach, providing analysis on the main risks and opportunities to which economic players are exposed. ESGnomics aims to convey in an educational manner the contributions of economics to the discussion of Environmental, Social and Governance issues.

The imperceptible importance of biodiversity

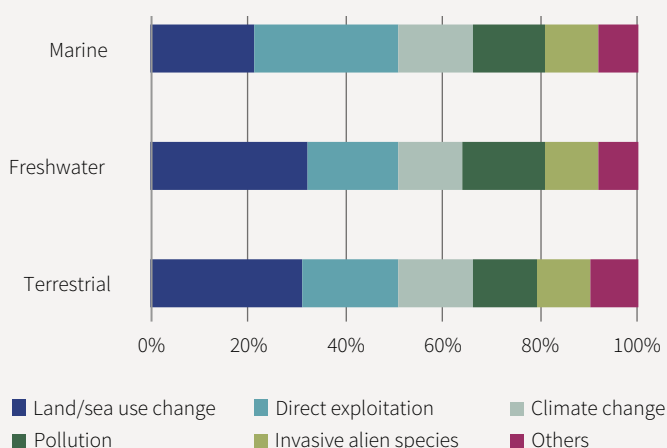


Marc-Antoine Collard
Chief Economist,
Director of Economic Research
Rothschild & Co Asset Management Europe

Biodiversity loss is still relatively poorly acknowledged but is nonetheless a critical challenge as this has consequences for growth, prices and employment, as well as the performance of financial institutions. The adoption of a global biodiversity framework that adds up to no net loss of nature is paramount to secure our own survival and well-being alongside that of the planet.

Biological diversity: variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part.

World - Drivers of biodiversity loss



Source: IPBES (2019), Rothschild & Co Asset Management Europe, November 2022

Accelerated decline in biodiversity due to human activity

Biodiversity plays an important role through the services it provides to the socio-economic system. These services are grouped into three main types: (i) provisioning services, such as food, fuel and drinking water; (ii) regulating and maintenance services, such as pollination, climate stability, air quality and erosion control; and (iii) cultural services, such as tourism. Evaluating the monetary value of these service flows is complex, but a 2014 well-known paper estimates the global value of ecosystem services at USD 125 trillion/year, or approximately 1.5 times larger than global GDP at the time when the paper was written⁽¹⁾. For instance, the pollination services are worth USD 235-577bn of annual global food production while the coral reefs generate almost USD 40bn in ecotourism value⁽²⁾.

Yet, the – negative – rate of global change in nature over the past 50 years is unprecedented in human history⁽³⁾. In fact, humans have transformed the majority of the world's ecosystems, destroying, degrading and fragmenting terrestrial, marine and other aquatic habitats, and undermining the services they provide.

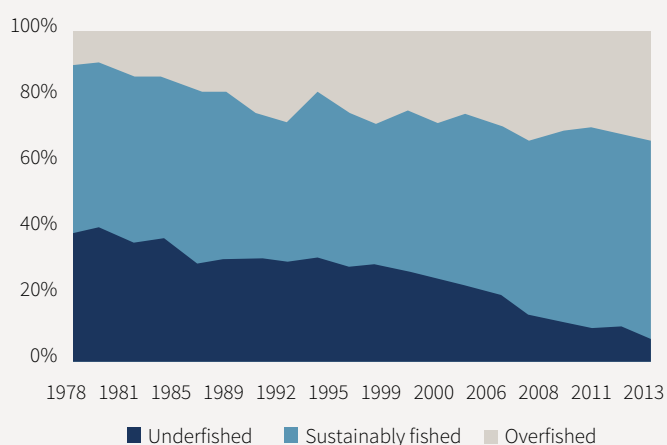
Globally, there are five main direct drivers explaining this trend: changes in land and sea use, direct exploitation of organisms, climate change, pollution, and invasion of alien species. To address this issue, governments from around the world will gather in December 2022 in Montreal, Canada, and try to agree on a new set of goals to guide global action through 2030 to halt and reverse nature loss. Indeed, the latter has far-reaching consequences.

(1) Costanza R., de Groot R., Sutton P. et al., "Changes in the global value of ecosystem services", Global Environmental Change, Vol. 26, ScienceDirect, 2014

(2) OECD, "Biodiversity: Finance and the economic and business case for action", 2019

(3) 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

World - Marine fish stocks



Source: FAO (2018), Rothschild & Co Asset Management Europe, November 2022

Biodiversity loss creates socioeconomic risks...

All companies depend on ecosystem services, such as clean air, fresh water, fertile soils and a stable climate, to varying degrees. At the same time, all companies have impacts on the natural systems that provide those services. Despite their invaluable contribution to society, the majority of ecosystem services are not priced because they are public goods, leading to externalities. As a result, producers and consumers have insufficient economic incentives to conserve, sustainably use and restore biodiversity.

Correspondingly, the risks posed by biodiversity loss to human societies are significant and could also interact with the risks posed by climate change. For instance, damaged ecosystems might exacerbate climate change by releasing carbon instead of storing it. Deforestation or forest degradation is a major source of greenhouse gas emissions, while oceans are also significant stores of carbon dioxide (CO₂) and their thermohaline circulation plays a crucial role in regulating the climate.

Unsustainable fishing remains a major threat to marine ecosystems and over 30% of fish stocks are fished at biologically unsustainable levels⁽⁴⁾. Also, crop yields are declining, while human health is being affected at numerous levels by worsening water and air quality, and by more frequent and intense flooding and fires⁽⁵⁾. These effects are set to grow, with many hard-to-measure indirect impacts potentially entering into play.

“ Scientists are warning of an increased likelihood that future pandemics could emerge more often...”

What's more, rampant development is putting animals and humans in closer contact increasing the risk of diseases like COVID-19 to spread. A recent United Nations Environment Programme report found that about 60% of human infections are estimated to have an animal origin⁽⁶⁾. Thus, scientists are warning of an increased likelihood that future pandemics could emerge more often, spread more rapidly, kill more people, and affect the global economy with more devastating impact than ever before.

While biodiversity loss is often highly localised, it has the potential to generate cross-country impacts. For example, it could affect global value chains and international trade. At scale, it can also create geopolitical risks, notably through migration and conflict.

(4) FAO, "The State of World Fisheries and Aquaculture: Meeting the Sustainable Development Goal", 2018

(5) Banque de France, "Biodiversity loss and financial stability: a new frontier for central banks and financial supervisors?", 2021

(6) United Nations Environment Programme and International Livestock Research Institute, "Preventing the Next Pandemic: Zoonotic diseases and how to break the chain of transmission", 2020

Microeconomics impact on :

Companies, (e.g.) :

- Physical damage to property and/or to supply chains
- Stranded assets due to transition
- Failing demand or increasing costs

Households, (e.g.) :

- Loss of income due to physical hazards (e.g. pandemics) and/or transition hazards (e.g. loss of employment)

Macroeconomic impacts, (e.g. changes in):

- Investment level due to adaption to and/or mitigation of biodiversity loss
- Inflation due to structural transition and/or physical shocks
- Productivity due to ecological transition (e.g. impact of an agroecological transition)
- Government revenues (e.g. new international specialisation, conflicts, etc.)

...and financial risks

Biodiversity loss could pose risks to the financial system through complex feedback loops and externalities, although estimating the financial system's exposure is a tricky task for several reasons. One aspect of this complexity consists of the fact that, unlike in the case of climate change, where a common measurement unit (ton of CO₂ equivalent) can be used to summarise effects, biodiversity can hardly be described using a single indicator. Furthermore, while there is a consensus that crossing critical ecological thresholds may lead to catastrophic and irreversible results, it is hard to predict exactly where these tipping points lie⁽⁷⁾.

“The degradation of nature can result in potentially severe losses and disruption to economic activity...”

Still, just like climate-related financial risks, the financial risks linked to biodiversity can be organised into two categories: physical and transition risks. To approximate the former, researchers try to measure businesses dependencies on any of the three ecosystem services: the more a firm's output depends on certain ecosystem services, the greater the likelihood that its production will be affected if the provision is disrupted. In that regard, a paper from Banque de France⁽⁸⁾ has found that more than 40% of the value of the securities held at end-2019 by French financial institutions came from issuers that were highly or very highly dependent on at least one ecosystem service, which is consistent with the results obtained in a similar analysis of the Netherlands financial system.

Meanwhile, government measures, litigation and changing consumer preferences aimed at reducing the damage to biodiversity and ecosystems – caused by firms that create these impacts – can translate into transition risks if financial institutions are exposed to these businesses directly or indirectly.

Overall, the degradation of nature can result in potentially severe losses and disruption to economic activity. Between 1997 and 2011, the world lost an estimated USD 4-20 trillion per year in ecosystem services owing to land-cover change and USD 6-11 trillion per year from land degradation⁽⁹⁾. Accordingly, action to halt and subsequently reverse biodiversity loss needs to be scaled up, especially as it is rather fundamental to achieving food security, poverty reduction and more inclusive and equitable development.

(7) Hillebrand H., Donohue I., Harpole W. S. et al., “Thresholds for ecological responses to global change do not emerge from empirical data”, *Nature Ecology & Evolution*, Vol. 4, No. 11, 2020

(8) Svartzman R. et al., “A ‘Silent Spring’ for the Financial System? Exploring Biodiversity-Related Financial Risks in France”, Working Paper, No. 826, Banque de France, 2021

(9) OECD, op. cit.

Disclaimer

Non-advertising, simplified and non-contractual document. The information, comments and analyses in this document are provided for information purposes only and should not be construed as an investment or tax advice, or as an investment recommendation from Rothschild & Co Asset Management Europe. The information/opinions/data mentioned in this document considered legitimate and correct on the day of publication, in accordance with the economic and financial environment in place at that date, are subject to change at any time. Although this document has been prepared with the greatest care from sources that Rothschild & Co Asset Management Europe believed to be reliable and in good faith, no representation or warranty, express or implied, is made as to information accuracy or completeness, which are indicative only and are subject to change without notice. Rothschild & Co Asset Management Europe has not independently verified the information contained in this document and cannot be held responsible for any errors, omissions or interpretations of the information contained in this document. This analysis is only valid at the time of writing of this report

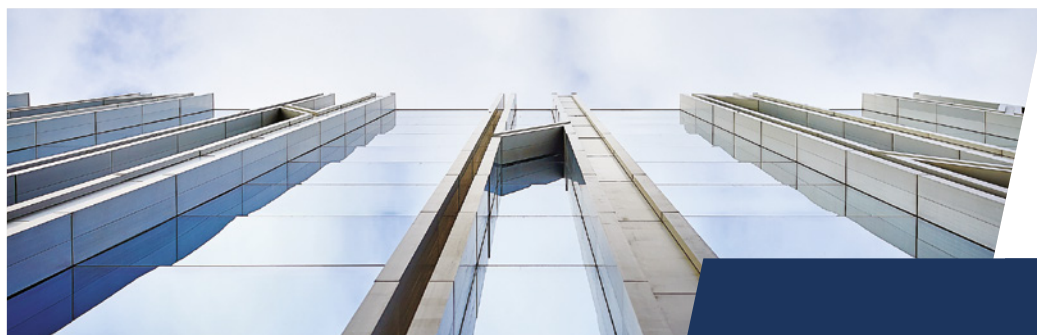
Furthermore, given the subjective nature of certain analyses, we draw your attention to the fact that any information, projections, estimates, anticipations, assumptions and/or opinions are not necessarily put into practice by the management teams of Rothschild & Co Asset Management Europe, or its affiliates, who act according to their own convictions. Certain forward-looking statements are prepared on the basis of certain assumptions, which are likely to differ either partially or totally from reality. Any hypothetical estimates are, by their nature, speculative and it is possible that some, if not all, of the assumptions relating to these hypothetical illustrations may not materialise or may differ significantly from current determinations.


Rothschild & Co Asset Management Europe, organized under the laws of France, registered with the Trade and Companies Register of Paris RCS Paris 824 540 173. A management company licensed by the Autorité des Marchés Financiers under N° GP 17000014, having its registered office 29, avenue de Messine, 75008 Paris, France.

No part of this document may be reproduced, in whole or in part, without the prior written permission of Rothschild & Co Asset Management Europe, under pain of legal proceedings.

About Rothschild & Co Asset Management Europe

As the specialised asset management division of the Rothschild & Co group, we offer personalised asset management services to a broad client base of institutional investors, financial intermediaries and distributors. Our development is focused on a range of open-ended funds, marketed under four strong brands: Conviction, Valor, Thematic and 4Change, and leveraging our long-term expertise in active management with conviction as well as in delegated management. Based in Paris and established in 9 European countries, we manage more than 23 billion euros and employ nearly 160 people. More information at: www.am.eu.rothschildandco.com



Join us on
LinkedIn 

For further information
am.eu.rothschildandco.com

 **Rothschild & Co**
Asset Management