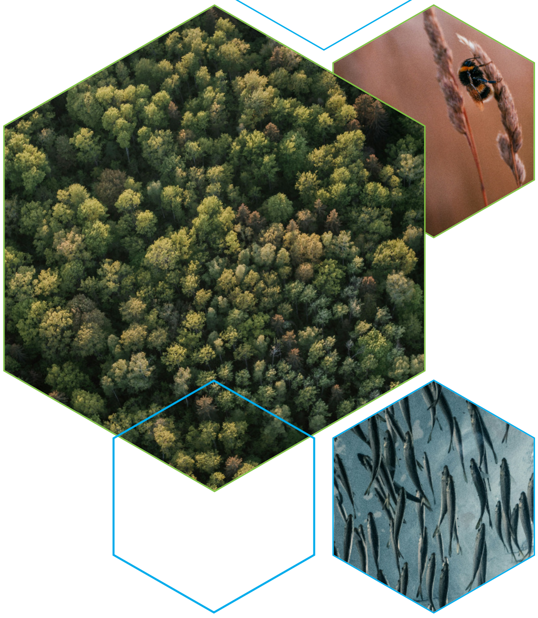
Natural capital 'wake-up call': Understanding portfolios' impact and dependencies on biodiversity

MARCH 2024



The past two years have been pivotal for nature action, with events such as COP15 and the release of the Taskforce on Nature-related Financial Disclosures (TNFD) guidance highlighting the role companies and investors must play to halt the degradation of our world's natural capital.

The World Bank has estimated that the global economy could lose USD 2.7 trillion by 2030 should certain ecosystem services – including pollination, carbon sequestration and storage, fisheries and timber provision – collapse. In a blog from 2021, we discussed why investors should care about biodiversity (which, together with freshwater, oceans and land form the natural capital), its relationship with climate change, the related regulatory landscape and challenges with data.

In May 2023, ISS ESG, the leading provider of ESG data, analytics and solutions, and STOXX introduced a new family of indices that allows investors to take a holistic approach to biodiversity challenges. The index framework integrates both the risks and opportunities for portfolios from a natural world in change and efforts to halt its degradation.

The ISS STOXX® Biodiversity Indices exclude companies involved in activities causing harm to biodiversity, select securities with a less negative impact on ecosystems and those enabling exposure to relevant United Nations' Sustainable Development Goals (SDGs), and, finally, reduce the portfolio's carbon emissions.

Tools to measure portfolio impact and dependencies

Advances in biodiversity-related data enable the integration of such information into investment frameworks, and it is also helping investors assess both the biodiversity impact and dependencies of their portfolios. These are two important variables that help us understand the risk to capital from a biodiversity loss perspective.

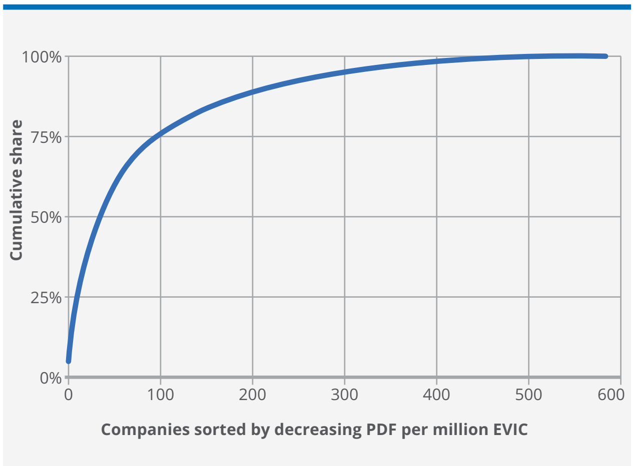
Impact looks at the effect that companies' operations have on ecosystems. Dependencies, on the other hand, are the extent to which companies and industries rely on biodiversity for their operations and supply chain.

ISS ESG has developed innovative, quantifiable biodiversity metrics to measure both factors, which can be integrated into portfolios. Two indicators have been designed to measure companies' biodiversity impact, and are part of ISS ESG's Biodiversity Impact Assessment Tool.

One of them is the *Potentially Disappeared Fraction of Species (PDF)*, a metric that is employed in the ISS STOXX Biodiversity indices framework. PDF represents – from a total preservation ratio of 0% to full destruction at 100% – the potential decline in species richness in an area over a period due to unfavorable conditions associated with environmental pressures.

PDF is divided by each company's EVIC[1] to reduce size biases and provide a more comparable picture of the biodiversity impact of corporates. Figure 1 illustrates how approximately 100 companies in the STOXX® Europe 600 index account for about three-quarters of the cumulative PDF.

Figure 1: PDF of STOXX Europe 600



Source: ICB, ISS ESG.

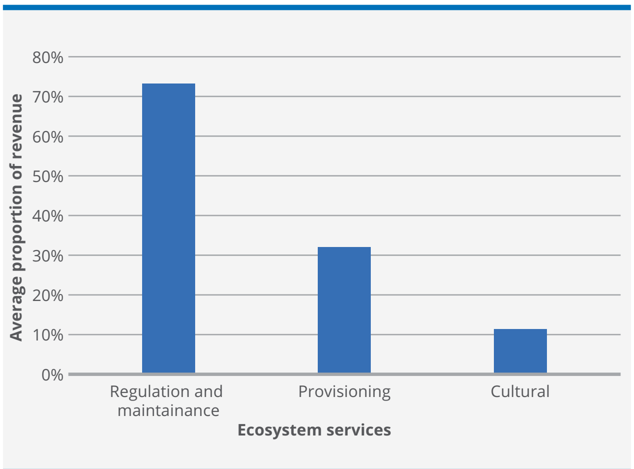
The second impact indicator is Mean Species Abundance (MSA). MSA quantifies the mean abundance of original species relative to their abundance in undisturbed ecosystems. A 100% MSA means that the ecosystem is intact and equal to its undisturbed, original state. 0% means that an area has completely lost its original biodiversity. In the case of corporate impact, lower is preferable for investors as this implies a reduced impact on ecosystems.

[1] EVIC: Enterprise Value Including Cash.

Dependencies

Dependencies on nature, for their part, can be gauged through ISS ESG's Ecosystems Services Assessment, which links the activities of issuers to 22 ecosystem services including pollination, disease control and soil quality. While most global initiatives have focused on companies' biodiversity impact, dependencies have been less explored so far. Figure 2 illustrates the average revenue dependency for the STOXX Europe 600, separated into three main categories.

Figure 2: Ecosystems Services Assessment – STOXX Europe 600



Source: ISS ESG. See footnote 2 for a definition of the three categories.

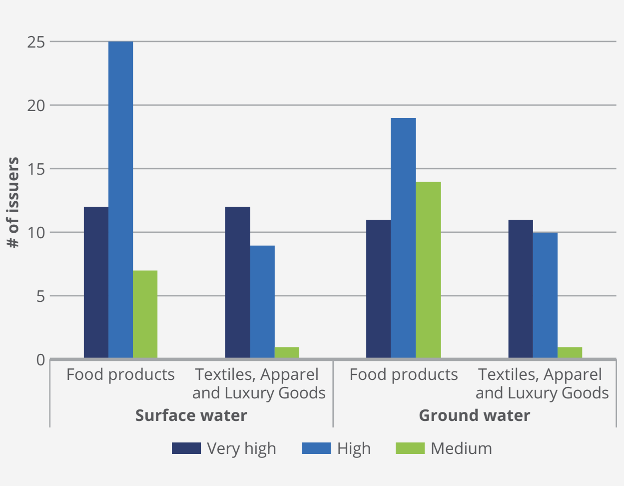
Finally, ISS ESG's Corporate Ratings Research is useful to understand if and how companies are mitigating both impacts and dependencies.

[2] Provisioning Ecosystem Services includes all the outputs of materials, nutrients and energy from an ecosystem. This factor shows the proportion (%) of revenue dependent on these ecosystem services. Examples: Fuel, haulage or transport by animals; seeds, compounds for pharmaceuticals; potable water in the public water supply. Regulation & Maintenance Ecosystem Services includes all the benefits obtained from the regulation of ecosystem processes. This factor shows the proportion (%) of revenue dependent on these ecosystem services. Examples: Reduction in pest damage to cultivated crops; trees reducing ambient temperature in urban environments; reduction in the magnitude and frequency of floods and storms; trees providing a sound barrier between homes and motorways. Cultural Ecosystem Services includes all the non-material benefits people obtain from the ecosystem. This factor shows the proportion (%) of revenue dependent on these ecosystem services. Examples: Ecotourism, recreation and fitness.

In a recent report[3], ISS ESG put the focus on consumer companies, among those most at risk from nature loss, to show how the sector's dependencies on the natural world raise risks. The sector includes food makers, whose impact on biodiversity has been likened to that of oil companies on climate.

Mirtha Kastrapeli, Global Head of Natural Capital and Consumer Sector Corporate Research at ISS ESG, employed the Ecosystem Services Assessment to illustrate the dependence on ground and surface water by companies in four consumer-focused industries. The analysis identified that nearly a quarter of Food Products and Textile & Apparel companies covered are particularly exposed to water risks (Figure 3).

Figure 3: Ecosystems Services Assessment for ground and surface water in the Food Products and Textile and Apparel industries



Source: ISS ESG Biodiversity Impact Assessment Tool, Ecosystem Services Assessment Functionality Notes: Very High, High and Medium indicate the level of the Industry's dependence on the water supplies. The assessment is based on 52 companies.

As an example, Kastrapeli mentioned in an interview the case of food agriculture in California, an industry that crucially depends on water that flows from the Sierra Nevada range. That dependency will prove risky in the near future, as the mountains' snowpack is projected to decline between 48% and 65% by the end of the century, according to a recent report[4].

"Natural capital issues are complex, as companies' activities both affect and depend on it," Kastrapeli said. "Businesses are vulnerable to the dramatic deterioration of various ecosystems. Companies that build a deep understanding of these issues should be better positioned to prepare for upcoming regulation, and, more importantly, to reduce their supply chain and operational risks, while ensuring the medium and long-term viability of their businesses."

Upcoming regulation

Regulation is indeed likely to present new issues for the corporate sector going forward, as governments, central banks and other authorities take action. Just as an example, any business operating in the European Union will be required as of the end of this year to prove that consumed commodities do not originate from recently deforested land or have not contributed to forest degradation.

The EU Deforestation Regulation will cover the import of commodities such as beef, cocoa, coffee, palm oil, soya, rubber and wood, and has been described as "the most ambitious legislative attempt" ever to tackle the problem of deforestation[5].

According to the ISS ESG Corporate Ratings Methodology, nearly 80% of companies in the Retail sub-industry show the worst performance against regulatory, reputational and operational risks related to deforestation. So are at least half of companies in the other five sub-industries in the Consumer sector, the data show.

"2024 may consequently be a year of increased learning, by both companies and investors, on nature-related risks and opportunities, with deforestation being among the first challenges addressed," Kastrapeli writes in the ISS ESG report.

[3] ISS ESG, "Actionable Insights – Top ESG Themes of 2024".

[4] Environmental Defense Fund, "Report: Escalating Water Risks Threaten U.S. Agriculture", December 8, 2023.

[5] UNDP FACS, "The most ambitious legislative attempt to tackle deforestation worldwide ever", December 11, 2023.

Investment performance

A comprehensive biodiversity investment approach involves integrating three aspects into a portfolio: excluding companies causing harm to biodiversity or involved in controversial activities, measuring a company's biodiversity impact, and, finally, gauging how a company's operations and revenues support certain objectives such as those in the SDGs.

That was the spirit behind the design of the ISS STOXX Biodiversity Indices. Figure 4 shows that the indices have delivered a noticeable improvement in impact and SDG scores, as well as significantly lowered the portfolio's emissions.

Figure 4: ISS STOXX Biodiversity indices metrics

Metrics	STOXX World AC	ISS STOXX World AC Biodiversity	ISS STOXX World AC Biodiversity Leaders
Components	**3,705**	**1,732**	**90**
Components screened		1,973	3,615
PDF Score	**2,235,891**	**1,497,684**	**381,535**
PDF Score reduction		–33%	–83%
PDF/EVIC	**24.84**	**6.79**	**18.31**
PDF/EVIC reduction		–73%	–26%
Biodiversity SDG rating	**0.85**	**2.10**	**2.80**
Biodiversity SDG rating improvement	–	1	2
Revenue exposure to Biodiversity SDGs	**5.73%**	**4.81%**	**79.52%**
Revenue exposure improvement	–	–0.91%	73.79%
Scope 1+2+3 CO_2 emissions	**53,005,860**	**23,801,248**	**6,416,011**
Scope 1+2+3 CO_2 emissions reduction	–	–55%	–88%
Overall tracking error	**–**	**1.84%**	**8.42%**

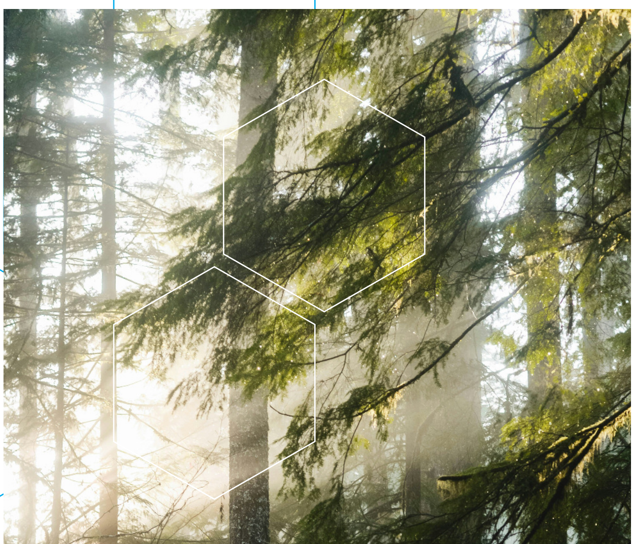
Source: STOXX, ISS ESG, as of February 15, 2024. Tracking error computed against STOXX® World AC for March 20, 2017, to February 15, 2024, using daily data.

Incidentally, the indices have also shown higher returns and lower volatility than the benchmark (Figure 5).

Figure 5: Risk and return figures

Index returns					Return (%)
	Last month	YTD	1Y	3Y	5Y
ISS STOXX World AC Biodiversity	1.7	1.7	19.7	N/A	N/A
STOXX World AC	0.6	0.6	15.4	19.9	65.2
Index volatility and risk					**Annualized volatility (%)**
ISS STOXX World AC Biodiversity	N/A	N/A	11.1	13.8	13.8
STOXX World AC	N/A	N/A	10.5	14.3	17.1
Index to benchmark					**Correlation**
ISS STOXX World AC Biodiversity	1.0	1.0	1.0	1.0	1.0
Index to benchmark					**Beta**
ISS STOXX World AC Biodiversity	1.1	1.1	1.0	0.9	0.6

Source: STOXX. USD, Gross returns. All data as of January 31, 2024.



The bottom line

The case study involving consumer companies and deforestation is just one example of how businesses will be affected by regulation, policy change, the loss of raw materials or shifting market preferences. Companies are beginning to understand their activities' interdependencies with nature, and an increasing number of investors are starting to address the various types of portfolio risks that arise from biodiversity loss. While we are in the early stages of nature action, the availability of robust datasets and comprehensive frameworks empowers investors to understand the material implications of biodiversity on businesses.

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