

Environmental *Change* Institute



Assessing the Materiality of Climate and Nature-Related Risks to UK Financial Institutions

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Environment ► Climate crisis Wildlife Energy **Pollution**

Conservation

Nature destruction will cause bigger economic slump in UK than 2008 crisis, experts warn

Green Finance Institute report said further pollution could cut 12% off GDP by 2030s



📷 Pollution and plant debris on the Grand Union Canal at Harefield following sewage discharges by Thames Water. Photograph: Maureen McLean/REX/Shutterstock


Phillip Inman and Richard Partington


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Green

Bank Asset Values Face 5% Hit This Decade Amid Green Risks

- Study lays out financial materiality of nature-related risks
- UK finance industry is more exposed than others to loss risks





Low water levels at a reservoir near Sheffield, UK, in 2023. *Photographer: Anthony Devlin/Bloomberg*

By [Natasha White](#)

Baroness Vere of Norbiton, Parliamentary Secretary at HM Treasury



"Nature sustains economies and livelihoods, that is why the Government's Green Finance Strategy incorporates both nature and climate adaptation. It is in the interests of corporates and financial institutions to prepare for the global transition to a net zero, resilient and nature positive economy, so I welcome this report."

Sacha Sadan, Director of Environmental, Social and Governance, FCA

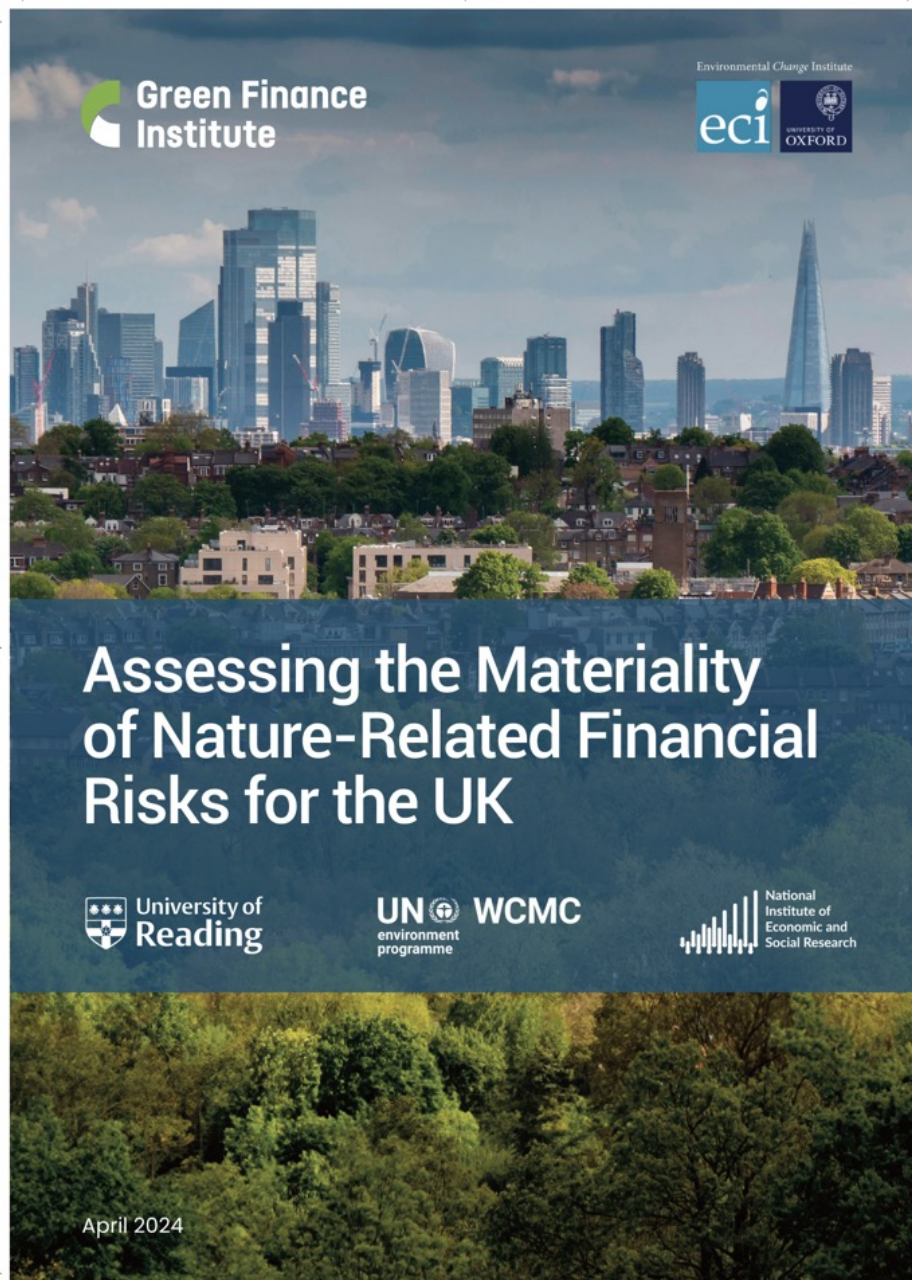


"Growing evidence shows that business and finance depend on a healthy climate and natural environment to carry on their commercial and investment activities without disruption. We welcome the publication of this report which provides a much better understanding of how UK firms are exposed to nature-related risks."

Professor Lord Nicholas Stern, Chair of the Grantham Research Institute on Climate Change and the Environment at the London School of Economics and Political Science
Think Tanks and Academics



"These results show the huge benefits in terms of economic output of actions that tackle both climate change and biodiversity loss. And we must also recognise the important wider benefits associated with boosting our natural capital, such as our forests and rivers, and our human capital, such as health."



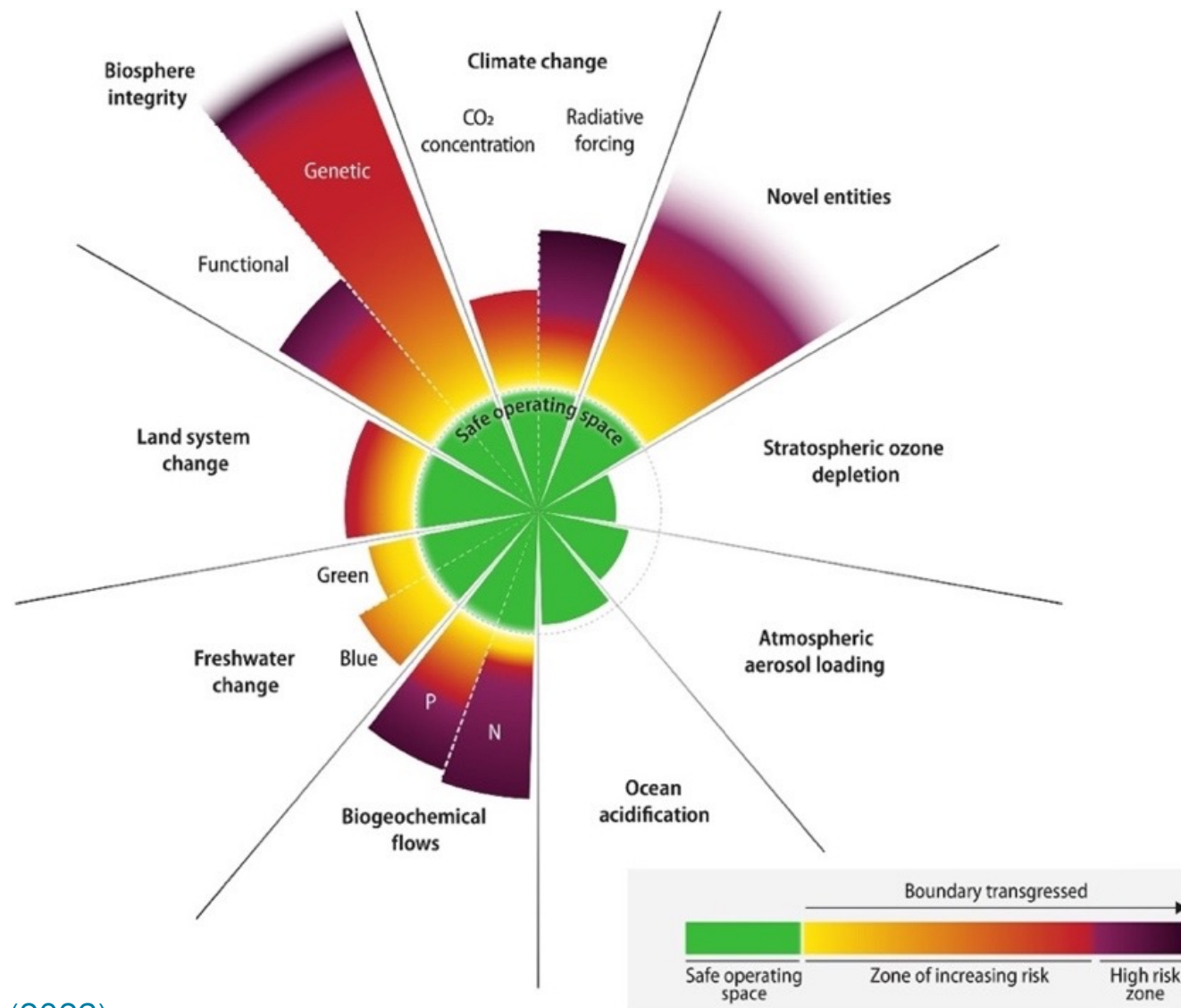
- The UK is one of the most nature-depleted countries in the world; the Office of Environmental Protection concluded that the commitments laid out in the Environment Improvement Plan were insufficient; most targets against the Convention on Biological Diversity have not been met; and there have been high-profile failures (e.g. river sewage)
- The UK economy and financial sector is also particularly exposed to global risks given our highly interconnected economy and financial system. Six of nine planetary boundaries globally are now crossed.
- UK firms and financial institutions face both ‘physical risks’ and ‘transition risks’ related to environmental degradation and potential ‘tipping points’, but as yet there is no quantification of these risks.
- Risks interact strongly with climate change
- Several finance jurisdictions are introducing nature-related disclosures and risk management strategies: the UK has fallen behind others such as the ECB and Banque de France

	Nature's contribution to people	50-year global trend	Directional trend across regions	Selected indicator
REGULATION OF ENVIRONMENTAL PROCESSES	1 Habitat creation and maintenance	↓ ↓ ↓	○ ○ ○	<ul style="list-style-type: none"> • Extent of suitable habitat • Biodiversity intactness
	2 Pollination and dispersal of seeds and other propagules	↓ ↓ ↓	○ ○ ○	<ul style="list-style-type: none"> • Pollinator diversity • Extent of natural habitat in agricultural areas
	3 Regulation of air quality	→	↕ ↕	<ul style="list-style-type: none"> • Retention and prevented emissions of air pollutants by ecosystems
	4 Regulation of climate	→	↕ ↕	<ul style="list-style-type: none"> • Prevented emissions and uptake of greenhouse gases by ecosystems
	5 Regulation of ocean acidification	→	↕ ↕	<ul style="list-style-type: none"> • Capacity to sequester carbon by marine and terrestrial environments
	6 Regulation of freshwater quantity, location and timing	→	↕ ↕	<ul style="list-style-type: none"> • Ecosystem impact on air-surface-ground water partitioning
	7 Regulation of freshwater and coastal water quality	↘	○ ○ ○	<ul style="list-style-type: none"> • Extent of ecosystems that filter or add constituent components to water
	8 Formation, protection and decontamination of soils and sediments	→	↕ ↕	<ul style="list-style-type: none"> • Soil organic carbon
	9 Regulation of hazards and extreme events	↘	↕ ↕	<ul style="list-style-type: none"> • Ability of ecosystems to absorb and buffer hazards
	10 Regulation of detrimental organisms and biological processes	↓ →	○ ○ ○	<ul style="list-style-type: none"> • Extent of natural habitat in agricultural areas • Diversity of competent hosts of vector-borne diseases
MATERIALS AND ASSISTANCE	11 Energy	→ →	↕ ↕	<ul style="list-style-type: none"> • Extent of agricultural land—potential land for bioenergy production • Extent of forested land
	12 Food and feed	↓ →	↕ ↕	<ul style="list-style-type: none"> • Extent of agricultural land—potential land for food and feed production • Abundance of marine fish stocks
	13 Materials and assistance	→	↕ ↕	<ul style="list-style-type: none"> • Extent of agricultural land—potential land for material production • Extent of forested land
	14 Medicinal, biochemical and genetic resources	↓ →	○ ○ ○	<ul style="list-style-type: none"> • Fraction of species locally known and used medicinally • Phylogenetic diversity

The 2019 Global Assessment Report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) concluded that fourteen of the eighteen ecosystem services ('categories of Nature's contribution of people') that were assessed had declined since the 1970s, while outputs of food and other products had risen

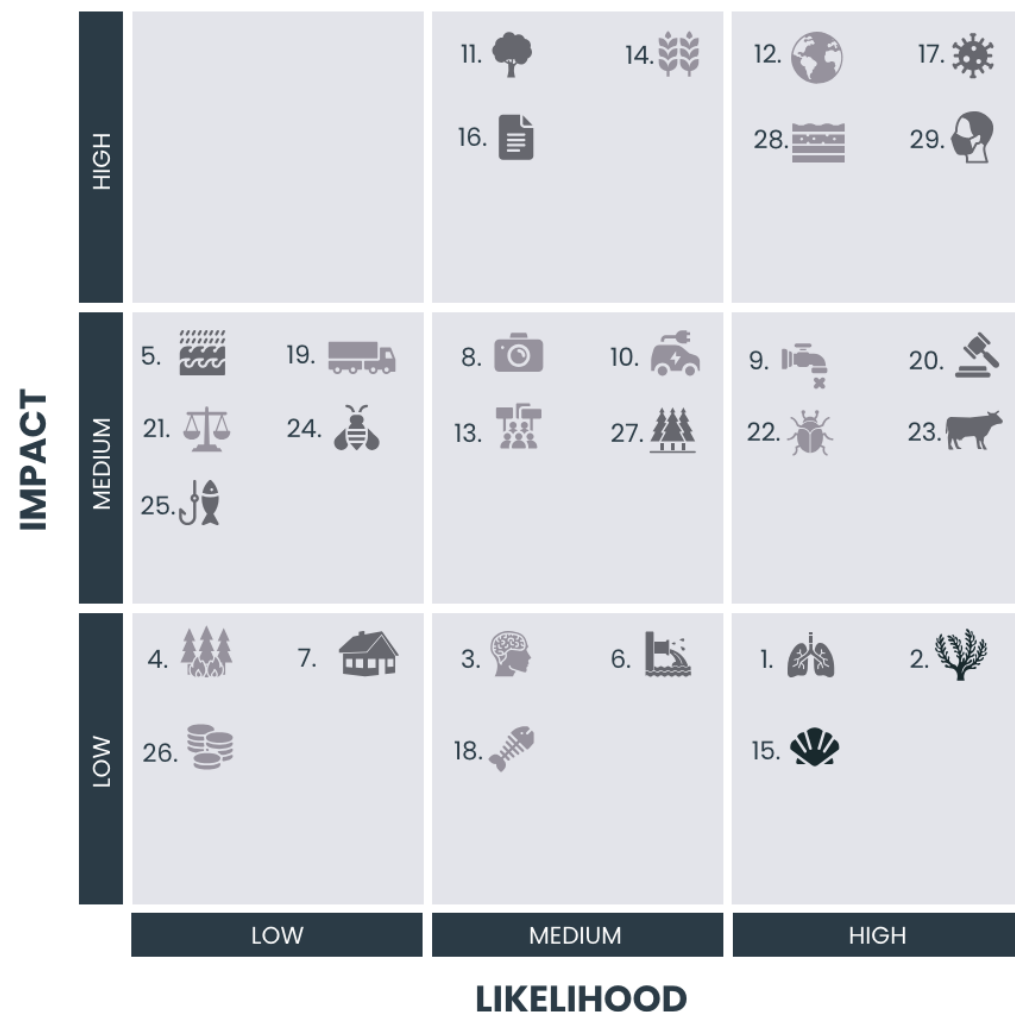
Drivers include land-use change, pollution, extraction and climate change

Six of nine planetary boundaries have now been breached



Source: Richardson et al. (2023)

UK Nature-Related Risk Inventory



Mainly Domestic

1. Air pollution from wildfires
2. Algal blooms in water ecosystems
3. Biodiversity access and mental health
4. Direct damage from wildfire
5. Flooding due to deforestation and soil damage
6. Freshwater pollution
7. Housing asset risks due to policy and legal changes
8. Risks to tourism from nature damage
9. Water shortages impact energy and agriculture

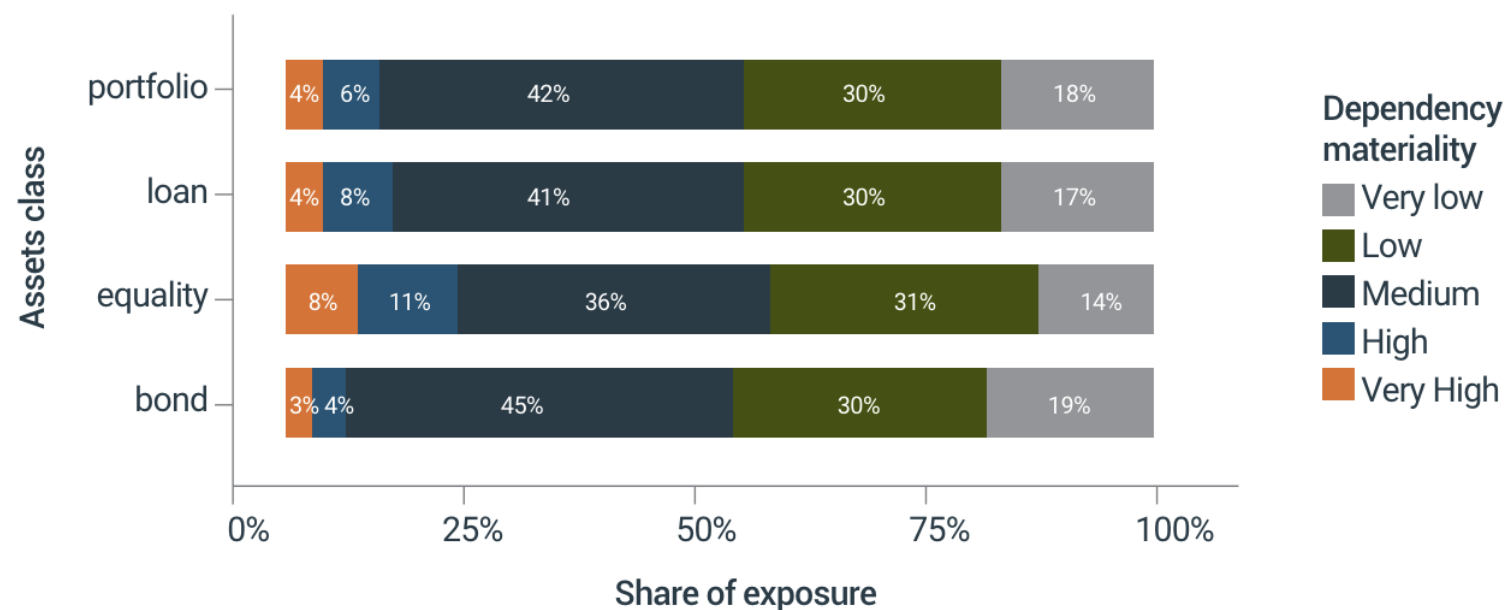
Mainly International

10. Critical resource supply chain disruption
11. Deforestation and ecosystem tipping points
12. Global food security repercussions
13. Global food supply chain interruption from biodiversity and climate policy misalignment
14. Multiple breadbasket failure
15. Ocean acidification

Domestic and International

16. Acceleration of strict net zero and nature protection policies
17. Anti-microbial resistance
18. Aquaculture major pest or pathogen outbreak
19. Business impacts due to UK-only biodiversity policies
20. Corporate litigation cases
21. Government litigation cases
22. Grain crops pest / pathogen outbreak
23. Livestock disease
24. Loss of pollination service
25. North Sea fishery collapse
26. Reputational risk, stranded assets and fund withdrawal
27. Sitka spruce pest outbreak
28. Soil health decline
29. Zoonotic disease

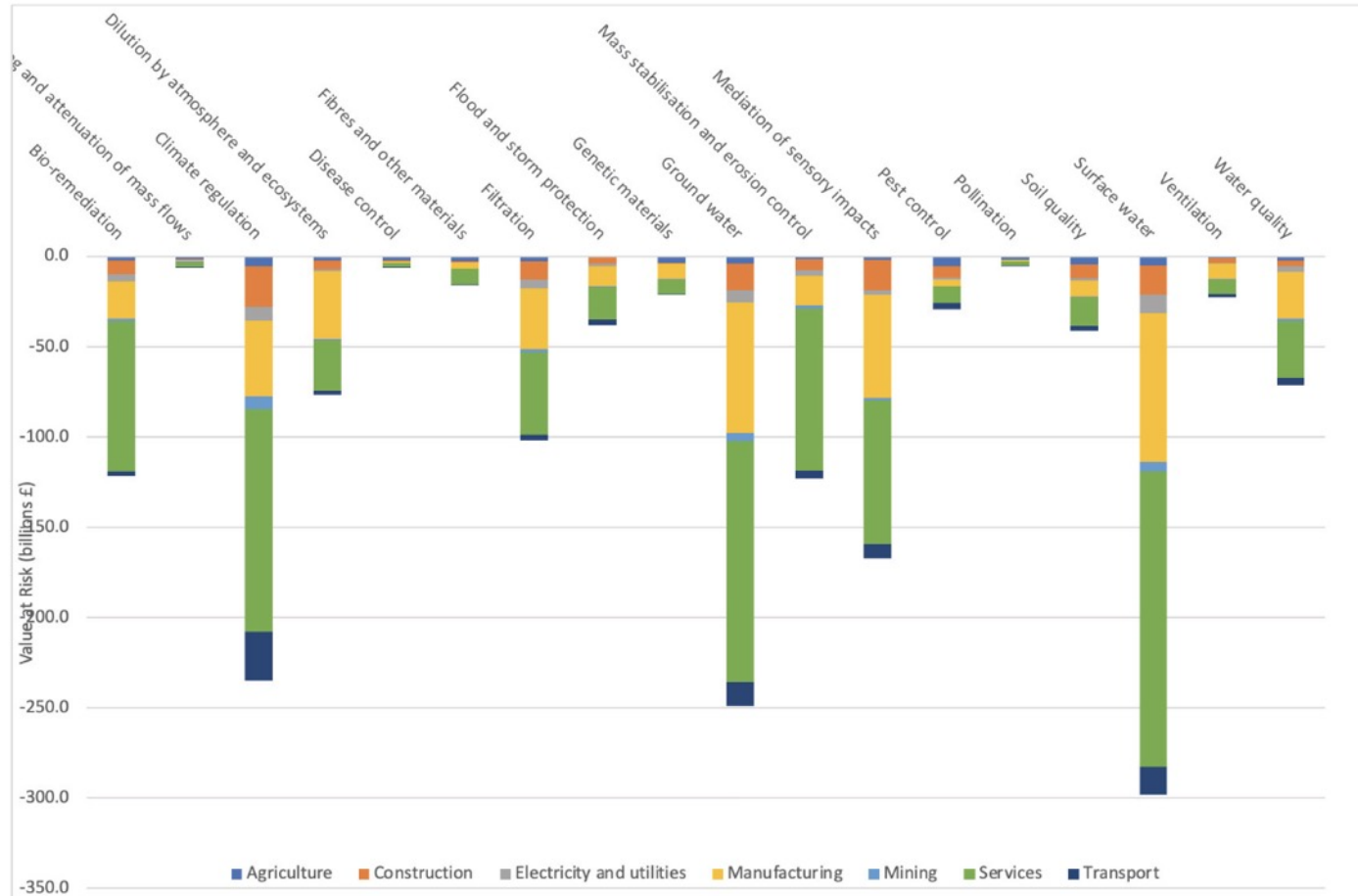
High dependencies on nature



Found that **£930 billion (52% of the portfolio that could be examined)** of UK bank and insurer financial assets are at least moderately directly dependent on ecosystem services, and of this **£179 billion (10%)** are **highly or very highly directly dependent**.

The **£3.8 trillion** in assets from UK banks and insurers are dependent on a wider set of assets through supply chains (domestic and international), which may represent approximately **£5.8 trillion** of assets, of which **£3.2 trillion, or 56% of the total upstream exposure** are **highly or very highly dependent on nature**.

Values at Risk in the Hundreds of Billions GBP



Significant risks due to pollution, soil erosion, overextraction of water, invasive species, etc

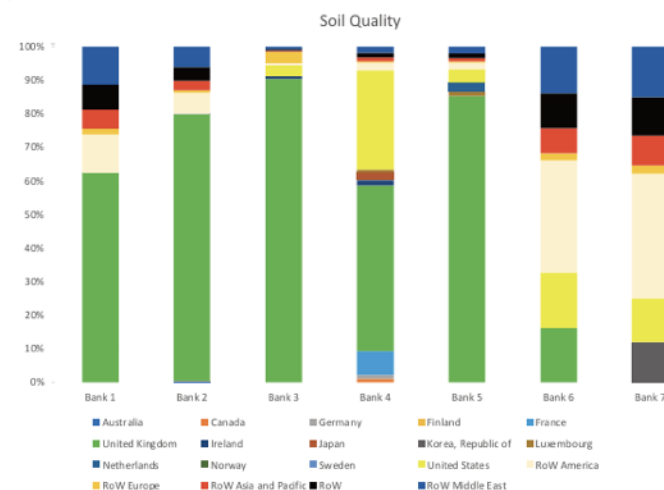
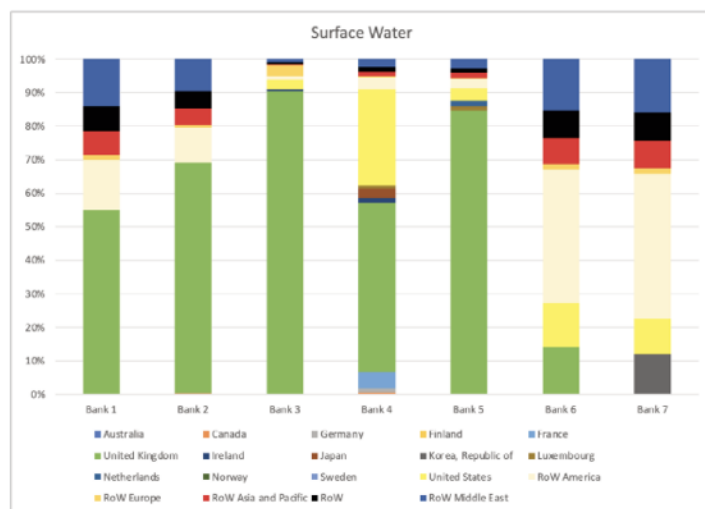
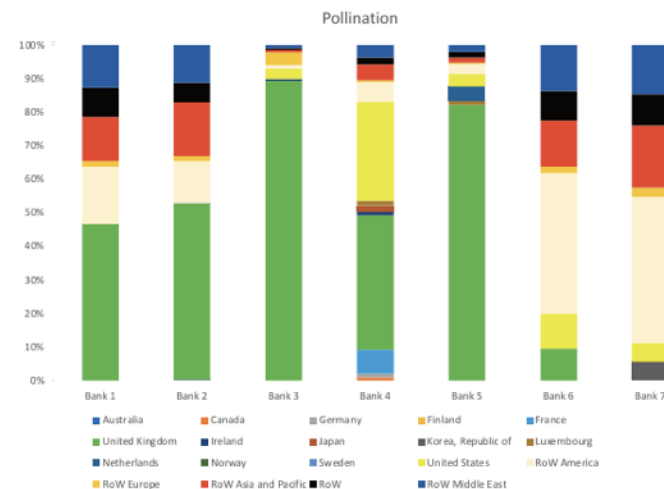
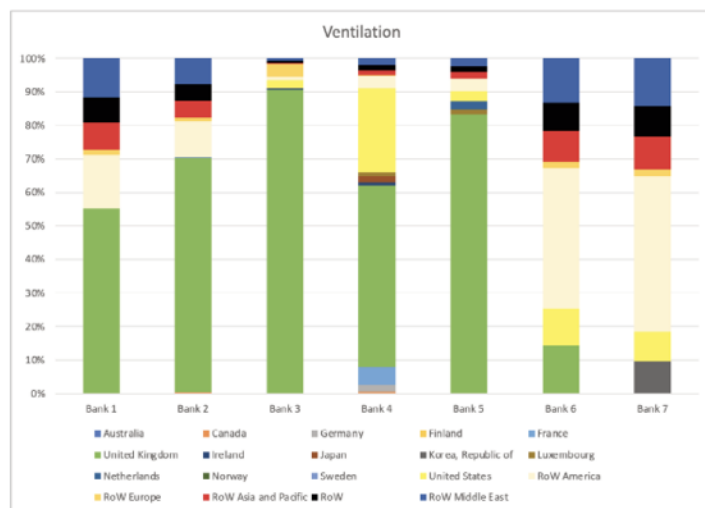
The most significant risks relate to water and climate regulation, with nearly £300 billion at risk due to water scarcity alone

The most significant financial risks, in monetary terms, are to the services sector, followed by the manufacturing sector

The highest risks as a proportion of economic output are to the agricultural sector

Importantly, we find that some of the largest risks to the UK overall are associated with international supply chains; around half of all nature-related risks faced by the UK economy originate from overseas.

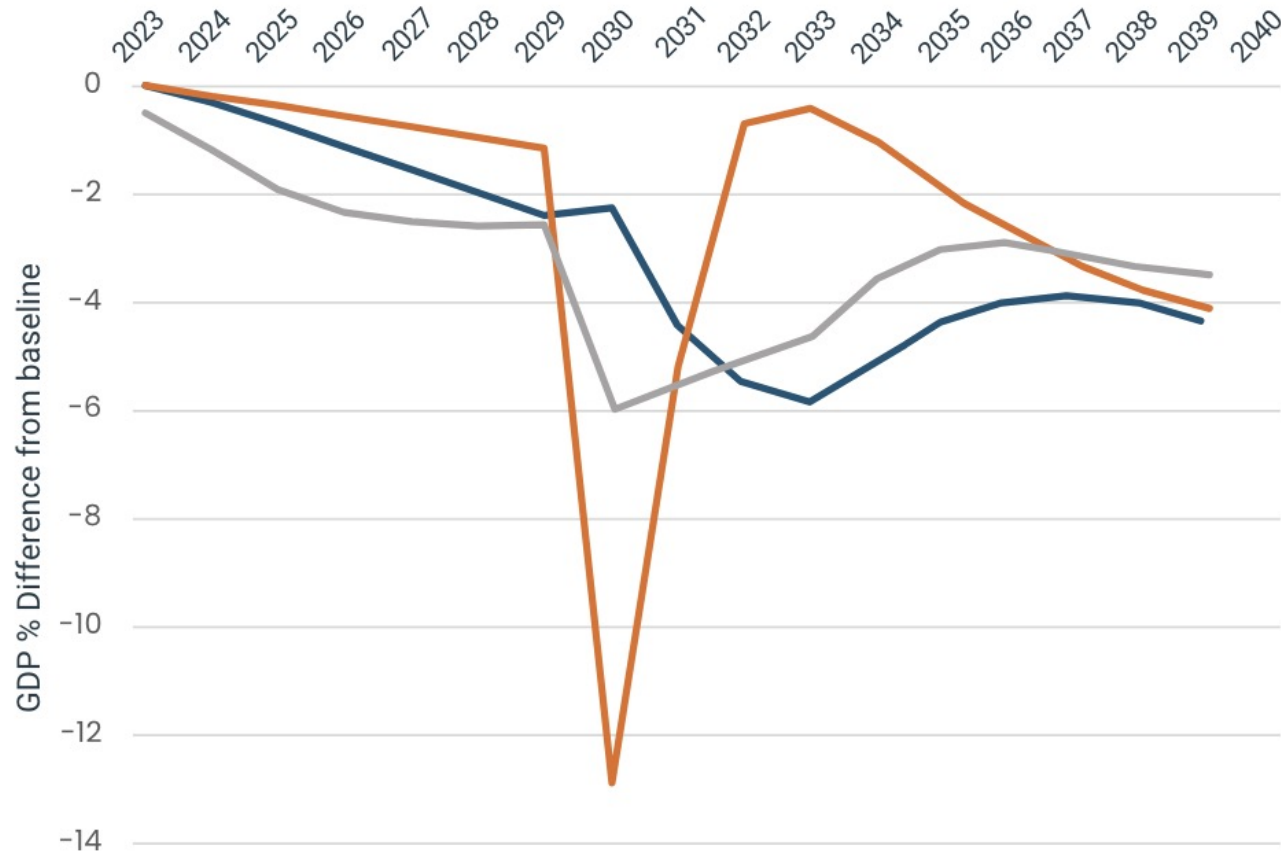
We can pinpoint where risks are coming from globally



We analyse risks for the seven largest UK banks and can pinpoint where risks are coming from in terms of sectors, countries and types of nature-related risks

Both domestic and international banks are highly exposed, though profiles of that exposure are quite different

We show that nature-related risks are macro-critical



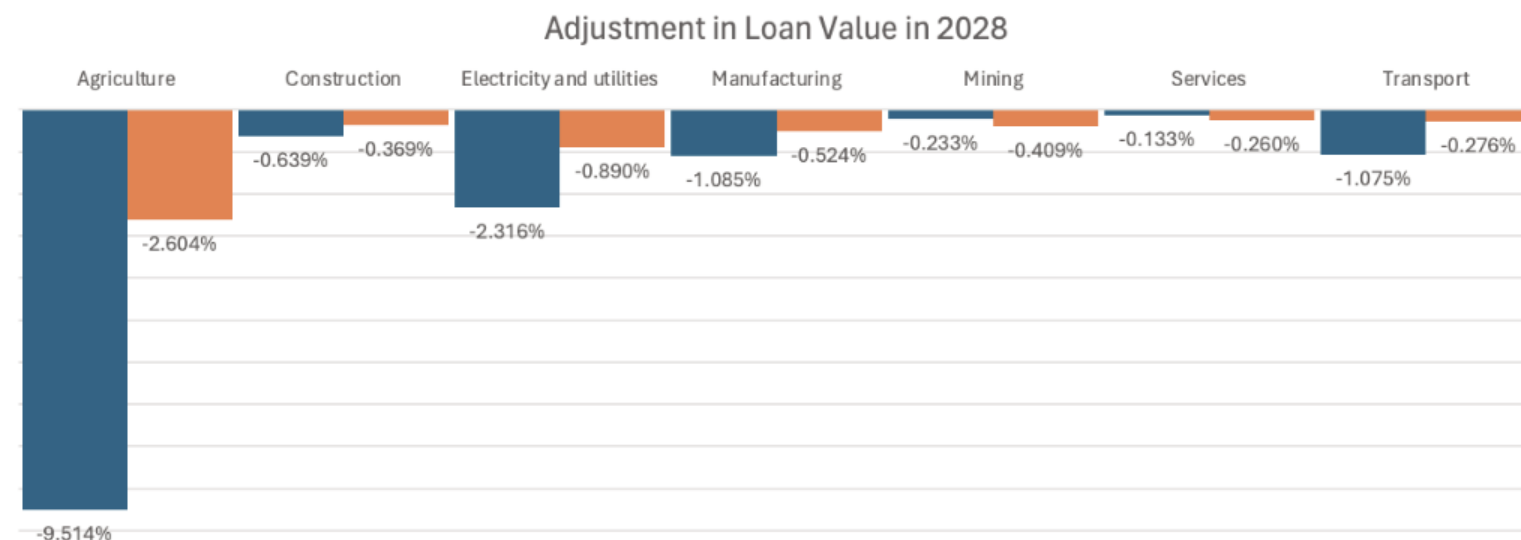
The deterioration of the natural environment in the UK and around the world could slow economic growth and lead to major shocks that could result in GDP being 6% lower than it would have been otherwise by the 2030s under two scenarios and 12% lower under an AMR-pandemic scenario

Gradual (chronic) year-to-year environmental degradation is as detrimental or more so than climate change; **nature doubles climate losses**

Environmental degradation increases the chance and impacts of an acute climate or health shock, and the combined effect would have a very material impact on the economy

First nature financial ‘stress test’

Warning –these results are conservative!



	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6
Domestic Scenario	1.29%	1.48%	3.95%	0.64%	2.26%	1.45%
Domestic + International Scenario	1.85%	2.08%	5.16%	1.01%	3.04%	2.04%

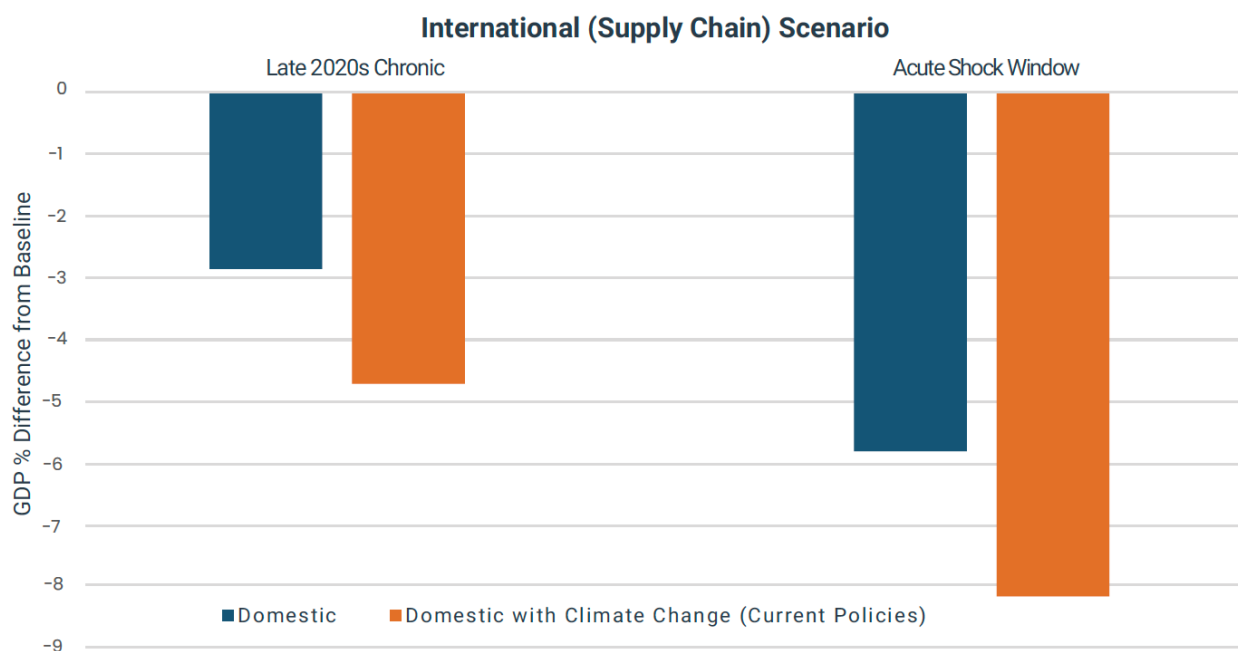
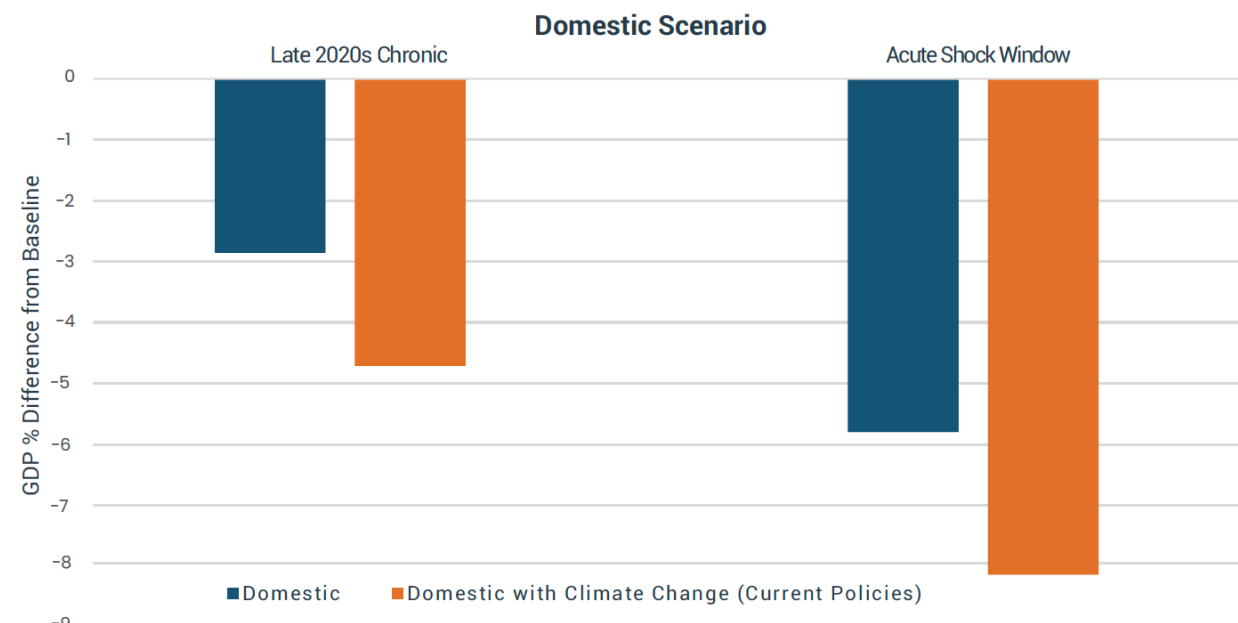
Even in the next decade, material impacts on the values of loans portfolios are expected.

Looking across the portfolios of the seven largest UK banks, the analysis indicates possible near-term adjustments in the values of domestic holdings of up to 4-5% for particular sectors and banks from nature-related risks alone. This is very conservative – does not include second-order effects or possible tipping points.

Climate change would amplify these risks further.

Implications

- Urgent need to confirm where nature-related risks are ‘falling through the gaps’ in current financial and fiscal policies and regulation and close these
- We believe the **evidence is clear that they are falling through the cracks, and this means that systemic risks are accumulating, and finance is continuing to flow unhindered**; our findings highlight several unique characteristics of nature-related risks that may necessitate explicit measures
- The potential risks to the economy and financial stability can be sizably reduced with an **early and orderly transition toward a nature-positive resilient net zero economy, both in the UK and globally**
- **Acting now can reduce the risks almost immediately with direct benefits for firms**
- Material importance of protecting and restoring nature both domestically and globally, including through meeting the goals of the Kunming-Montreal Global Biodiversity Framework (GBF).
- No regrets actions: encouraging firms to begin to assess risks and build into strategies and transition plans; integrate nature within emerging climate regulatory frameworks
- The exposure of the UK economy to global nature-related risks provides a clear rationale to **collaborate internationally** to ensure material nature-related risks are addressed



Nature-related risks amplify climate risks

Environmental degradation increases the severity and likelihood of acute shocks related to climate change

The compounding impacts of climate and nature are macro-critical

Implications for Adaptation:

- Adaptation and nature are aligned
- Consider nature-climate feedbacks in risk assessment and disclosure
- Don't forget indirect risks!
- Integrate adaptation and nature within transition plans
- Engage with clients and investees
- Seek co-benefits from investments



Thank you

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