

Activity report on climate-related research 2025

Amundi has published 10 climate-related research papers in 2025. In addition to analyses dedicated to environmental and climate issues, the year was marked by an increase in the inclusion of both quantitative and qualitative research on biodiversity, as well as climate-related research with a focus on climate risk.

Working papers

Date of publication	Title of document	Author(s)
03-2025	<u>Climate-Related Financial Stress-Testing and Scenarios Valuation</u>	T. Le Guenedal; V. Poudroux; F. Lepetit; H. Nguyen

This paper is published as part of Amundi's sponsorship of the MIT Joint Program on the Science and Policy of Global Change, which studies interactions among human and Earth systems to help decision-makers confront critical challenges in future food, water, energy, climate, air quality, human health and other areas. The mission of the MIT Joint Program is to advance a sustainable, prosperous world through actionable, scientific analysis of the complex interactions among co-evolving, interconnected global systems.

Combining Amundi's expertise in asset management and financial valuations, and MIT's expertise in climate and energy-transition scenarios, the paper connects long-term climate scenarios with corresponding financial impacts at the company level. Applied to companies in the MSCI World Index, one of its key findings is that while the energy sector bears the largest burden of emission mitigation activities, some companies in the utilities sector would benefit from the transition.

Date of
publication
03-2025

Title of document
**Introduction to Biodiversity Risk and
Finance**

Author(s)
T. Roncalli

This report is part of the Handbook of Sustainable Finance by Thierry Roncalli, and it provides the key challenges of biodiversity investing.

KEY TAKEAWAYS

- Biodiversity goes far beyond the issues of species extinction and deforestation. It is much broader and includes fisheries, food security, health issues, invasive species, natural resources, pollution, and water stress, among others.
- Most measures of biodiversity focus primarily on species richness, abundance, or extinction. Biodiversity finance, however, requires more sophisticated metrics.
- Despite growing awareness, long-term investors are not yet fully equipped to integrate biodiversity risks into their investment decisions.

Date of
publication
04-2025

Title of document
**Market Valuation of Climate
Patents: What are the Most
Valuable Innovations?**

Author(s)
M. Briere; M. Nuriyev; S. Pouget

This paper analyzes the market valuation of climate innovations through a detailed examination of patent data. It also explores the relationship between Tobin's Q - a measure of firm valuation - and the stock of patents across various climate technology categories.

KEY TAKEAWAYS

- First, patents related to improving the efficiency of carbon-intensive technologies (carbon intensive climate innovation) show a positive correlation with firm valuation.
- Second, a select group of patents in noncarbon-intensive climate technologies, which contribute to both adaptation and mitigation efforts, are also positively valued.
- Results suggest that generally, investors do not value climate innovations.

Date of
publication
06-2025

Title of document

**Constructing Investment Portfolios with
Climate-Relevant Metrics: a multifaceted
problem**

Author(s)

**H. Do; T. Le Guenedal;
M. Bhaugeerutty; S.
Boughanmi; A. Mcdougall; F.
Lepetit; T. Sekine**

This paper illustrates the introduction of climate-related signals within investment portfolios as optimization constraints, as outlined in Le Guenedal and Roncalli (2022). It paves the way for the development of new methodologies for constructing aligned benchmarks.

KEY TAKEAWAYS

- The impact of considering these metrics on performance and tracking error (T.E.). The paper shows that the MSCI World Index theoretically tolerates a high level of integration of climate metrics with limited losses in performance or T.E. costs.
- In some cases, applying constraints of different climate aspects can yield better results than relying on a single, highly restrictive metric.

Date of
publication
08-2025

Title of document

**Natural Capital and Economic
Growth**

Author(s)

T. Roncalli; A. Usardi; A. Jean

In most frameworks, natural capital is considered an additional production factor that supplements traditional inputs. This paper examines the complex relationship between natural capital and long-term economic growth: there is a common conceptual confusion between economic wealth (a stock) and economic growth (a flow).

The results reveal significant heterogeneity in the impact of natural capital on growth. Over the past 25 years, non-renewable resources appear to have had little influence on economic growth. Conversely, growth has been more responsive to renewable resources. Notably, countries such as Iran, Australia, South Korea, and Nicaragua experienced a negative contribution of natural capital to growth, while Vietnam, Indonesia, Mozambique, and Egypt experienced a positive contribution.

Investment Insights

Date of
publication
06-2025

Title of document
**Emerging Market Green Bonds - Report
2024**

Author(s)
S. Lund; Y. Syzdykov

Amundi and IFC jointly published the 7th edition of the Emerging Markets Green Bonds report, which analyzes significant trends within the green, social, sustainability, and sustainability-linked (GSSS) bonds market in emerging economies for the year 2024, and provides projections for 2025 and beyond.

KEY TAKEAWAYS

- Overall GSSS bond issuance in emerging markets dropped by 14% to around \$180 billion, primarily because the green and sustainability-linked segments underperformed.
- Since 2018, global issuance of GSSS bonds has totalled \$5.1 trillion, of which green bonds account for around 60%. Emerging market issuers have contributed around \$800 billion, putting them ahead of multilateral development banks (MDBs), which accounted for \$730 billion.
- China has maintained its sizable role over time with 60% of total emerging market issuance in 2024.

Date of
publication
07-2025

Title of document
**Japan Green Transformation: a bold
ambition to speed-up the transition in
Asia**

Author(s)
**Y. Iwanaga; E. Laugel; T.
Jaulin; P. Theillard**

Amundi has published the first paper of the series 'Responsible Investment Pulse' on the Japan Green Transformation, a bold ambition to speed-up the transition in Asia.

Japan launched the Green Transformation (GX) strategy in 2023 to encourage private sector businesses to accelerate their transition efforts while building industrial competitiveness. The government has since upgraded it as GX 2040 Vision, reflecting the rising use of AI and the current geopolitical climate.

Japan is taking a hybrid approach, using a public-private partnership model based on industry policies, which makes it less susceptible to political risks. Also, the \$1 trillion investment rivals the size and ambition of the US Inflation Reduction Act and EU Climate Finance plan and Clean Industrial Deal.

Substantial tailwinds are expected for clean energy solutions in Japan and across Asia. Investors can play a key role in this transformation by seizing opportunities related to economic growth in clean energy and energy-efficient industrial activities, as well as new financial mechanisms such as Transition Bonds.

ESG Themas

Date of publication	Title of document	Author(s)
01-2025	<u>ESG Thema #19 - Measuring Scope 3 Emissions: implications & challenges for investors</u>	T. Le Berthe; S. Nguiakam; M. Jouanneau; A. Mcdougall; J. Elbaz

This paper focuses on the need for investors to account for company's Scope 3 Greenhouse gas (GHG) emissions that help to understand the bulk of a total GHG emissions, full climate impact and potential opportunities associated with an investment.

KEY TAKEAWAYS

- The integration of Scope 3 emissions will allow investors to rely on a more robust risk assessment and align their portfolios with net zero transition scenarios.
- Investment constraints should be disaggregated to avoid overshadowing previous decarbonization efforts by integrating much larger Scope 3 emissions.

Date of publication	Title of document	Author(s)
05-2025	<u>ESG Thema #20 - Blue Economy: Ready, Set, Sail!</u>	L. Lucet; J. Elbaz; M. Minton

Despite the significant value that oceans provide to the global economy and society, the financial risks resulting from ocean degradation are overlooked. A rising number of public and private actors are sounding the alarm over the need to act before irreversible consequences to economic stability and food security, as actions from the private sector and investor community remain in their infancy.

This ESG Thema explores the action taken by Amundi on ocean protection, including:

- Ensuring oceans are properly integrated into its investment processes notably through its biodiversity investment framework, Responsible Investment policy, controversy monitoring, and engagement strategy.
- Better incorporating ocean protection into corporate engagement and analysis, through an in-house a framework that maps ocean impacts per sector using internationally recognized frameworks and standards.

Date of
publication
11-2025

Title of document

**ESG Thema COP30: Climate finance state of play
and investor implications**

Author(s)

**E. Laugel; T. Jaulin; P.
Theillard; V. de Vecchi**

Marking ten years of the Paris Agreement, COP30 in Belem disappointed many, but confirmed that even if under stress the Paris machinery remains functional. Despite an outcome that fell short of expectations, updated NDCs now cover over 70% of global emissions.

KEY TAKEAWAYS

- COP30 provided the clearest financial architecture to date through the Baku-to-Belém roadmap, which includes the path to mobilizing \$1.3 trillion in climate finance per year by 2035.
- COP30 marked the operationalization of the Loss & Damage fund.
- COP30 saw the emergence of early Article 6 transactions and new carbon market coalition.
- COP30 hosted the launch of the Tropical Forests Forever Facility, an unprecedented attempt to mobilize long-term capital for forest conservation.
- COP30 highlighted a rebalancing of leadership towards emerging markets and developing countries.

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