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INVESTMENT MANAGEMENT

Biodiversity Loss and the Implications for Investors

GLOBAL BALANCED RISK CONTROL TEAM | INVESTMENT INSIGHT | OCTOBER 2022

Recent global droughts, fires and floods highlight the impact climate change can have on biodiversity. Europe is experiencing its worst drought in 500 years, whilst Pakistan is currently suffering devastating flooding—both have accelerated the loss in natural habitats. With society at large reliant on natural resources, biodiversity loss can have a devastating social and economic cost. Companies across many sectors are at risk due to their dependencies and impacts on natural resources. The evolution of the regulatory and policy environment over the coming months is likely to be key to defining the risks companies face when transitioning to more biodiversity-conscious operations and products. In the following piece, we discuss why investors should pay attention to companies' impact on biodiversity loss and what they can do to drive positive change.

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What exactly is biodiversity and why is it relevant to the economy?

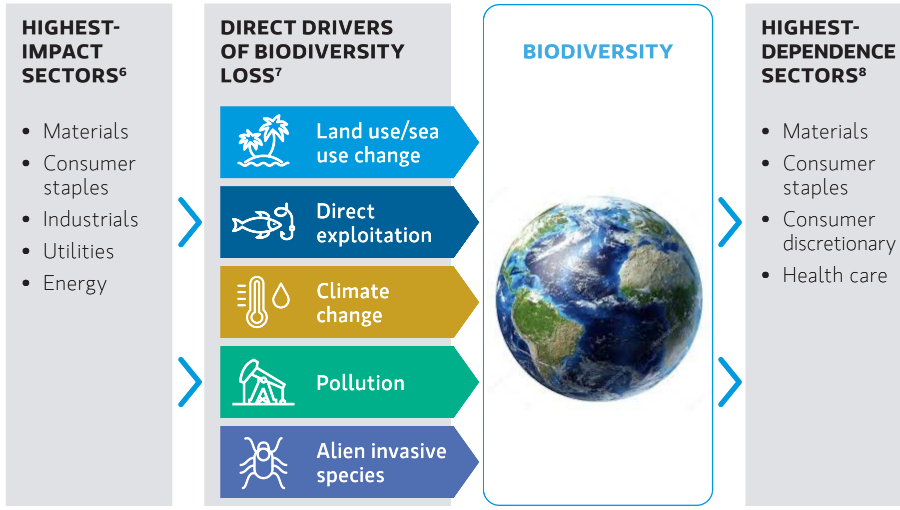
From an economic standpoint, biodiversity is the variety of natural capital on the planet. It includes all living organisms, from trees, crops and wildlife to microbes and genes. These contribute to the economy through the provision of materials, such as food, wood or oil; and both regulate and support natural phenomena, such as water cycles, photosynthesis and climate.

Like climate change, biodiversity loss is a long-tailed risk, which can potentially have negative social and environmental consequences, and severely impact companies, and thus investors, financially. Estimates suggest that 75% of land and 40% of marine environments have been severely altered,[1] whilst human demand is currently 1.7 times the resources available on the planet.[2] In fact, as of 2022, biodiversity loss is one of the top-three global risks, according to the World Economic Forum,[3] with more than half of the world's economic output dependent upon nature and healthy ecosystems.

Estimates suggest that 75% of land and 40% of marine environments have been severely altered, whilst human demand is currently 1.7 times the resources available on the planet.

DISPLAY 1[4]

Nature Loss, Risk and Implications for Investors[5]



The key drivers of biodiversity loss on land, freshwater and ocean ecosystems vary and are wide-ranging, including land use change, resource exploitation, greenhouse gas (GHG) emissions, pollution and the emergence of invasive species. In addition, society at large relies on materials and stability provided from biodiversity, yet studies show that areas of the world experiencing extreme poverty are often rich in biodiversity and at highest risk of biodiversity loss, highlighting the need for inclusive solutions across the entire value chain (see *Display 1*).

Regulatory and policy pressures are defining the financial materiality of different biodiversity loss drivers. While the drivers are many and dependent on the ecosystem, we believe land use change resulting from global deforestation stands out as the most material for investors over the next one to three years.

The financial risks of biodiversity loss

Companies have different types of biodiversity dependencies. These may be linked to the ecosystem service that biodiversity offers, including the supply of resources that firms use as business inputs, as well as well-functioning ecosystems that ensure companies' operational stability, such as water and air filtering, as well as the storing of carbon dioxide.

The pharmaceutical industry represents one of the most tangible examples of a high-dependency sector. 80% of the global population rely on plant-based traditional medicines for primary health care,[9] and the industry relies heavily on nature for the manufacturing of medicines.[10] The sector faces important physical risks, for example, the direct over-exploitation of resources, resulting in scarcity and increased costs; or pollution, resulting in lower productivity, which may lead to a potential slowdown of the sector's innovation and growth over the long term.

Companies can also have a high impact on biodiversity. When it comes to mining, construction and energy, if not managed carefully, these industries may impact biodiversity negatively as a byproduct of their operations, for

[1] IPBES. (2019). Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (Version 1). Zenodo. https://doi.org/10.5281/zenodo.6417333

[2] 2019. www.overshootday.org/newsroom/past-earth-overshoot-days/

[3] As of 2022. The Global Risk Report 2022, 17th Edition, Insight Report. www3.weforum.org/docs/WEF_The_Global_Risks_Report_2022.pdf Accessed 23 August 2022. Source: World Economic Forum Global Risks Perception Survey 2021-2022

[4] PRI. Principles for Responsible Investment. Investor Action on Biodiversity: Discussion Paper. Page 10. www.unpri.org/download?ac=11357

[5] Source: various

[6] Calculated using IUCN Red List threat data as detailed in Maxwell et al (2016) and UN Environment Programme, UNEP Finance Initiative and Global Canopy (2020); sectors translated to GICS

[7] IPBES (2019)

[8] From WEF (2020) and UN Environment Programme, UNEP Finance Initiative and Global Canopy (2020); sectors translated to GICS

[9] 2022: WHO https://www.who.int/news/item/25-03-2022-who-establishes-the-global-centre-for-traditional-medicine-in-india

[10] Dias DA, Urban S, Roessner U. A historical overview of natural products in drug discovery. Metabolites. 2012 Apr 16;2(2):303-36. doi: 10.3390/metabo2020303. PMID: 24957513; PMCID: PMC3901206.

example, through over-exploitation of resources or water pollution.

Sometimes economic activities may both depend on and impact biodiversity, potentially creating even higher risks to a company. Food and agriculture companies, for example, rely on resources and ecosystem stability, both supported by biodiversity, yet they can also cause biodiversity loss through unsustainable land and agricultural practices. These companies are likely to face higher transition risks, for example, restricted market access due to changing regulatory environments, stranded assets from restricted land access, and litigation and reputational risks driven by increased stakeholder scrutiny.

The successful long-term transition of sectors with a high negative impact on biodiversity, "high impact sectors", is key to ensuring long-term stability of the economy, especially for "high-dependency sectors". For all sectors, including finance, avoiding exposure to financial risks caused by biodiversity loss, as well as understanding the interlink between climate change and biodiversity, is crucial.

It is our view that these risks will materialise as regulations and policies are defined, ultimately posing a serious threat to corporations that continue along the "business-as-usual" path. We believe that the coming six to 12 months will be critical to clarify the financial risks.

On the brink? Biodiversity loss and investment implications

Regulations and policies related to biodiversity are on the rise. We believe 2022 may be a watershed year with respect to global efforts to reduce biodiversity loss and define the meaning of a nature-positive world.

The UN Biodiversity Conference (COP 15) will attempt to create Paris Agreement-like momentum for nature this December.

The UN Biodiversity Conference (COP 15) will attempt to create a Paris Agreement-like momentum for nature this December. A tangible goal to protect biodiversity may be needed to set in motion public support for the issue and to help clarify the financial transition risks. However, a simple, defined target—similar to that of the Paris Agreement to limit global average temperature rise to 1.5°C above preindustrial levels—has

DISPLAY 2

Risks for Sectors Highly Dependent on Biodiversity

HIGHEST-DEPENDENCE SECTORS[11]

- ***Forest products and fisheries***
- Textiles, apparel and luxury goods
- ***Food, beverage and tobacco***
- Electric utilities
- Independent power producers

PHYSICAL RISK

- Loss of raw materials
- Disruption of operating environment
- Loss of resilience

LITIGATION RISK

- Increasing legislation, e.g. EU action plan for sustainable finance or Article 173 of the French law on energy transition for green growth

TRANSITION RISK

- Policy shifts
- Change in market preferences
- Civil society campaigns
- Voluntary standards and commitments

DISPLAY 3

Risks for Sectors With a High Impact on Biodiversity

HIGHEST-IMPACT SECTORS[12]

- ***Forest products and fisheries***
- ***Food, beverage and tobacco***
- Mining
- Oil and gas
- Transportation

LITIGATION RISK

- Increasing legislation, e.g. EU action plan for sustainable finance or Article 173 of the French law on energy transition for green growth

TRANSITION RISK

- Policy shifts
- Change in market preferences
- Civil society campaigns
- Voluntary standards and commitments

SYSTEMIC RISK

- Risk impacting all sectors and economies, e.g. global pandemics

[11] From WEF (2020) and UN Environment Programme, UNEP Finance Initiative and Global Canopy (2020)

[12] Calculated using IUCN Read List threat data as detailed in Maxwell et al (2016) and UN Environment Programme, UNEP Finance Initiative and Global Canopy (2020)

DISPLAY 4[14,15,16]

	U.S. FOREST ACT	UK (ENVIRONMENT ACT 2021)	EU (REGULATION ON DEFORESTATION-FREE PRODUCTS)
Commodities covered	Cattle, leather, cocoa, palm oil, soy, rubber, wood pulp	Cattle, leather, cocoa, palm oil, soy, rubber, maize, coffee	Beef, leather, cocoa, palm oil, soy, coffee, wood, rubber*, maize*, other livestock* (pigs, sheep, goats, poultry)

* Wider coverage voted on 13 September 2022.

yet to be established by the Convention. Indeed, given the multifaceted nature of biodiversity issues, multiple postponements of the COP and complex negotiations, there is a risk that a global goal could remain unarticulated. Although, there is hope that a detailed draft for a post-2020 global biodiversity framework could be ratified this year, at least in some form.[13] Currently, markets are unable to price the risks of biodiversity loss with a high degree of confidence.

Commodities—why traceability is key to separating the wheat from the chaff

Governments, including the UK, U.S. and the EU, are tackling biodiversity through deforestation regulations with the aim of preventing, within their jurisdictions, the importation of commodities linked to deforestation. While details are yet to be finalised, stakeholders across markets are showing clear intent to move these regulations forward.

As regulations are released, we believe traceability, i.e. the ability to trace a commodity's impact on deforestation throughout the value chain, will be key. If a company has good supply chain monitoring capabilities, then it is likely to be ahead of the curve. Conversely, those that cannot trace the commodity they require, could potentially be prevented from market access.

If deforestation regulation is phased in across commodities and jurisdictions (see *Display 4*), substitution effects could take place. In practice, substitution is complicated and time consuming. For example, palm oil, a crop linked to deforestation and other negative biodiversity impacts, offers large outputs, low prices and a unique fatty acid profile, providing neither an economic nor an environmental case for substitution in most cases. On the other hand, there is ample evidence that reformulating agricultural feedstock to include alternative crops, such as sunflower seeds in place of soybean, can be straightforward and economical.

Therefore, companies with dependence on palm oil, with good due diligence, may not be as negatively impacted by regulations. However, companies with higher dependence on soy may face more headwinds and greater transition risk.

Proactive engagement is critical

Despite the potential business risks, the complexity of biodiversity loss is delaying meaningful corporate action. Currently, there is no single metric guidepost, reporting is not standardised, and global commitments have been delayed consistently.

Despite efforts being made, businesses are generally unprepared to respond to potential upcoming regulations. In 2022, only 8% report that they can trace, with 100% certainty, the production unit of origin (i.e. to a plantation, farm, forest, etc.).[13]

We believe this creates a tangible opportunity for investors to proactively engage company management and drive change. While global policies and regulations are likely to ultimately require clarity, investors need to better understand how companies depend on and affect biodiversity.

The Global Balanced Risk Control (GBaR) team has introduced biodiversity as a key engagement topic, especially within the consumer staples sector, which includes many businesses with a high dependency, and impact, on biodiversity.

Through engagement, we seek to encourage companies to assess their reliance and impact on biodiversity whilst leveraging the Taskforce on Nature-related Financial Disclosures (TFND) framework, the leading industry standard. In addition, we aim to assess corporate risks and opportunities from deforestation, and encourage stronger commitments to end deforestation across all relevant commodities. Finally, we believe that companies would benefit from enhancing their due diligence process when assessing any commodity's direct and indirect suppliers, and publicly disclosing their CDP[17] Forest Report.

[13] www.cbd.int/article/draft-1-global-biodiversity-framework Convention on Biodiversity. A New Global Framework For Managing Nature Through 2030: First Detailed Draft Agreement Debuts. Accessed 6 September 2022.

[14] U.S. FOREST ACT 2021: The Fostering Overseas Rule of Law and Environmentally Sound Trade (FOREST) Act of 2021. www.schatz.senate.gov/imo/media/doc/forest_act_summary.pdf and www.congress.gov/bill/117th-congress/house-bill/5508/all-info

[15] UK Environmental Act 2021: www.legislation.gov.uk/ukpga/2021/30/contents/enacted

[16] EU Proposal for a Regulation on Deforestation-Free Products. www.environment.ec.europa.eu/publications/proposal-regulation-deforestation-free-products_en

[17] Formerly known as the Carbon Disclosure Project

Final thoughts

Biodiversity loss is a significant risk to the planet and to investors, with deforestation in particular being an issue with major consequences. Governmental regulation is in development, but without a catalysing "call to action" metric, companies are likely to be left building strategies in the dark. Despite being at an early stage in addressing this problem, there is a clear need for all stakeholders to contribute and help advance collective action.

The GBaR team looks to be part of the solution, proactively engaging company management to help them understand the impact and costs of biodiversity neglect and to integrate sensible findings into their business strategies.

Risk Considerations

There is no assurance that the Strategy will achieve its investment objective. Portfolios are subject to market risk, which is the possibility that the market values of securities owned by the portfolio will decline and that the value of portfolio shares may therefore be less than what you paid for them. Market values can change daily due to economic and other events (e.g. natural disasters, health crises, terrorism, conflicts and social unrest) that affect markets, countries, companies or governments. It is difficult to predict the timing, duration, and potential adverse effects (e.g. portfolio liquidity) of events. Accordingly, you can lose money investing in this portfolio. Please be aware that this strategy may be subject to certain additional risks. There is the risk that the Adviser's **asset allocation methodology and assumptions** regarding the Underlying Portfolios may be incorrect in light of actual market conditions and the Portfolio may not achieve its investment objective. Share prices also tend to be volatile and there is a significant possibility of loss. The portfolio's investments in **commodity-linked** notes involve substantial risks, including risk of loss of a significant portion of their principal value. In addition to commodity risk, they may be subject to additional special risks, such as risk of loss of interest and principal, lack of secondary market and risk of greater volatility, that do not affect traditional equity and debt securities. **Currency fluctuations** could erase investment gains or add to investment losses. **Fixed-income securities** are subject to the ability of an issuer to make timely principal and interest payments (credit risk), changes in interest rates (interest-rate risk), the creditworthiness of the issuer and general market liquidity (market risk). In a rising interest-rate environment, bond prices may fall and may result in periods of volatility and increased portfolio redemptions. In a declining interest-rate environment, the portfolio may generate less income. **Longer-term securities** may be more sensitive to interest rate changes. **Equity and foreign securities** are generally more volatile than fixed income securities and are subject to currency, political, economic and market risks. Equity values fluctuate in response to activities specific to a company. Stocks of **small-capitalization companies** carry special risks, such as limited product lines, markets and financial resources, and greater market volatility than securities of larger, more established companies. The risks of investing in **emerging market** countries are greater than risks associated with investments in foreign developed markets. **Exchange traded funds (ETFs)** shares have many of the same risks as direct investments in common stocks or bonds and their market value will fluctuate as the value of the underlying index does. By investing in exchange traded funds ETFs and other Investment Funds, the portfolio absorbs both its own expenses and those of the ETFs and **Investment Funds** it invests in. Supply and demand for ETFs and Investment Funds may not be correlated to that of the underlying securities. **Derivative instruments** can be illiquid, may disproportionately increase losses and may have a potentially large negative impact on the portfolio's performance. A **currency forward** is a hedging tool that does not involve any upfront payment. The use of **leverage** may increase volatility in the Portfolio.

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DEFINITIONS

Natural capital: The world's stocks of natural assets which include geology, soil, air, water and all living organisms. https://www.cbd.int/business/projects/natcap.shtml

Biodiversity: The diversity of living organisms that make up natural capital.

CDP Forest Report: A means for companies to disclose and provide corporate environmental reporting. The CDP provides guidance on how to disclose in line with the TCFD recommendations. www.cdp.net/en/companies-discloser

Ecosystem Services: The principal framework for expressing the 'usefulness' of biodiversity is through the concept of ecosystem services. They illustrate the link between, on one hand, the interactions of species with each other and with the physical environment; and on the other, the well-being of people, whether in terms of wealth, nutrition or security. This definition is from the Convention on Biological Diversity (CBD), details of which are accessed here: www.cbd.int/undb/media/factsheets/undb-factsheet-ecoserv-en.pdf and www.framework.tnfd.global

Taskforce on Nature-related Financial Disclosures (TFND) framework: This is the leading industry standard, a framework for companies and financial institutions to integrate nature into decision making, and to report their risks and opportunities. www.tnfd.global/

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