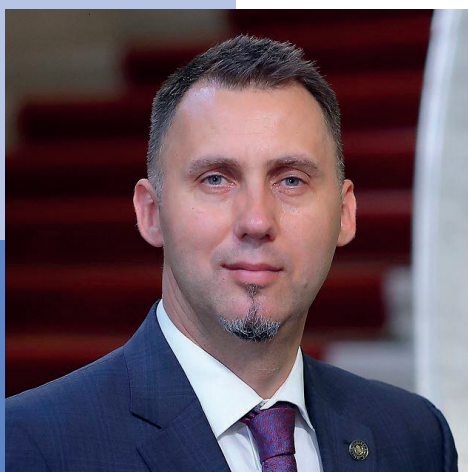


SUSTAINABILITY RISK IN A FRAGMENTING WORLD



**BARNABÁS
VIRÁG**

Deputy Governor – The
Central Bank of Hungary

Accelerating the green transition: Central banks leading by example

Europe is warming faster than any other continent, and Central and Eastern Europe is heating even more rapidly. This reality places the region in a position where leadership in climate adaptation and mitigation is not optional but essential. A substantial amount of new investment and a financial mindset shift are needed in to achieve these goals. For Hungary, this urgency has been clear for years. The Magyar Nemzeti Bank (MNB) adopted its Green Program in 2019, laying the foundation for both supervisory and monetary measures to address climate-related financial risks. The active role of central banks and supervisory authorities are crucial, as they are central part of the financial system, especially in shaping the mindset of market participants. The progress made in Hungary is tangible: green loans now represent roughly 5 percent of new lending, signaling a positive market shift.

The financial system plays a crucial role in addressing these challenges by

allocating resources and managing risks. How we manage climate risks within our financial sector will determine the resilience of our economies as we transition to a greener future. Hence MNB started to develop its climate risk analysis tools early on to lead by example and help financial institutions.

The MNB's climate stress testing program has become a cornerstone of its green agenda, providing valuable insights into both short- and long-term risks. Long-term scenario analyses consider both transition and physical risks over several decades. The findings leave little doubt: physical risks—from extreme weather events to chronic temperature rise—represent a significantly larger challenge than transition risks in the long run. An asset-side stress test of insurers also find that a transition scenario impacts materially long term investment returns, but not substantially. Moreover, the uncertainty surrounding the scale and timing of physical impacts adds complexity, underscoring the importance of adaptive, forward-looking strategies within financial institutions.

Short-term analyses have focused on measuring the resilience of the Hungarian economy and banking sector to an adverse but plausible carbon pricing shock. While the economic impacts would be significant—especially for carbon-intensive industries such as energy, utilities, and mining—the banking system as a whole would remain stable. Capital buffers appear adequate to absorb losses, even in severe scenarios. Equally important, these exercises revealed no dangerous concentration of climate-related, exposures are relatively diversified. At the same time, the analyses enabled a deeper understanding of transition risks, shedding light on which banks and counterparties might be most vulnerable in a decarbonizing economy, and to what extent are these more vulnerable loans collateralized.

Building on these findings, the MNB has translated analytical insights into concrete supervisory expectations. Its Green Recommendation sets out a clear framework for banks and insurers, requiring them to integrate climate risk considerations into governance, business strategy, risk management, and disclosure processes. MNB also considers insurers as key parts of the green transition: the expectations

require insurers to embed sustainability considerations across all functions, from underwriting and risk control to investment strategy. Recommendations include identifying the relevant environmental risks, appointing a dedicated climate risk officer and integrating environmental metrics to internal processes. Both banks and insurers are expected to conduct regular internal climate stress tests, assessing their resilience to both transition and physical risks under severe yet plausible scenarios. These expectations are complemented by MNB continuously monitoring banks' capital adequacy in case of severe transition risks hitting the economy.

The active role of central banks and supervisory authorities are crucial.

Significant progress has been made, but the journey is far from over. While modeling capabilities have improved markedly in recent years, uncertainties and data gaps persist, complicating precise solvency assessments. Nevertheless, the MNB aims to integrate more aspect of climate risk assessment to the Supervisory Review and Evaluation Process (SREP), ensuring that financial institutions are better prepared for a green transition. Continuous refinement of tools, alongside improved data quality and disclosure standards, will be vital to maintaining this momentum.

As climate risks intensify, the central bank will continue to push forward—strengthening methodologies and promoting green finance—to ensure the financial system remains resilient and ready to support the green transition.



LINDA-ELING LEE

Founding Director and Head
of the MSCI Sustainability
Institute – MSCI

Europe can become a go-to destination for climate investment

With billions of euros on the move, Europe can become a go-to destination for climate-focused investment. If it can match its green ambition with high-growth opportunities.

Since the start of the year, roughly EUR 46 billion in climate-themed capital has flowed to European companies, boosting the continent's share of assets in global climate funds by 6 percentage points. The movement marks a homecoming of sorts: 60% of public climate funds are based in Europe yet a majority of their assets are invested elsewhere.

To be sure, some of the shift reflects a broader reallocation away from the U.S., with a plurality (45%) of investors in an informal poll by our firm indicating further geographic diversification in response to macroeconomic volatility. Still, the shift in climate investment to Europe has outpaced the broader reallocation by 5 percentage points.

With mature capital markets and innovative companies, Europe has an opportunity to become a destination, not just a supplier, for the next wave of climate capital flows. Capitalizing

on the moment, however, will require policymakers to focus on three key areas.

Look to where investors are headed

The energy transition has evolved from a race to zero into a race for resilience and adaptation as climate-related physical risks intensify. Investors now face an unavoidable opportunity to finance a myriad of products and solutions that can help governments, businesses and consumers adapt to a warming world.

Europe, the fastest-warming continent, should be at the forefront of innovation to boost private-sector investment in adaptation. Policymakers should focus on creating incentives alongside national adaptation plans that give investors clear signals indicating where to place their bets on future high-return opportunities. The EU's pledge with China to enhance adaptation efforts by accelerating action at scale marks a critical first step.

Investors are also increasingly financing the transition itself through private assets. The amount of capital in private climate funds reached EUR 112 billion as of March 31, 2025, up five-fold in the past seven years.

Underpin ambition with enabling policy

While the energy transition remains a priority, investors are becoming more sophisticated, aiming to reduce greenhouse gas (GHG) emissions in the real economy while maximizing risk-adjusted returns. Investors are now armed with analytical tools such as MSCI's Energy Transition Framework that help pinpoint where the opportunities in financing the transition lie.

**The confidence of
markets will be Europe's
strongest lever for
attracting climate-
aligned capital.**

Investors are increasingly aware that a company's transition risk is not proportionally related to its GHG emissions. Hence, investors are assessing investment opportunities based on the combination of market, technology and policy pressures on companies to transition. That means they're looking beyond emissions trajectories alone.

Policymakers play a critical role in creating transition pressure and fostering scalable innovations. Ambition

in national climate targets is needed as well, as most EU countries exceed a 2°C-degree warming path, based on MSCI's analysis of countries' emissions trajectories relative to their fair-share carbon budget. But ambition translates to investment if it's tied to sector-specific roadmaps that guide companies while enabling investors to better assess transition risks and opportunities.

Prioritize regulatory predictability

The EU has made bold strides on sustainable finance, but ongoing regulatory adjustments introduce uncertainty that can weigh on capital formation. The number of new Article 8 and 9 funds launched across the EU in the first three months of this year fell 37% from the prior quarter, the lowest total in more than a year.

The wait for reviews and the need to catch up to evolving guidance on multiple pieces of proposed regulation has led fund managers, for example, to spend time relabelling existing financial products, with less time for developing innovative strategies. More than 260 Article 8 and 9 funds rebranded in the first quarter this year alone, part of a broader trend that has seen funds with EUR 660 billion in AUM renamed in the past 15 months.

Regulatory ambition is important. But a clear and consistent set of rules, delivered with predictability, is critical for enabling innovation in investment products that attract capital flows.

Earning the confidence of markets will be Europe's strongest lever for attracting climate-aligned capital. In a fragmented global landscape, Europe can stand out not only through climate ambition, but through regulatory clarity and a strategy that embraces private-sector investment as an essential component of competitiveness.



GUILLAUME BIRON

Deputy Secretary General -
Member of the Development
Committee – La Banque Postale

The world's fragmentation challenges our sustainability approach

Over recent months, the resurgence of high geopolitical and financial tensions worldwide, with the reintroduction of trade barriers, has initiated an unprecedented de-globalization movement. Paradoxically, despite many of these disruptions stemming from long-term resource access issues, sustainability has become the primary victim of this fragmentation.

In a short span, the “hype” about sustainability issues has shifted into a “backlash”. Decision-makers and investors have redirected their focus towards equally legitimate priorities such as defense, sovereignty, and the stabilization of public finance. However, it is crucial to maintain that:

Global warming will not disappear by ignoring the problem. Scientific consensus indicates that without immediate action, conditions will deteriorate, increasingly threatening the long-term survival of mankind and countless other species.

The medium-term financial stakes associated with sustainability far exceed

immediate concerns. The 2024 World Economic Forum report highlights that between 5 to 25% of any corporate's EBITDA could be at risk by 2050, depending on the sector, due to climate change impacts.

There is no inherent conflict between sustainability and sovereignty or competitiveness. In fact, the latter are essential conditions for achieving sustainability or, at the very least, for defending its value. This perspective is particularly embraced by the French “Grand Pôle Financier Public” composed of Caisse des Dépôts and its financial subsidiaries.

Given this assessment, it is evident that there is no alternative to continuing the efforts towards transitioning to a more sustainable economy. However, the question of its priorities and modalities in the present moment must be clearly addressed.

What path should we follow globally, and particularly within the financial industry? Three elements are crucial.

Refocusing priorities on the economy, not its intermediaries

The 2015 Paris Agreement positioned banking actors at the heart of the transition issue, assuming that increased transparency in the balance sheets of institutions would make the entire system virtuous. However, with a decade of perspective, this approach has been only partially successful. It actually relies heavily on a homogeneous view of economy financing, whereas many fundings now occur outside the traditional banking system. Some states and big players also have withdrawn from their commitments or dedicated institutions (e.g. NZBA). Moreover, these principles overestimated the impact of banks and the speed of economic transformation.

The transition should be primarily driven by industries operating within a given macroeconomic context, with banks playing a supportive role. For instance, in France, La Banque Postale observed that the “greening” of real estate portfolios is hampered by a low construction pace of new housing, the impact of high interest rates on transactions and the need for a larger use of renewable energies in domestic heating.

Additionally, there has been over the past years an excessive manichaeism between virtuous and non-virtuous sectors or actors. It is widely acknowledged, for example, that gas will remain a necessary supplementary energy source in all energy mix models during the transition and that even

actors in ‘brown’ industries will need financing to facilitate their transition.

Less ESG regulation, but of better quality

It is then crucial to have appropriate ESG regulations that are not overly burdensome, ensuring they are accepted by most actors (including SMEs) facing numerous other challenges. Conversely, they should not be too lenient to remain effective.

In this context, the Omnibus initiative is welcome and hopefully will be concluded swiftly. A significant reduction in data requirements with increased reliability and quality, the simplification of ESRS, and maintaining a reasonable level of quality assurance are awaited, all while upholding the key principle of double materiality and the publication of transition plans.

There is no alternative to continuing our efforts, but current options are questionable.

Pursuing the implementation of sound risk and impact management frameworks

For financial institutions, integrating sustainability considerations into all corporate decisions, at every level of governance, remains a major challenge. The aim must be to align the company's strategy with its transition plan, and to ensure that its risk appetite is consistent with its sustainability commitments.

This is the strategic shift La Banque Postale has taken, for instance by considering in any investment decision a ternary approach that equally considers risk, profitability, and ESG impact. This may lead to decisions such as refusing to finance projects with high negative impacts (e.g. new gas-fired power plants) or not responding to tenders from major clients if their financial planning does not align with decarbonization commitments. Even if this approach results in short-term revenue loss, the aim is to strengthen the resilience of the bank's balance sheet over the medium and long term.



ATSUSHI YASUTAKE

Director and Senior Managing Executive Officer, Global CRO
– The Norinchukin Bank

Back to basics: Integrating sustainability into risk management

Sustainability risks should be captured through traditional risk categories

One important point to revert to is the description by the BCBS and the NGFS that climate- or nature-related financial risks should be captured through the traditional risk categories, and not as new risk categories. Thus, we should treat sustainability risks as risk drivers that affect credit, market, operational or liquidity risk. Importantly, climate risk is only one element of a broader set of environmental risks. Environmental impact drivers interact with each other – e.g. rising temperatures accelerate habitat loss, while healthy ecosystems absorb carbon – so it makes little sense to analyze them in isolation.

Credit risk: rating downgrades (and upgrades) should be the method

In the case of credit risk, sustainability risk should be understood as how these types of risks would impact the bank's borrowers' ability to repay. Then, the question is whether or not these risks have been incorporated in the assignment of borrowers to rating categories, and, if not, whether there

is a need to downgrade (or upgrade) these borrowers.

Paragraph 36.33 of the Basel Framework reminds us that “sufficient human judgement and human oversight is necessary to ensure that all relevant and material information ... is also taken into consideration, and that the model is used appropriately.” Such oversight is critical when incorporating climate- and nature-related pathways into ratings.

This might apply to scenario analysis for strategic decision making. Norinchukin has been conducting quantitative scenario analyses on climate transition and physical risks to understand the impact on our credit portfolio. We attempted to analyze nature-related risks as well. Climate and nature risk pathways, however, converge inside client cash-flows and collateral values. Therefore, management should not weigh the credit cost implied by a climate scenario separately from the cost implied by a nature scenario. Real-world borrowers face an integrated set of drivers, including environmental and other types of drivers.

Assessment for each entity, not at the sector level

As with any structural change to the economy – whether geopolitical or sustainability-driven – there will be entities that adapt better and those that do not. The challenge for banks is to judge each borrower's capacity to adapt to forthcoming changes. Because transition investments generate benefits only gradually, while physical losses may grow in the near term, analysts should map transition and physical risk trade-offs along the borrower's specific time-line. Norinchukin has recently integrated the assessment of impact of environmental and social factors on individual borrowers into our internal rating system within our credit risk management framework.

Check the appropriateness with back-testing

The appropriateness of rating downgrades (or upgrades) should be tested with back-testing that compares the actual default rate with the estimated probability of default for each rating grade (note: do not adjust individual PDs ex-post, as this makes back-testing impossible).

Operational resilience: location matters

As for operational resilience, the question will be the resilience of the bank in question. If the focus is flood related risk, the relevant question will be whether the headquarters or the

data-center, or system-center (in some cases of a third party) are located in a flood-prone area, and if so, what are the contingency plans in case of a flood.

Another risk also comes from lost ecosystem services. Big landslides wash soil into rivers, spoil water quality, and loose biodiversity in the area. Offices and data centers can then lose safe water for cooling and hygiene to operate.

If we extend this analysis to the operational resilience of our borrowers, this can then linked back to the credit risk of our borrowers.

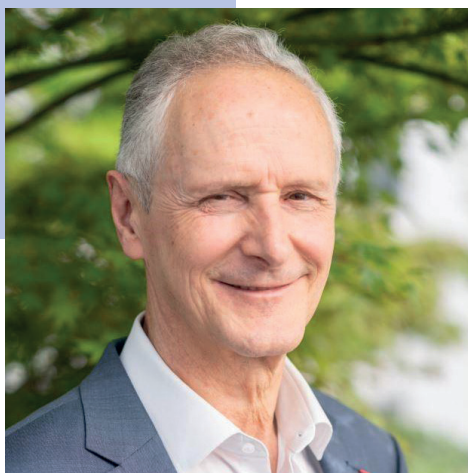
Treat sustainability risks through traditional risk categories and with a holistic perspective.

Putting things into perspective

As should now be clear, climate or nature related risks need to be considered within the overall risk management framework, and that these may not be the most important risk drivers at least for some of the borrowers of a bank.

Yet analyzing them in separate silos is ultimately naïve: climate change is itself an impact-driver of nature loss, while healthy ecosystems help stabilize the climate. Because no fully unified climate-and-nature scenario set yet exists, banks should select climate and nature scenarios whose possible narratives fit together and interpret outputs as a single narrative covering transition and physical dimensions across time horizons and entire value chains. Norinchukin took a first step of this ambitious attempt in our Climate & Nature Report 2025.

By integrating these linked drivers – even when quantification remains difficult – banks can obtain decision-useful strategic insights and avoid the “nonsense” of treating climate and nature costs as unrelated. The results of these scenario analysis can then inform decisions on internal ratings.



FRANÇOIS COSTÉ

Group Chief Sustainability
Officer – Groupama

Stronger mutualization and effective prevention to cope with insurance gaps

Groupama is serving 12 million clients, mostly in EU, with its mutualistic values of responsibility and solidarity. These values are essential in helping resolving the dilemma exacerbated by environmental and social changes: on the one hand the imperative to adapt our company to increasing related financial risks, and the other hand the strive to involve into insurance -and keep it accessible to- the greater number of people and companies.

Sustainability is at the core of Groupama business strategy, to tackle with the right Governance the environmental and Social challenges, in their double materiality, financial and impact.

Groupama is especially sensitive to climatic risks due to its specific commitments such as: a 50% market share in crop insurance in France, 30% market share in Brittany which is overexposed to storm, high presence in rural areas and smaller towns more exposed to storms and subsidence of clay soils, leading insurer in Romania with a strong exposure to natural disasters...

Climate related financial risks are thoroughly assessed, for their short

and longer terms impact, both for liabilities and assets; resilience of real estate is determined for the horizon 2030-90 using the platform R4RE; for private investments in bonds and stocks, transition risks are assessed by financial analysts using available ESG data and this generates many indicators including the Net Environmental Contribution of the asset.

Groupama has adapted its investment policy through a charter adopted by all Group entities: ESG due diligence on all investments, well thought but limited and gradual exclusions, dialogue with private issuers to influence their changes reducing investment risks and generating benefits for a sustainable planet and a better society; an encouraging result is the drop by 60% in carbon intensity of the investment portfolio in just 3 years.

In underwriting, the first imperative has been to deepen the understanding of the climatic risks through the creation of a climate lab and the geolocation of most properties insured. This enhanced internal knowledge of climate risks helps control our company exposure to floods and drought in the riskiest areas, aiming at a standard market share, and with a gradual adjustment of tariffs. Prevention plays also a key role; for floods, the exposure of properties in France is assessed by Groupama experts and members/clients are provided with advice to increase resilience and also to orient them towards public financing schemes. Another responsibility in underwriting is to take our share of risks and market in the solutions chosen by our members/clients in their transition (green mobility, solar panels, methanization of agriculture wastes...).

Partnerships with State Authorities are key for a well-functioning mutualization.

In 2024, already 46% of Group non-Life insurance revenue is deemed aligned to the EU taxonomy, reflecting our endeavour into modelling of climatic risks, into information to members/clients after a claim on how to enhance resilience.

A real challenge is the insurance gap, the ability of people and companies to get and remain insured. Climatic risks are fragmenting further the world between exposed and less exposed, between insured and non-insured; a well-functioning mutualization of climatic

risks is key and partnerships with State Authorities prove essential; I would like to quote 3 examples of partnerships with Authorities from countries where Groupama is present:

1. In France, the reinsurance by State owned CCR in quota share and the stop loss at 200% with an unlimited cover;
2. In Romania, a project led by World Bank and then a specific law in 2009 creating PAID, a private company dedicated to the mandatory insurance up-to 20.000 € of the 9 million homes against natural disasters including floods and landslides;
3. In Italy, in 2025, it becomes mandatory by law for 5 million companies to get insured for natural disasters including climatic events.

Whilst it is essential to reflect forward looking climate risks in the projection of solvency capital requirement, we must acknowledge many challenges such as: insurance gaps in riskiest areas when clients would no longer afford insurance premium, evolution of appetite by reinsurers and increased retention of risks...

Since 2021 EU Commission delegated regulation, sustainability factors have been well integrated into the prudential rules for insurance undertakings: at Groupama, a Sustainability charter explains the overall management of Sustainability risks, while keeping more details in the related policies (investment, underwriting...); it involves a new QRT on investments and also the inclusion into ORSA of a long term shock over financial assets of a scenario of global warming above 2 degrees.