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# THE ROLE OF DATA IN SUSTAINABLE INVESTMENT, POLICY AND REGULATION

## About OMFIF

With a presence in London, Singapore, Washington and New York, OMFIF is an independent forum for central banking, economic policy and public investment – a neutral platform for best practice in worldwide public-private sector exchanges.

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## About Refinitiv

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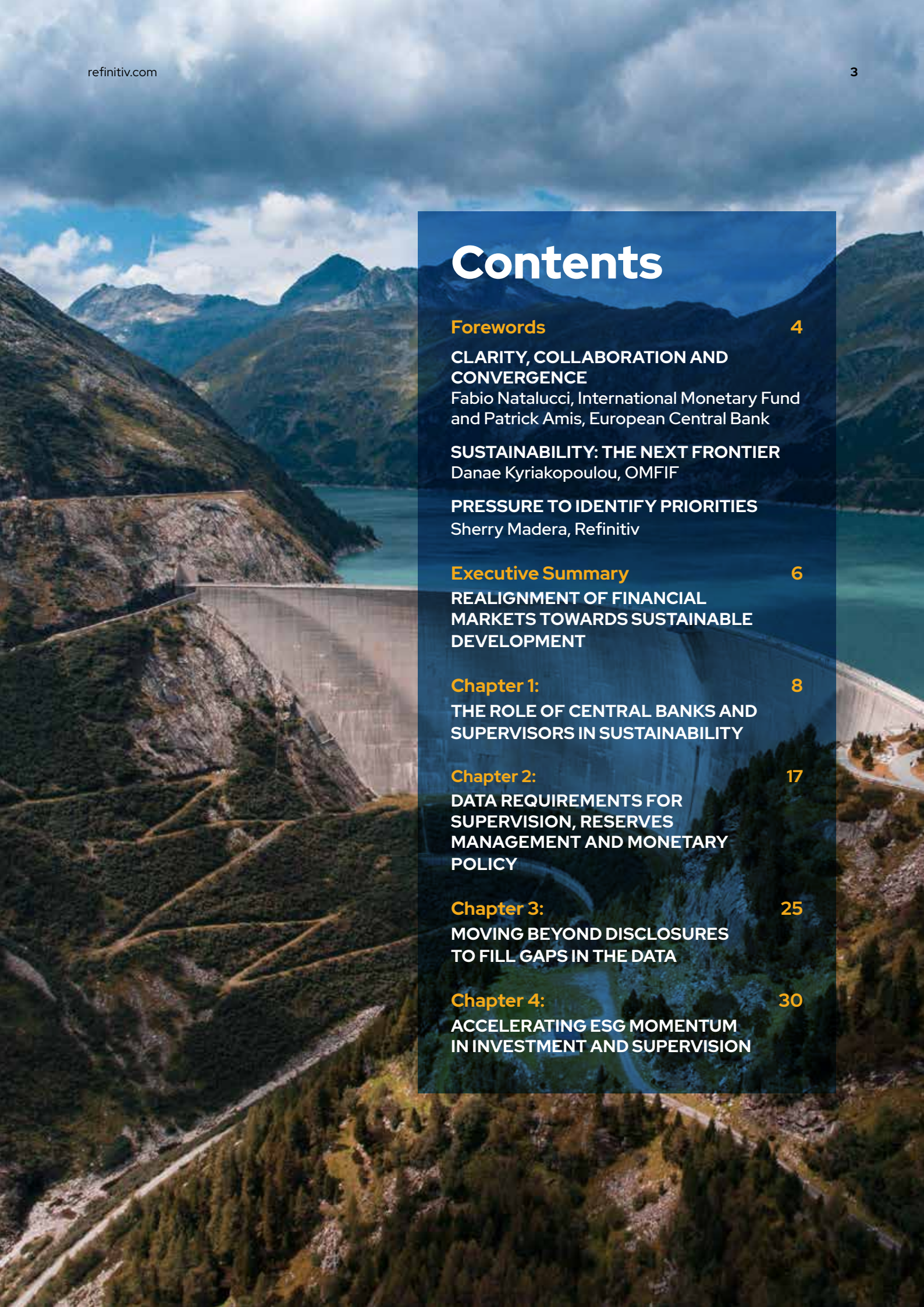

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## FOREWORDS

# CLARITY, COLLABORATION AND CONVERGENCE

OVER the past few years, public awareness of climate change has grown significantly. There is now widespread recognition of the existential threat it poses. In financial markets, climate-risk considerations are increasingly influencing the decision-making of lenders, investors, firms and regulators. The pandemic has unmasked the vulnerability of the global economy and the financial system to non-financial risks, with major implications for the way we live.

There is an urgent need to address climate-related risks, and the window of action is closing fast. Given the complexity of the issues, there is a need for clarity, collaboration and convergence. Clarity on purpose and priorities within the climate agenda will help mitigate the risk of well-intentioned efforts being pulled in different directions. Second, we need a collaborative approach to the initiatives taking place globally to leverage efforts and skills. And finally, we need convergence. Despite extensive efforts, the risk of fragmentation looms large. We need a set of clear, globally accepted outcomes.

Addressing climate-related risks requires quality data. Despite improvements in recent years, significant gaps remain. The Central Banks and Supervisors Network for Greening the Financial System has established a workstream on 'bridging the data gaps'. It aims to identify a list of data items at the macro, micro and market level that are currently lacking but needed by authorities, financial institutions and investors to assess climate-related risks and opportunities.

This report highlights the challenges surrounding data. These include differing data objectives among stakeholders; issues about disclosure, materiality and taxonomies; the difficulties of integrating climate risks into supervisory and regulatory policies; and development of technical capacity in the area. It aptly identifies technological innovation for data collection, analysis and storage. We look forward to continuing to engage with OMFIF to address the important issue of sustainable finance data.

**Fabio Natalucci is Deputy Director of the Monetary and Capital Markets Department at the International Monetary Fund. Patrick Amis is Director General in the Directorate General Microprudential Supervision III at the European Central Bank.**

## SUSTAINABILITY: THE NEXT FRONTIER

SUSTAINABILITY is no longer a question of whether or when, but of how. Policy-makers, regulators and investors are aware of the non-financial risks to assets and the macroeconomy, and of the impact of their own actions on environmental, social and governance issues. Previous OMFIF research and conversations with our membership community have highlighted that data are the next frontier in terms of sustainability-related regulation, supervision and investment.

Investors, regulators and policy-makers need to know what constitutes material information, and what data are already available, to answer that question as well as what data still need to be collected. They need to know how information is collected and standardised across sectors, asset classes and geographies. Once they have the data, they need to know how best to incorporate them into models and scenarios so they can be used to make decisions.

We are very proud of our partnership with Refinitiv in the publication of this report where we set out to answer these questions, building on our joint efforts under the Future of Sustainable Data Alliance. We are also grateful to the policy-makers, regulators, academics and participants in financial markets who contributed to this report. It is a timely exercise. The frequency of climate-related disasters shows that this is no longer a remote risk but a matter for urgent action. Covid-19 has highlighted the systemic threat from non-financial sources of risk. On a positive note, rapid developments in data capture, storage and analytics technologies make it easier to measure the non-financial performance of investment portfolios.

This report coincides with the launch of OMFIF's Sustainable Policy Institute. We look forward to advancing the dialogue as part of the Institute's programme of roundtable discussions, workshops and analysis throughout the year, bringing together the public and private sector.

**Danae Kyriakopoulou is Chief Economist and Director of Research at OMFIF.**

## PRESSURE TO IDENTIFY PRIORITIES

AS the world continues to assess the impact of Covid-19, the pressure to prioritise sustainability in financial markets remains paramount. Central banks are critical stakeholders in planning and implementing a path to a more positive environmental, social and governance-based global financial system. It is only through understanding the priorities and perspectives of a variety of players that we can move forward effectively. These priorities and perspectives require clear definitions to ensure a common understanding across a complex network. To agree clear definitions, data plays an essential role in the success of a sustainable finance strategy. This report has mined the expertise of market participants to improve our understanding of the role that data play in regulation, reserve management, supervision and investment. The respondents are from all over the world and, thanks to OMFIF's unique position in the market, have openly addressed pressing issues such as data gaps, materiality, standards, taxonomies, policy-setting and monitoring. To deploy capital sustainably, we need a wide range of data. This includes disclosure data from issuers from all industry verticals and geographical locations. It must include alternative data sets that belong to no single firm but which add insight through a regional, industry, impact type or other lens. Binary, qualitative, derived and estimated data provide regulators and investors insight on the deployment of capital's impact, risk and opportunity.

We are on a rapidly evolving journey where data's contribution to sustainability is critical. On that journey central banks from around the world will continue to engage in not only the climate change aspects of sustainability, but social and governance factors as well. As we move forward as a global community, the need for mutual understanding and cross-border harmonisation becomes ever more important. It is evident that there is a need to arrive at a place where ESG and alternative data is coherent, comprehensive and comparable. The findings in this report are a milestone in the journey to a sustainable financial system.

**Sherry Madera, CFA, is Chief Industry and Government Affairs Officer at Refinitiv.**

EXECUTIVE SUMMARY

# REALIGNMENT OF FINANCIAL MARKETS TOWARDS SUSTAINABLE DEVELOPMENT

THE move towards sustainability is accelerating even as the global economy grapples with the consequences of Covid-19. Socioeconomic resilience in the face of risks such as the pandemic and climate change is moving to the forefront of agendas across the financial sector. Stakeholders are unanimous in the belief that clear and consistent Environmental, Social and Governance data will be critical to realign the financial markets towards sustainable development and help achieve the Sustainable Development Goals. While significant progress in disclosure of information in relation to environmental and societal impacts has occurred over the past decade, this field is still young with unrealised potential. Complementary advances in data capture, sharing and storage technologies, as well as in data analytics, are paving the way for understanding and extracting information for decision-making on non-financial issues. Central banks, supervisors and private firms are also engaging in deeper levels of collaboration to develop common disclosure standards and governance frameworks surrounding non-financial data via platforms such as the Central Banks and Supervisors Network for Greening the Financial System.

Developing a reliable and equitable financial market will require regulators, supervisors, standard-setters and investors to answer key questions around materiality, data transparency and technical capacity-building. These actors are expanding their focus to the issue of data gaps. This report's findings bring together diverse, and at times, contrasting opinions from public and private stakeholders to illustrate the main areas that need to be developed to advance the use of sustainable data in the financial community.

# KEY REPORT FINDINGS:

## THE ROLE OF CENTRAL BANKS IN THE SUSTAINABLE DATA ECOSYSTEM

- Central banks are critical stakeholders in the success of a sustainable financial system as both supervisors and reserve managers.
- Controversy over policy creep is receding as central banks converge over climate change as a long-term risk to their macroeconomic responsibilities.
- Capacity-building between central bank networks such as the NGFS and other public investors is needed to accelerate the global pivot to sustainable regulation.
- While international platforms are building technical expertise among the community of banks and supervisors, there are also risks of regulatory arbitrage in ESG.
- Conflicting views over materiality exist in the areas of regulatory approach (principles vs. rules-based) and intention (stakeholder vs. financial orientation).
- Central banks must play a role in designing feedback processes for understanding materiality and data standards to promote consistency of reporting and benchmarking.

## ESTABLISHMENT AND DIFFUSION OF GREEN TAXONOMIES

- Sustainable Taxonomies are a growing tool for green supervision - but globally agreed taxonomies do not currently exist.
- Many see the EU Sustainable Taxonomy as best practice, serving as an important 'first-mover' framework that will inform similar initiatives in developing markets.
- Europe and Asia-based financial regulators lead in taxonomy development.

## MOVING BEYOND DISCLOSURES TO FILL DATA GAPS

- In the absence of mandatory regulation or stringent monitoring, self-reported ESG data and disclosures may lack sufficient detail: this is a matter of regulatory concern if the true level of risk faced by companies is obscured.
- Regulatory perspectives are mixed on whether to adapt ESG benchmarks and regulatory requirements to local economic contexts or to maintain a consistent international standard.
- Disclosures are not a panacea for ESG data gaps. In the absence of robust regulation to improve consistency, coverage and third-party verification, there is a risk companies will engage in greenwashing.
- Covid-19 will highlight other ESG risks and increase focus on data requirements. There is a need for a broad picture of ESG risks and opportunities and the datasets required.

## DATA REQUIREMENTS FOR SUPERVISION

- Regulators see increased dialogue between users and data-providers as a pathway to better quality data and decision making.
- Climate issues have highlighted technical gaps in the practical usage of non-financial data
- Binary data on climate risks impose limitations in applying these data to financial and macroeconomic modelling.
- Forward-looking data are required alongside retrospective disclosure data since the magnitude of systemic risks remains uncertain.
- Multi-disciplinary talent within organisations is required for financial institutions and supervisors to evaluate and use different ESG datasets. A shortage of talent in this area is a global risk.
- Advanced data analytics and innovation can only be useful if built on fundamental, robust and trustworthy raw data sets.
- A repository of comparable financial and non-financial ESG information – raw, but standardised - is seen as an important next step.

## PROMISE AND LIMITATIONS OF NEW TECHNOLOGIES

- Technologies such as cloud computing, drone and satellite imagery and machine learning are increasing capabilities in data collection and analytics.
- Combining spatial data with other existing datasets could enable more intuitive and easily accessible use of these data by general financial professionals.
- Granular tracking through technology has improved, but regulators and investors struggle to determine precise attribution e.g. via Scope 3 emissions along global value chains.
- Risk of ESG benchmark biases through gaps in data coverage filled by estimates in both mature and emerging markets.

## NEED TO THINK BEYOND CLIMATE CHANGE

- Investors are conscious of tailoring data needs to specific asset classes and their risk assessments.
- New data demands are emerging in the wake of the Covid-19 pandemic; regulatory and industry emphasis has rebalanced away from principally environmental issues to a more holistic focus across the three ESG pillars.
- Data measuring companies' risk management systems and governance structures will be increasingly demanded to assess financial performance and business resilience.
- The integration of other environmental metrics such as biodiversity, chemical pollution, ocean sustainability and water will require more varied, frequent and extensive data collection and technical expertise.
- Data on biodiversity loss and nature-based solutions are set to become a new frontier for climate-conscious regulators and investors and will be a critical support for the Task Force for Nature-related Financial Disclosures as it coalesces. ■

CHAPTER 1:

# THE ROLE OF CENTRAL BANKS AND SUPERVISORS IN SUSTAINABILITY

**Sustainability influences central banks' core functions of policy, regulation and supervision, and reserves management. But building a sustainable data system cannot be done unilaterally by central banks and supervisors; instead, it requires the co-operation of international organisations and institutional investors.**

CLIMATE risk is no longer a peripheral matter for central banks and supervisors. Their mandates focus on clear goals such as price and financial stability and the long-term management of foreign exchange reserves. Mark Carney, the former Bank of England Governor, highlighted in 2015 climate change as the impending 'tragedy of the horizon'. In the same year, the Financial Stability Board recognised climate change as a risk to financial stability in setting up the Task Force for Climate-Related Financial Disclosures. Central Banks and Supervisors set up the Network for Greening the Financial System in December 2017, acknowledging that 'climate-related risks are a source of financial risk'.

Long-term climate and environmental risks that were once seen as tragedies on the horizon are now considered imminent and relevant to the three primary central bank functions of policy, regulation/supervision, and reserves management. The Covid-19 pandemic and long-term plans for economic recovery further confirm the importance of central bank intervention in the global economic order. Thanks to unprecedented fiscal and monetary stimulus, jurisdictions such as Canada and the EU have been able to advance sustainability agendas by attaching green strings to public investments.

One example of how surging public investment could facilitate a 'green recovery' is the EU's €750 billion Covid-19 recovery instrument, dubbed 'Next Generation EU' (NGEU). EU policy-makers agreed in July 2020 to authorise the European Commission to borrow on capital markets to fund the recovery. The NGEU will supplement existing EU budgets to support financially member countries whose economies are most affected by the Coronavirus outbreak. In particular, the EU recovery plan commits 30% of funds to climate-friendly projects aligned with the Paris Agreement as well as requiring all expenditure to adhere to the 'do no harm' principle stipulated in the European Green Deal's objective to make Europe carbon-neutral by 2050. Sustainability has been put at the heart of the EU's economic recovery plans.

## BEYOND CLIMATE CHANGE

Of the various environmental issues, central banks have initially focused on climate risk identifying sources of price and financial volatility such as physical risks (which are related to the greater frequency of climate-induced damage) and transition risks (which are linked to the abrupt imposition of new climate-mitigation regulations, disruptive technologies or business models). Biodiversity loss, social inequality, economic resilience, water and public health are rapidly starting to get increasing focus as the links between them have been starkly highlighted by the Covid crisis. Theodora Antonakaki, the Bank of Greece's Climate and Sustainability Advisor who was interviewed as part of our research said, 'The pandemic has highlighted the need for a holistic approach as now we can see more and more how everything is interconnected. We need to see for example biodiversity and peoples' health as part of the same system and not on their own, as part of the One Health approach'. This aligns with statements by other central bankers such as the Monetary Authority of Singapore's Deputy Managing Director Jacqueline Loh highlighting that the pandemic provides a prime opportunity for countries to 'build back better'. She argued that 'it is

important now, more than ever, that countries not only rebuild their economies and preserve jobs, but also in the process, intentionally build a more sustainable new economy'. The EU's Biodiversity Strategy for 2030 aims to do exactly that: provide a long-term plan for protecting nature and build societies' post-Covid resilience.

## POLICY CREEP AND LINKS TO MANDATE

When central banks and supervisors have used the prudential tools and financial resources at their disposal for climate risk management, they have historically been accused of policy creep. Central bank action is often committed, either legally or informally, to doctrines of market neutrality and independence to avoid distortions in credit allocation. However, some critics argue that climate-related objectives could override these traditional functions and interfere with legal or fiduciary responsibilities. In response to such criticism, the PRI, UNEP FI and other UN partners set up the 'Fiduciary Duty in the 21st Century programme' in 2014, to provide evidence against 'the misinterpretation of fiduciary duties as the primary barrier to ESG incorporation in investment practice'.

In the UK, EU and Canada pension fund trustees consider environmental and societal elements as part of their fiduciary duties. This reluctance to incorporate climate and other ESG risks continues in many jurisdictions, even among other types of institutional investors. For instance, in June, the US Department of Labour outlined new regulations proposing to restrict private pension plans from 'subordinating the interests' of their beneficiaries to 'non-pecuniary goals' such as ESG and conduct their investments 'based solely on financial considerations'. Major asset managers and data providers such as State Street, Nuveen and Refinitiv have challenged these proposals, contending that ESG objectives align squarely with long-term, value-driven investment.

Yet recent shocks – such as chronic supply-chain disruptions due to seasonal drought in Germany, acute economic hits as a result of wildfires in Australia and the Covid-19 pandemic – have undeniable effects on financial supervision and monetary policy-making. Macroeconomic concerns such as national inflation targets, unemployment and macroprudential stability, are impacted by climate change, bringing sustainability into a Central Banker's mandate. One central bank said, 'We do not see the need for an explicit central bank climate risk mandate as our main aim is to integrate climate risk in our analysis as the basis for monetary policy decisions'. The Reserve Bank of Australia published a special section in its monetary policy statement in February looking at the macroeconomic effects of the drought and bushfires, which range from destruction of real estate, infrastructure and natural capital to disruption of economic activity such as trade and tourism, as well as longer-term impacts on insurance premia. Industry players are similarly seeing the importance of ensuring broader awareness and technical competencies in non-financial issues across their organisations. Frances Barney, the head of Global Risk Solutions at the Bank of New York Mellon shared that 'many organisations start with a specialist individual or team who is responsible for ESG investment topics, but the trend we see now is to embed that responsibility more broadly across the firm.'

As the policy and business case for broader action on climate change grows, recent evidence from central banks and ESG research confirms that there are systemic macroeconomic benefits related to greater adoption of ESG disclosure and focus at the microeconomic and firm level. Research by Oxford University academic Ben Caldecott and others found statistically significant associations with micro-level ESG measures and national economic performance as measured by GDP per capita. Notably, this research also found that firm-level environmental and governance measures had significant effects on macroeconomic performance in developing countries. Similarly, recent Bank of England research found that promoting green mortgages – by linking the cost of borrowing to energy-efficient properties – may help reduce systemic financial risks. As such empirical research accumulates, central banks have more opportunity and rationale to emphasise green policies given the erosion of the barriers between abstract macroeconomic policies and company-level regulation. For instance, one of the conclusions drawn from the Dutch central bank's initial energy transition risk stress tests in 2018 assessing the resilience of banks, insurers and pension funds was that more industry-specific data could improve the 'the microeconomic foundations of the stress test' for different risk scenarios to then aggregate to a macroeconomic impact on the Netherlands' financial system.

The debate over the roles of central banks is no longer a binary matter of whether or not to integrate

## SVERIGES RIKSBANK

**Initiative:** Divestments from forex portfolio of carbon-intensive bonds.
**Function:** Reserves management. **Date:** 2019

The Riksbank's new financial risk and investment framework permits consideration of sustainability in its foreign currency reserves as long as they fulfil its other legal requirements.

## BANQUE DE FRANCE

**Initiative:** Climate stress tests and Responsible Investment Charter. **Function:** Supervision and Reserves Management. **Date:** 2020 and 2018 respectively

Climate stress tests are mandated by Article 173 of France's Energy Transition Law passed in 2015.

## DE NEDERLANDSCHE BANK

**Initiative:** UN PRI Signatory. **Function:** Reserves management. **Date:** 2019

DNB's commitment to the PRI encompasses its own portfolios and foreign exchange reserves.

## BANCA D'ITALIA

**Initiative:** ESG Criteria in Investment Policy and Equity Portfolios. **Function:** Reserves Management. **Date:** 2019

Criteria screen equities that operate in non-compliant sectors and favour those with higher ESG score.

## MAGYAR NEMZETI BANK

**Initiative:** Dedicated green bond portfolio. **Function:** Reserves Management. **Date:** 2019

MNB uses standards from the Green Bond Principles and the Bloomberg labelling system as a starting point to evaluate green bonds.

## PEOPLE'S BANK OF CHINA

**Initiative:** Macroprudential incentives for increasing green credit and deposits. Consultations to develop a unified green taxonomy alongside the NDRC and CSRC. **Function:** Supervision . **Date:** 2017 and 2020 respectively

Commercial banks can accumulate green 'points' that favourably impact prudential risk assessments. The Green Bond Endorsed Project Catalogue was developed in 2015, and the Green Industry Guiding Catalogue was formed in 2019. The PBoC and NDRC are planning to merge their two taxonomic frameworks since May 2020.

## MONETARY AUTHORITY OF SINGAPORE

**Initiative:** Incentives to support development of green bond market and consultations on industry guidelines for environmental risk management. **Function:** Supervision. **Date:** 2017 and 2020 respectively

In November 2019, the MAS announced a comprehensive and long-term Green Finance Action Plan to integrate sustainable finance capabilities across Singapore's financial ecosystem. In June 2020, the MAS issued three consultation papers outlining its proposed guidelines on environmental risk management for financial institutions.

## BANK OF ENGLAND

**Initiative:** Climate stress tests. **Function:** Supervision. **Date:** 2021

The biennial exploratory scenario tests were originally slated to be conducted in 2020 and postponed to 2021 in the light of the pandemic.

## BANK NEGARA MALAYSIA

**Initiative:** Principles-based climate taxonomy. **Function:** Taxonomy. **Date:** Under Development

The initial discussion paper for the taxonomy was published in December 2019, with feedback and industry engagement occurring until July 2020. A revised document, including an enhanced classification system and scope of application, as well as additional guidance for implementation, will be published in early 2021.

## US FEDERAL RESERVE

**Initiative:** Joining the NGFS. **Function:** Supervision. **Date:** Under Consideration

The USA has lagged behind other economies in Europe and Asia in implementing sustainable financial regulation. However, in January 2020, Fed Chair Jerome Powell openly shared that the Federal Reserve would likely soon join the NGFS.

## EUROPEAN CENTRAL BANK

**Initiative:** Applying green criteria and objectives to its €2.8tn asset purchase programme. **Function:** Asset Purchase Programme. **Date:** Under Consideration

In July 2020, ECB President Christine Lagarde confirmed that the ECB is reviewing methods to incorporate climate considerations in its policy operations as part of its strategic review.

**1. Central banks and supervisors scale up sustainability action**

Key sustainability policies by selected institutions

Source: OMFIF analysis

Key:
- **In place**
- **Forthcoming**
- **Under discussion/ awaiting approval**

climate-related issues. As one central bank respondent said, 'We work within our mandate. We can include climate risk, whether it is in financial stability or monetary policy, even if it is not explicitly in the mandate. Nonetheless, we must include all risks, and that, of course, includes climate risk'. However, the same central bank admitted that progress on integrating sustainability into regulation was uneven across different policy focus areas. 'We have a long way to go before [climate] can be more explicitly taken into account. Of course, it is accounted for on the risk side, but we need more on the financial stability aspect. We also have come less far on the monetary policy side.'

## FROM RECOGNITION TO ACTION

Some central banks are taking, or planning to take, deliberate action by integrating climate risks into their supervisory, policy and reserves management practices (Figure 1). The Bank of England, Banque de France and De Nederlandsche Bank are either conducting – or are in the process of implementing – climate-aligned stress tests for banks and insurers. The intent of such stress tests is primarily focused on reducing systemic vulnerabilities to the physical, transition and liability risks that will emerge due to climate changes.

Central banks are also indirectly promoting sustainability by setting expectations and regulations on non-financial corporate disclosures and risk management. The People's Bank of China has cooperated with multiple Chinese government agencies since 2016, setting out a process for gradually mandating corporate ESG reporting among publicly listed firms. The PBoC has taken into account green considerations for its own prudential processes, while its macroprudential assessments for regulated financial institutions consider the proportion of green assets and securities on their balance sheets.

A much wider approach to accelerate the pivot from recognition to action has also been the development of complementary regulatory infrastructures such as green investment classification systems or taxonomies. Green taxonomies can facilitate more consistent and targeted green finance policies and investment across the spectrum of financial actors. While the responsibility for implementing new financial regulations and sustainability standards is often shared among multiple institutions, some central banks see a compelling rationale to be more deeply engaged in taxonomic development due to its far-reaching effects on green finance among multiple stakeholders. For instance, Bank Negara Malaysia expressed a desire to play a market-shaping role in sustainability. 'We want to make sure that the taxonomy is introduced in a manner that encourages positive behaviours such as the flows of funds to green initiatives. We are also mindful of the needs of our community and of SMEs. So, in transitioning some businesses, we also want to play the role of introducing and also nudging companies to adopt more sustainable practices.'

Others are implementing more internally-oriented measures via their reserves portfolios and investment policies. In November 2019, Sveriges Riksbank divested regional debt originating from Australia and Canada citing the high carbon footprint of these regions. Some central banks have even institutionalised responsible investment charters and ESG mandates. De Nederlandsche Bank, Banque de France and, more recently, the Banca d'Italia have all adopted formal commitments to conduct or outsource investment activities aligned with ESG criteria and standards such as the UN Global Compact and UN Principles for Responsible Investment.

Whatever method institutions choose, the specific decisions and standards which various central banks adopt for climate risk management and other sustainability areas will set precedents and send signals to the financial markets. Building upon their previous work on integrating social issues through values-based intermediation and Islamic finance, the Bank Negara Malaysia said, 'Currently, engagement is very intensified, we are getting all our banks to use a common language and act on their own initiative to see how they can emulate best practices in day-to-day decision-making. All these expectations are already being laid out. This will serve as the starting point for us to take this one step further in the area coming out with more granular sectoral guides and also to come out with risk management practices encompassing climate risk management and also ESG'.

Despite these actions, there is still occasionally a gap between public pressure and activists' demands and the pace at which regulators and governments are responding. In June 2020, a 23-year-old student filed a class action against the Australian Government, arguing that the Office of Financial Management and Treasury had misled sovereign bond investors by failing to disclose climate change-related risks.

## REGULATORY ARBITRAGE AND COMMON APPROACHES

Due to the global nature of capital markets, cross-border transactions and multinational supply chains, many central banks and supervisors recognise that building a non-financial data system cannot be done unilaterally. Important distinctions are emerging regarding central banks' data requirements, and how they can use such data to engage with companies in their capacities as supervisors and reserves managers. The UN is therefore well placed to kick-off a wide stakeholder consultation process for a Global Environmental Data Strategy.

Uncoordinated approaches to ESG disclosure standards, regulatory expectations and measurement all carry the risk of regulatory arbitrage. Given the international flow of capital, ambitious action on global issues such as climate change in a single jurisdiction could lead to counterproductive policies by others; this in turn could mean that investment flows to the less stringent jurisdictions, negating any progress on sustainability issues.

Variations and fragmentation in

'Right now we're in a phase of "Let a thousand flowers bloom" with every regulator, with every supervisor doing their own thing... It could become enormously costly and potentially counterproductive if we continue with this lack of coordination in terms of what the private sector is asked to do. This underscores the need for a common language and consistent approaches'.

**Isabelle Mateos y Lago, Blackrock**

regulatory action also frustrate the efforts of private-sector financial institutions to innovate and meet sustainability compliance across jurisdictions. Isabelle Mateos y Lago, Blackrock's deputy head of official institutions, shared, 'Right now we're in a phase of "Let a thousand flowers bloom" with every regulator, with every supervisor doing their own thing... It could become enormously costly and potentially counterproductive if we continue with this lack of coordination in terms of what the private sector is asked to do. This underscores the need for a common language and consistent approaches'. Among those, the EU's sustainable finance action plan is recognised as a clear path-breaker among experts consulted as part of our research. This involves the setting up of the EU taxonomy regulation, aimed at establishing a framework to facilitate sustainable investment through defining environmental objectives and linking these to a classification of different economic activities.

Although many central banks see carbon-pricing regimes, such as a border or global carbon tax, as an ideal policy solution to internalise climate externalities, developing these regimes robustly might be politically unfeasible or take time to standardise. Second-best solutions in central bank intervention via prudential regulations such as disclosures and ESG risk management are often seen as necessary medium-term transitional measures.

As complete global alignment on climate-aligned regulation in the immediate future appears unlikely, some jurisdictions are considering policies that could fulfil domestic climate objectives, while incentivising external partners to also adopt greener economic activities. As part of the European Commission's 'new green deal', the concept of an EU carbon border tax has been proposed, seeking to impose an import tariff for the greenhouse gas emissions produced abroad. While this policy could provide international firms trading with the EU with a financial incentive to adopt more energy-efficient production methods, a carbon border tax could also prove politically inflammatory, as other economies may perceive border-based carbon taxes as instances of 'climate protectionism'.

On the other hand, inconsistent local approaches to defining green finance could also open up other avenues of regulatory arbitrage such as the risk of private-sector greenwashing. Multiple regulatory regimes setting green standards, combined with non-exclusive jurisdictions can also create governance gaps that could be exploited by green bond issuers in a race to the bottom. Until this year, for instance, China's green bond guidelines differed markedly from other international standards by allowing 'clean coal' as an acceptable use case for proceeds.

## UNDERSTANDING MATERIALITY AND IMPACT

For most institutions we spoke to, focus on ESG factors aligns with bottom-line risk management and what impact non-financial factors have on corporate performance. Satoshi Ikeda elaborated, 'It is important to distinguish what is the purpose of particular data. Data requirements may converge, but not always. Supervisors tend to be conservative and focus on minimising insolvency risk in supervised institutions. Data focused on downside risk are much more relevant in understanding the impact of ESG issues to cashflows'

Important distinctions are emerging in what data are required, and how to engage constructively with companies. Proactive objectives such as advancing the UN sustainable development goals and expanding long-term financial resilience will diverge from a risk-based perspective. Enrico Bernardini, an equity portfolio analyst from the Banca d'Italia's asset management division said, 'Some investors misunderstand the purpose of the ESG data and scores. For instance, in some cases, organisations use data only for risk management, while ESG scores take into account both risks and opportunities'.

In order to expand data demand and availability, it is important to take both the top-line and bottom-line perspectives into consideration. Todd Cort of the Yale Centre for Business and the Environment commented, 'Impact investors, or anyone interested in achieving the SDGs, would be looking for output or outcome data that measure the actual impact on the ground. We don't have a lot of that data. A shareholder that is doing ESG integration would be interested in the risk associated with ESG data on the financial performance of their portfolio'.

To make the transition from a narrow risk-based approach only considering financial analysis to a more robust and data-rich approach, it is important to agree what information has a material impact on financial performance. A crucial question is who decides which metrics are material for financial regulators to monitor and for companies to report. To reach an agreement on materiality, there will have to be an alignment of different approaches, whether principles-based soft laws or rules-based hard laws, via multi-country legislation such as the transposition

# OVERVIEW OF EXISTING INITIATIVES

SEVERAL international organisations are advocating responsible and sustainable investment activities at an industry level. These include: the United Nations Principles for Responsible Investment (PRI); the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD); the Central banks and Supervisors Network for Greening the Financial System (NGFS); the EU-led Ministers of Finance group; the International Platform for Sustainable Finance and more recently, the Sustainable Finance Network of the International Organization of Securities Commissions (IOSCO). The aim is to provide guidance and principles-based governance rather than to set strict, universal standards. The TCFD is considered an important framework, informing comparable and consistent corporate disclosures for climate risk. There are a number of disclosure reporting schemes, with the most widely used being the Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), and Carbon Disclosure Project (CDP) ; together these cover the majority of the TCFD's 50 illustrative climate-related metrics (Figure 2).

Nonetheless, differing reporting frameworks invariably result in ratings and companies struggling to engage with multiple surveys and datasets, adding to time burden and cost expenses. While the TCFD, which was originally developed in 2015, has consciously aligned itself with preceding reporting frameworks, there is a need for greater alignment of sustainability reporting schemes, especially those related to issues beyond climate change such as gender diversity, labour standards, corruption and cross-border supply chain risks.

As Satoshi Ikeda of the Japan FSA said, 'Depending on the purpose, the required data will be different. If everyone agrees on materiality, then it will be easy. However, this consensus is only more likely in certain themes e.g. climate change with Scope I, II, III emissions. In other areas, it's harder to say that one standard dataset is critical in assessing the ESG performance of companies'. In the absence of a universally applicable dataset, supervisors and regulators must be able to competently supplement quantitative analysis with qualitative scenario analyses on material risk assessments of financial institutions. However, there are often trade-offs between the ease of use of various sustainability reporting regimes and the level of detail of their reported metrics. Some, such as the GRI, have very broad reporting frameworks with more than 100 information fields. Others, such as the SASB, have between two and 10 ESG metrics for each industry and so are potentially too narrow in scope. There is little agreement on how to assess the ESG performance of large companies with diversified revenue streams because it is difficult to pinpoint precisely which ESG issues should qualify as material risk. These differences arise from divergent philosophies to materiality. SASB is investor-oriented and intended to capture factors that could affect a firm's financial performance, risk and operating condition while the GRI uses stakeholder-oriented factors affecting the economic, social and environmental impact of a company. Meanwhile, the EU's Sustainable Finance Disclosure Regime which outlines mandatory disclosures will go into effect in Q1 2021. Nonetheless alignment between major reporting frameworks is gradually occurring. For instance, in July 2020, both the GRI and SASB announced a collaborative work plan to outline the intersections and gaps between the two regimes.


**2. The TCFD and alignment with major reporting frameworks**

Source: Refinitiv

of EU directives or international platforms for financial regulators such as the NGFS and IOSCO (see Figure 3 opposite). Within the EU, the non-financial reporting directive first introduced in 2014 has established influential minimum disclosure requirements for firms operating in the EU. The NFRD has progressively developed since in content and scope via periodic reviews and consultation processes. Since 2018, large, publicly-listed companies, banks and insurers have been mandated to publicly report information across several ESG areas, with the European Commission launching the latest review of the scheme in February 2020. Commenting on the continued development of the NFRD, Enrico Bernardini from the Banca D'Italia shared that 'the regulatory review of non-financial disclosures at the EU level, considering making them mandatory and expanding coverage to more companies, is welcome'.

Disclosure frameworks vary in terms of their approach to what constitutes material ESG information: some favour financial materiality criteria (what matters to investors, e.g. SASB) while others support stakeholder materiality (what matters to society more broadly, e.g. GRI). Keith Lee, vice-president at the Asia Sustainable Finance Initiative said, 'It certainly doesn't help that there's a large number of disclosure frameworks and surveys out there. That also contributes to companies' issues with disclosing by virtue of not really being sure which disclosure frameworks to follow, and what are the differences between them. The different disclosure frameworks, namely GRI and SASB being some of the bigger ones, take quite different approaches to materiality as well'. While the CDP is a good example of detailed guidance to greenhouse gas emissions, land use and water quality, there is a lack for equivalent reporting frameworks for social factors. Although a number of dominant disclosure frameworks are gradually converging, an 'ESG questionnaire industry' has emerged to address the lack of common standards. While this has helped satiate market demand for more specific, granular corporate information, companies themselves are increasingly subject to reporting burdens and overwhelming 'survey fatigue'.

In practice, international work on materiality seeks a balance between a principles-based framework (that gives companies more freedom) and a rules-based framework (that requires more direction by the supervisor) in order to take account of different firms' complexities and particularities, while enabling comparability.

But opinions are mixed regarding the required balance of influence between regulators and market participants in the materiality process. Some say the regulators should make the most of the innovation and creativity of companies and other stakeholders in the private sector to advance sustainability. A central bank official said, 'It's important to see how the markets are responding because in a way they are ahead in how they're using and incorporating - or not - ESG data and criteria'. Others, especially those in emerging markets, say that principles-based approaches may offer policy flexibility as both regulators and financial institutions seek a practical balance between growth and sustainable adaptation. For instance, the Bank Negara Malaysia said, 'Taking a principles-based approach, the whole idea is basically to incentivise financial institutions and also businesses to actually transition in a manner that is practical for the economy as a whole'.

## STREAMLINING DATA STANDARDS FOR COLLECTION AND USE

Historically, the lack of regulatory focus on non-financial data has led to the intrinsic lack of non-financial data in the larger ecosystem. As demand for non-financial data has soared, some market respondents have responded by catering to this demand and creating questionnaires that they ask a company directly. Some ESG ratings are constructed with such information as a base to help companies understand ESG risk and opportunity. Some providers, like Refinitiv, take in raw publicly available data, standardise and aggregate them to allow for direct comparability and provide a score to help with guidance. As the financial industry has matured in ESG expertise, private-sector participants are increasingly keen to access and use raw data points. Crystal Wan, director at Blackrock's Official Institutions Group said 'What we find is that using the raw data, the disclosures from companies, is almost more useful sometimes, than just taking the face value of any one rating, or any one score that is provided in the ready-wrapped format'.

When establishing data requirements, it is important to consider the long-term effects from systemic sustainability risks, and the fast-changing nature of technologies and businesses. For instance, Isabelle Mateos y Lago acknowledged the inherent difficulties in quantifying existential climate risks. 'At the end of the day, you can't reduce everything to data. But ultimately what we're dealing with here is a shift, especially with climate. It is very different from most of the risks out there. We know that it is going to happen, what we don't know is exactly at what speed or the great deal of impact it will have.'

In some cases, the top-down approach may be more appropriate, especially when private-sector incentive structures for sustainability are lacking or misaligned. The Banca d'Italia's Enrico Benardini noted that central bank and supervisor-led action was an important foundation for 'standardisation in both the assessment and disclosure fields'. In his opinion, it is essential to overcome the inconsistencies underlying the dispersion of ESG scores via regulatory guidance and signposting as the 'dispersion of ESG scores could lead investors to set up their own materiality metrics via granular data from providers to get their own ESG scores'. In the absence of stringent top-down monitoring and regulation, self-reported ESG data and disclosures could obscure the true level of risk faced by companies

### 3. Multi-source landscape for ESG data

Key sources of ESG data for regulators and investors

| Source | Format | Type | Primary/ Secondary data | Availability | Example |
|---|---|---|---|---|---|
| Corporates | Sustainability Disclosures | Qualitative/Quantitative | Primary | Public | Annual Sustainability Reports |
| Corporates | Surveys | Qualitative | Secondary | Proprietary | RepRisk |
| Government | Statistics | Quantitative | Secondary | Public | World Bank Sovereign ESG Data Platform |
| NGOs | Statistics | Quantitative | Primary/Secondary | Public | IUCN Database on List of Endangered Species, |
| NGOs & Corporates | Geospatial | Quantitative | Raw - primary | Proprietary | Satelligence |
| Corporates, Financial Institutions | Aggregating publicly-available data sources to make available to users in a systematic manner | Qualitative/Quantitative | Primary/Secondary | Proprietary | Refinitiv, Bloomberg |

Source: OMFIF analysis (This is a broad categorisation; there may be exceptions)

and risk greenwashing. Wang Yao, the director general of the International Institute of Green Finance, expanded noting, 'companies will tend to only disclose information good for them. So that's why the regulators should monitor environmental information disclosures'.

Similarly, Keith Lee said, 'Companies want to make sure that everything is perfect on their end before wanting to disclose it, for fear of the kinds of issues, reputational or other kinds of risks that they get exposed to if they start talking more openly about some of these ESG issues'. In such environments, Satoshi Ikeda said, 'From a capital market regulator's perspective, agencies can also lead the way in intentionally putting in place mechanisms for incentivising disclosures'. Regulatory involvement in promoting the correct attitude for using non-financial data is seen as critical by other respondents in Asia Pacific. Keith Lee saw reporting guidelines as a good step, whereas others warned against a 'box-checking approach', saying that, 'Any kinds of regulatory initiatives with a compliance angle could unfortunately indirectly promote that approach to box-checking. There's a need to complement that with helping investors understand the business case for ESG'.

Although regulators from emerging markets are primarily concerned with the suitability and popularisation of unfamiliar standards for non-financial data and disclosure in their economies, developed market regulators face the challenge of establishing consensus on existing standards and environmental policies. For instance, despite the overarching guidance provided by EU-level regulations such as the NFRD, Aurel Schubert, director general of statistics at the ECB from 2010-18, shared his view that 'the challenge within the Eurosystem is always to get an agreement and get common [data] systems between all the 19 central banks'. In response to similar views, the NFRD is being reviewed.

## SHARING BEST PRACTICE AMONG PUBLIC INVESTORS

In their capacity as managers of their own portfolios and reserves, central banks can learn from other public investment institutions with similar characteristics and mandates such as sovereign and public pension funds. This will also be an important way for them to clarify the structure, incentives and data for sustainable finance. One respondent said that public investment entities such as sovereign and pension funds were relatively more sophisticated in 'Fully and comprehensively incorporating [sustainability] into their investment actions'. In contrast, this was 'at the beginning related to the more traditional central bank areas'.

As central banks and supervisors in economies such as Australia and Canada begin to consider how to develop climate stress tests tailored to their individual contexts, cross-border learning from central banks already acting as what Paul Langley and John Morris dub 'climate governors of last resort' will be essential. NGFS membership runs across the spectrum from activist central banks willing to consider playing a leading role in climate change governance, to those which are cautiously monitoring and evaluating policy developments and innovations. Yet international capacity-building platforms such as the NGFS can develop the potential of

'In terms of disclosures, we should really be careful and keep a proportionate approach. You cannot impose the same constraints on all the different players, depending on their size and their impact on the economy.'

**Bertille Delaveau, Banque de France**

less-advanced 'follower' central banks by harnessing the policy expertise and resources from leaders such as by the Banque de France, Bank of England and ECB.

Learning can be mutual. Central banks and supervisors can set the baseline standards for institutional investors and resolve blind spots in disclosure regimes across different asset classes, geographies and firms. Commenting on the state of play in the Asia Pacific region, Keith Lee said, 'Large institutional investors certainly play a big role in terms of building the capacity of companies to improve their disclosures. Where I see the difficulties is potentially that some of these larger investors may not be investing along the entire range of companies. In some of the regional stock exchanges, they are only looking at some bigger companies and not investing in the smaller ones'. Michael Sheren from the Bank of England also saw a greater role for regulatory involvement in clarifying materiality reporting, saying, 'It is important to supervise firms around climate risk by the information we're expecting them to collate and have available in advance of stress tests'.

## DYNAMIC STANDARDS

As technology advances and the nature or levels of systemic risk evolves, it would be unproductive to have a predetermined framework that could become outdated with reality or changing regulatory priorities. Effective materiality standards have to be dynamic and outline a clear process for regularly eliciting feedback from different stakeholders. Satoshi Ikeda expanded on this saying, 'All have a role to play: regulators should set out broad principles of how to assess materiality, but in an orderly environment, the company should set what is material, and that should be reviewed by investors and financial institutions, and then ultimately it should be between company and investment institution in their engagement process.'

When it comes to the level of detail in disclosures, it is important to recognise the differences in the ability of companies to conduct self-reporting on material issues. Bertille Delaveau, head of the sustainable finance division at the Banque de France, acknowledged the need for contextualising disclosure requirements saying, 'In terms of disclosures, we should really be careful and keep a proportionate approach. You cannot impose the same constraints on all the different players, depending on their size and their impact on the economy'.

As 'coalitions of the willing', international financial platforms do not necessarily have the ability to deliver legally binding standards and frameworks for non financial data. Bertille Delaveau expanded, 'It's true that [within the NGFS] membership, we have very diverse situations, with very different countries as members. However, since we are not a standard-setting body, we are just trying to lead the way to show what can be done. It will be up to the standard-setting bodies as they create the concrete regulations'.

Nonetheless, some perspectives also highlight regulatory frustration with the slow progress in delivering targeted international collaboration. A central bank from a developing country said, 'Despite our participation in the NGFS, the G20 sustainable finance study group and other organisations, there was no institutional set-up to bring this discussion to a formal table and to take action and there were many loose ideas'.

This includes issues beyond data collection. While international platforms such as the NGFS are gradually moving towards regulatory convergence whereby non-financial issues should be material, this does not mean that the actual data available on these metrics are standardised, nor are they common across all economic activities. To be valuable, data not only need to be collected and made available, but also presented to supervisors in a useful format. ■

CHAPTER 2:

# DATA REQUIREMENTS FOR SUPERVISION, RESERVES MANAGEMENT AND MONETARY POLICY

**Central banks and investors need to have reliable classification frameworks if they are to talk the same Environmental, Social, Governance (ESG) language. That means ensuring data are standardised and available to all parties.**

AS more central banks incorporate climate stress tests or mandate environmental risk-management and scenario analyses for regulated institutions, issues around data standardisation and availability will need to be addressed.

Before more targeted and ambitious green micro-prudential policies can be implemented, it is important to develop trustworthy classification frameworks which identify sustainable and unsustainable economic activities, allowing regulators and investors to set out specific prudential policies and to carry out asset allocation on a risk-weighted basis.

## GREEN TAXONOMIES TO FACILITATE SUPERVISION

Regulators in several jurisdictions have developed – or are in the process of formulating – taxonomies aligned with climate or broader sustainability objectives (Figure 4). These are classification systems for economic activities defining the degree of alignment with sustainability criteria. In the EU, the Sustainable Finance Taxonomy Framework was formally adopted in June 2020, setting out six environmental objectives: (i) climate change mitigation, (ii) climate change adaptation, (iii) sustainable use and protection of water resources, (iv) transition to a circular economy, (v) pollution prevention and control, and (vi) protection and restoration of biodiversity and ecosystems.

China's regulators have developed two sector-based taxonomic frameworks – the Green Industries Guidance Catalogue and the Green Bond Endorsed Project Catalogue. These are intended to guide policy-makers and bond issuers respectively to prioritise the development of projects that tackle climate change, environmental pollution, resource constraints and ecological degradation in China. According to Ma Jun, special adviser to the PBoC Governor and chair of the NGFS first workstream, 'China is the only large country that has established a green loan statistic system and has been keeping a record of green loan default rates, it has the chance to be the first country to better calibrate the risk weights for green assets.' This is done through the PBoC's 'Plan for Green Finance Performance Evaluation of Banking Depository Financial Institutions', which is based on a set of quantitative and qualitative indicators such as the proportion, share and growth of green finance business and business risk, as well as external evaluation by regulators on the implementation of green finance policies and strategies.

In December 2019, Bank Negara Malaysia announced plans to develop a principles-based green taxonomy to direct capital towards activities with the potential to mitigate climate change. Under the proposed taxonomy, financial institutions regulated by the central bank would have to classify their economic activities based on six different categories; these include activities with climate-mitigation effects, transition-based benefits, and activities which would be prohibited. The central bank sought feedback for these developments in early 2020, and is engaging with banks and insurers to discuss practical methods of adoption.

While the precise goals and environmental objectives of green taxonomies vary across jurisdictions, their creation can promote more informed decisions and increased

financing by identifying specific sustainable investment options for multiple stakeholders in the financial industry. At the same time, the development of major taxonomies can have a wider impact in promoting the adoption of green finance principles among countries and regions that have not yet embraced sustainability on a widespread basis. Policy inspiration and the need for international investors to conform to regulations can potentially drive the spread of taxonomic systems in the USA or developing countries which have yet to develop a comprehensive regulatory regime for green finance. For instance, Rafael del Villar Alrich shared the view that the 'European Union is at the front line of [harmonising definitions of sustainability]. In my sense the liquidity for green investments is also heavily coming from Europe. Going forward the EU Taxonomy will be a fundamental reference point for emerging markets as well'. Most recently, the World Bank has released a guide distilling the core concepts and procedures needed for regulators to develop a green taxonomy, based on its past experience working with governments in developing similar systems in Colombia, Malaysia, Mongolia, and South Africa.

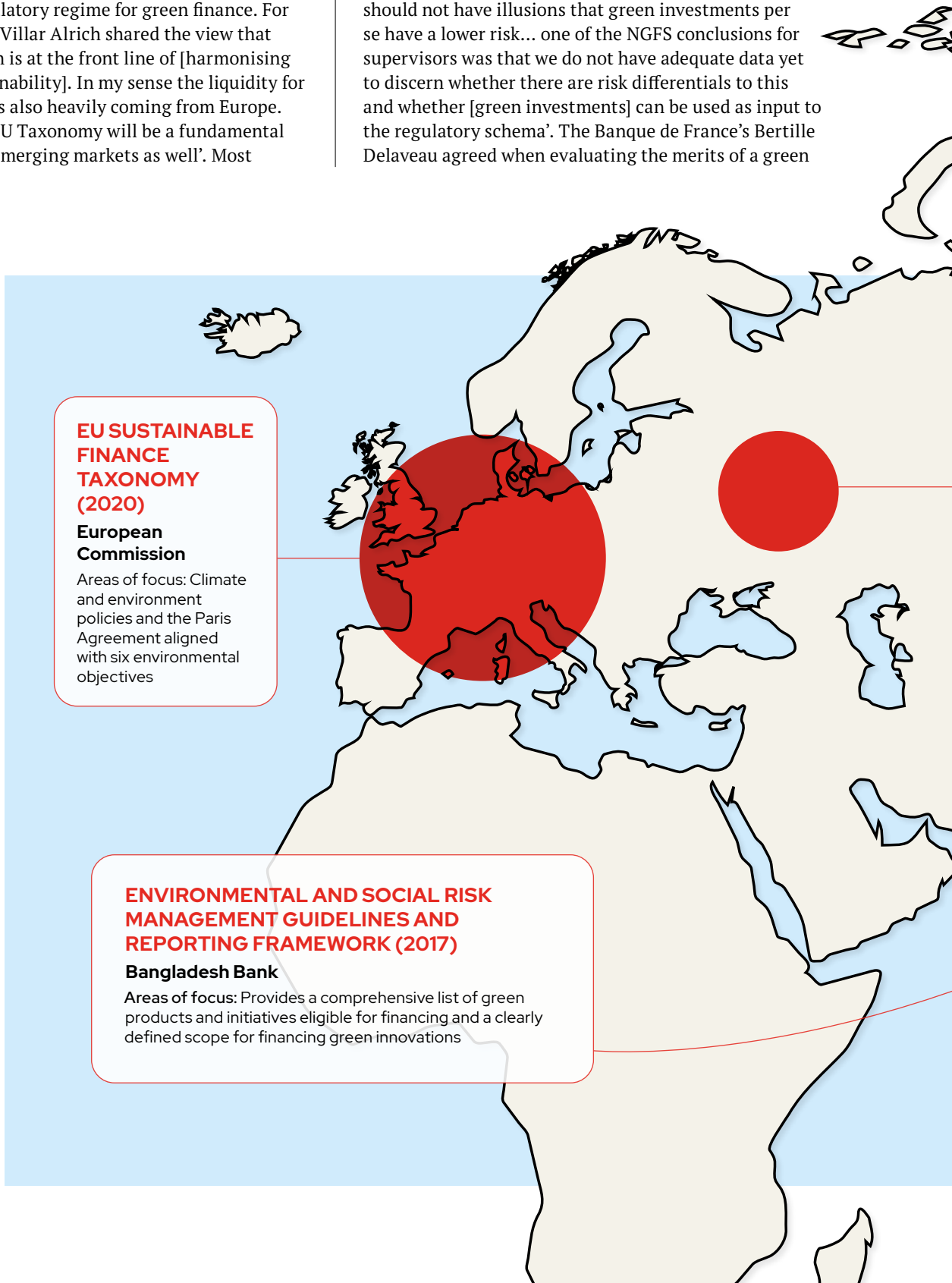
## SCEPTICISM TOWARDS GREEN POLICIES

The data required to inform a deeper development of more granular and ambitious sustainability policies are often sparse. One central bank respondent said, 'We should not have illusions that green investments per se have a lower risk... one of the NGFS conclusions for supervisors was that we do not have adequate data yet to discern whether there are risk differentials to this and whether [green investments] can be used as input to the regulatory schema'. The Banque de France's Bertille Delaveau agreed when evaluating the merits of a green

**4. Europe and Asia innovate with taxonomies**

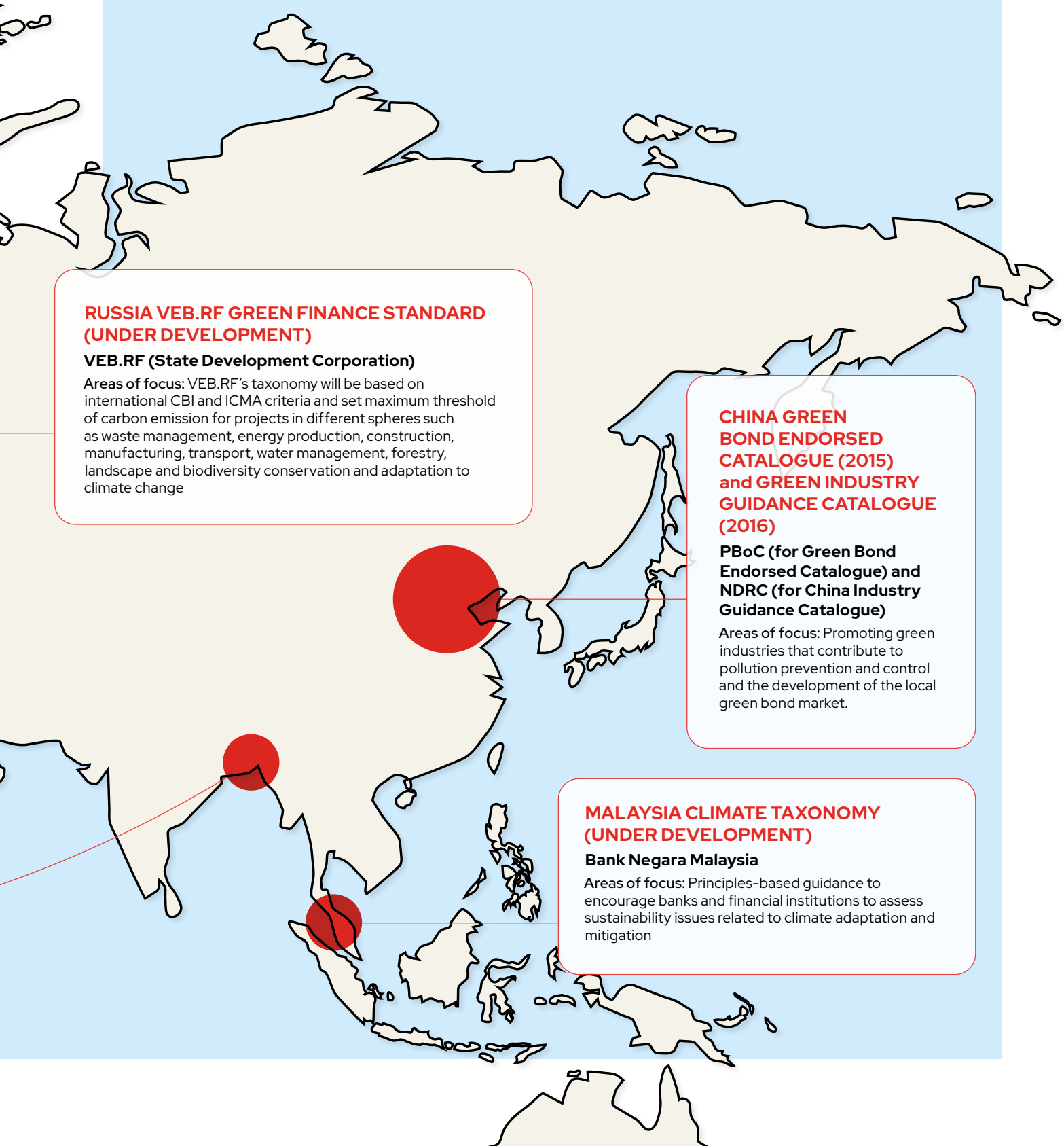
Sustainable Taxonomy characteristics in EU, China, Malaysia and Bangladesh and other jurisdictions

Source: OMFIF analysis



'The European Union is at the front line of [harmonising definitions of sustainability]. In my sense the liquidity for green investments is also heavily coming from Europe. Going forward the EU Taxonomy will be a fundamental reference point for emerging markets as well'.

**Rafael del Villar Alrich, Banco de Mexico**



## RUSSIA VEB.RF GREEN FINANCE STANDARD (UNDER DEVELOPMENT)

**VEB.RF (State Development Corporation)**

**Areas of focus:** VEB.RF's taxonomy will be based on international CBI and ICMA criteria and set maximum threshold of carbon emission for projects in different spheres such as waste management, energy production, construction, manufacturing, transport, water management, forestry, landscape and biodiversity conservation and adaptation to climate change

## CHINA GREEN BOND ENDORSED CATALOGUE (2015) and GREEN INDUSTRY GUIDANCE CATALOGUE (2016)

**PBoC (for Green Bond Endorsed Catalogue) and NDRC (for China Industry Guidance Catalogue)**

**Areas of focus:** Promoting green industries that contribute to pollution prevention and control and the development of the local green bond market.

## MALAYSIA CLIMATE TAXONOMY (UNDER DEVELOPMENT)

**Bank Negara Malaysia**

**Areas of focus:** Principles-based guidance to encourage banks and financial institutions to assess sustainability issues related to climate adaptation and mitigation

supporting factor, and said this was 'Something we don't see with a very positive eye. The prudential capital charge should reflect the specific risk of an asset. As long as it's not been demonstrated that green assets are less risky than others, it's not a good way to foster investments on green assets by adjusting this capital charge'. However, views differ in other jurisdictions. China has implemented lower risk weight on green assets, viewed as a way to reduce the financial costs for green lending thereby providing incentives for banks to scale up such loans and accelerating the green transition.

## MORE DIALOGUE BETWEEN USERS AND PROVIDERS

Central banks, supervisors, and asset managers engaged in sustainable finance activities cited difficulties such as the relative opacity and lack of detail in current third-party ESG datasets, as well as the lack of both independent auditing and understanding of third-party ratings methodologies.

While many respondents recognised the need to develop independent and freely available collections of more specific, detailed non-financial datasets for regulators and investors, they also acknowledged the usefulness of third-party information providers, albeit with calls for greater transparency and 'more dialogue between users and ESG data vendors'. Central banks and supervisors believed this would drive quality improvements and greater specificity in data usage. Enrico Bernadini said, 'In many cases the companies are not aware that they are being rated by ESG providers, that can affect commitment and engagement to disclose more accurate data'. Banco de México's Rafael Del Villar Alrich said, 'Transparency of methodologies should give investors the chance to decide which ESG raters they prefer because that rater is providing ratings aligned to the materiality of their investment.'

In addition to calls for greater transparency and specificity on economic activity , several respondents emphasised the importance of crafting regulatory frameworks and acquiring datasets that capture variation and nuance in climate and environmental issues. The Banca d'Italia's Enrico Bernadini said that in climate change datasets, 'Most data are binary in nature and are thus less usable in [macroeconomic] modelling'. Isabelle Mateos y Lago said, 'Having binary taxonomies that state, either "you're green or you're not green", "you're either sustainable, or you're not sustainable" doesn't seem a very practical way of approaching the topic. Instead approaches where you have different shades is probably more helpful at the end of the day for investors and regulated entities'.

Some regulators favouring a flexible taxonomy propose determining categories of greenness accounting for both potential positive effects of economic activities in supporting climate change mitigation and adaptation as well as harmful effects on the broader environment. For instance, the Bank Negara Malaysia proposes to employ five guiding principles to evaluate economic activities: (1) Climate Change Mitigation, (2) Climate Change Adaptation, (3) No Significant Harm, (4) Commitment to climate transition and Improvement and (5) Prohibited activities that are unambiguously harmful and contravene existing environmental laws.

Expanding on the motives behind the taxonomic design, the Bank Negara Malaysia shared: 'We are adopting a phased approach to ensure that we manage transition risk as well as facilitate the catalytic role of financial institutions in assisting a smooth and orderly transition to a low-carbon economy. Similarly for the taxonomy, we do not want to be in a situation where we come up with a taxonomy that is either green or brown. Then we're not actually facilitating or allowing people to adjust... and the economy and society as a whole will suffer. So there's a need for us to take a more measured approach'.

## MONETARY POLICY AND SUSTAINABILITY

When formulating monetary policy, central banks have traditionally focused on how macroeconomic variables such as output, employment, consumption and inflation change over a three- to five-year period. But increasingly, central banks must take a longer-term view and acknowledge how sustainability issues such as climate change can influence the broader context of monetary policy, even if they are not the primary objectives of policy intervention. In June 2020, the NGFS outlined how climate change may affect both the room for manoeuvre for central banks' deployment of monetary policies as well as the effectiveness of the transmission channels.

Central banks use a variety of macroeconomic models and forecasting tools such as integrated assessment models, scenario analyses and agent-based modelling to predict different macroeconomic outcomes of climate change and the implications for monetary policy. The various methods have distinct advantages and disadvantages, especially when modelling the impact over a longer period of time, or when looking at particular risk channels. One central bank official said, 'There's a clear difference between the data for the physical risk side and the transition risk aspect. On the transition risk side, what would be useful is a clear international framework on how to measure C02 exposures and see

'In many cases the companies are not aware that they are being rated by ESG providers, that can affect commitment and engagement to disclose more accurate data.'

**Enrico Bernadini, Banca d'Italia**

how portfolios align with the Paris agreement… the physical risk aspect will have to be more precise and pinpoint what is the nature of risk and what needs to be collected to look at changes'.

The NGFS concludes that a large set of high-quality climate data is required to explore the links and feedback loops in greater depth. The same official continued, stating that 'One of the main takeaways of the NGFS was that we need still more need more data. In particular, we need more forward-looking data'.

Models using historical data (e.g. historical relationships between variables) might not provide sufficient forward-looking guidance as to the evolution of future outcomes because of the unpredictable risks created by climate change.

As climate risks encompass a broader range of issues, regulatory data requirements and modelling methods will also expand in range. One central bank in the Asia Pacific region said, 'Many central banks' attitudes toward introducing ESG standards into the monetary policy rate adjustment is quite conservative. The first priority is to make monetary policy work and commingling these purposes is very difficult to achieve, and could also be dangerous'. In particular, respondents generally saw that central banks' data needs would involve looking closely at more specific areas and variables to inform their policy decisions. Aurel Schubert commented: 'Traditionally, we're very much focused on aggregate information and that was enough for all the different policy purposes of central banking. But now there is enormous demand for much more granularity, and detailed information on instruments and institutions'.

## INTEGRATING ESG IN OWN FUNDS AND RESERVES MANAGEMENT

Apart from monetary policy formulation, central banks are only tentatively exploring how ESG principles can relate to other core policy functions such as the management of own funds and foreign reserves portfolios. To maintain sizable buffers of foreign exchange reserves, central banks typically prioritise liquidity, safety and return. While central banks are often legally mandated to meet strict criteria in managing these pools of capital, platforms such as the NGFS highlight that reserves management can leave space for central banks to pursue ESG objectives.

Most central banks are relatively conservative investors, conducting straightforward ESG strategies such as negative screens or allocation to sustainable instruments such as green bonds. Several central banks, including De Nederlandsche Bank, Banca d'Italia and Banque de France have gone a step further, adopting ESG integration or a positive screening methodology in their investment process. Applying novel methods such as machine-learning techniques had allowed the central bank to set up a more efficient portfolio than if it had used macroeconomic factors or ESG ratings alone. In terms of data for central bank investment and reserves portfolios, Enrico Bernardini shared, 'In the end, there needs to be a coherent translation of climate risks into economic risks e.g. for equity portfolios, understanding how climate change affects financial strength and the economic profitability of different companies'.

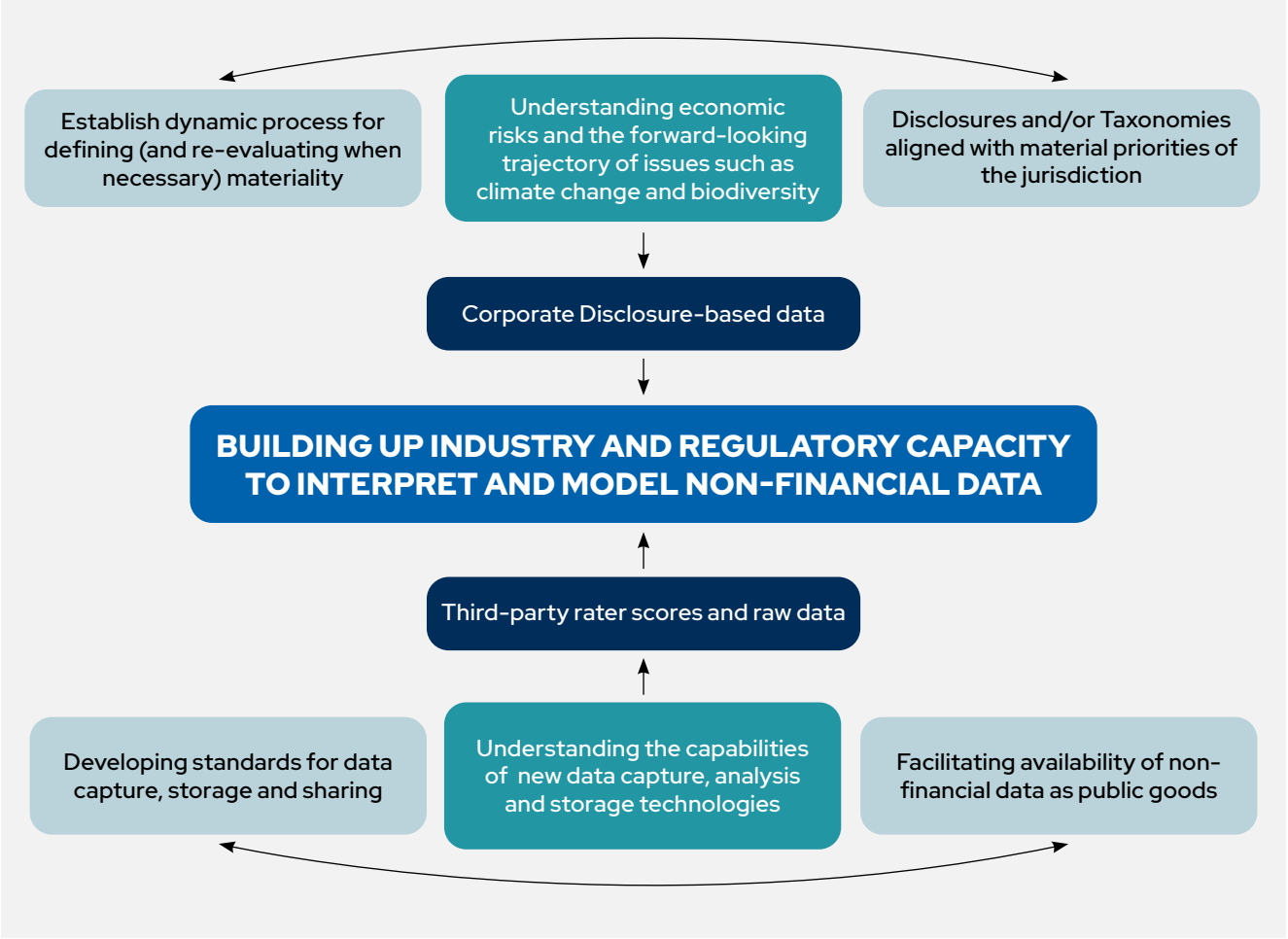
## FROM COLLECTION TO USE

Efforts so far have focused on understanding and determining what data are needed to understand the economic impact of first-order and second-order risk pathways from climate change and how best to collect these datasets. Thinking ahead, organisations must consider how to develop the technical expertise to interpret and integrate non-financial information into their decision- and policy-making processes (Figures 5 and 6). As Crystal Wan shared, 'There's a gap between data disclosure and use'. Respondents from the regulatory community and the private sector agree that integrating ESG data into macroeconomic models and translating them into risk scenarios to capture the economic and financial impact will be difficult. The Banca d'Italia said, 'For transition risks, it's really hard to get accurate measures of risks with the standard top-down approaches, because economic models often work with very general variables such as GDP, interest rates, trade, and not much more information. In this fashion it is difficult to translate macro data into economic impacts at sector-wise and firm-wise level'.

Investors and regulators need to scrutinise the relevance of fundamental data, and its potential to reduce systemic ESG risks. Dr Kim Schumacher of the Tokyo Institute of Technology said, 'If the benchmark is extremely low, then any ESG integration will be seen positively'. The question is whether my portfolio is ready for the true challenges that are coming, for example, sea level rises, and that is where the issue with data lies. So, if you do not have any good data or you do not have any proper experts to evaluate that data, you might be undervaluing or under-estimating significant amount of risk'. In climate change and biodiversity, financial regulators acknowledge that these uncertainties preclude a purely top-down, prescriptive approach to understanding systemic risk. Benchmarks or targets used to estimate the magnitude of physical and transition risks must leave buffer space for long-term uncertainty. Theodora Antonakaki said, 'If we exceed climate tipping points, we

'Traditionally, we're very much focused on aggregate information and that was enough for all the different policy purposes of central banking. But now there is enormous demand for much more granularity, and detailed information on instruments and institutions'

**Aurel Schubert, European Central Bank**




**5: Routes to collection and use of non-financial data**

Dynamic processes needed for defining materiality and non-financial data governance and usage

Source: OMFIF analysis

do not know how the ecosystems will respond as there is no previous experience of what happens after certain thresholds and large changes in the state of those systems.'

## MULTIDISCIPLINARY TEAMS

Other participants agreed about the importance of using proper experts and the need for multi-disciplinary teams to integrate and model data. As sustainability issues become more complex, one of the constraints participants face is a lack of adequate thematic expertise on different issues of concern to the financial and regulatory community. At the same time, moving beyond climate to other issues would test the capacities of financial industry stakeholders even greater, while many still require adequate awareness, skills and data to understand climate issues. Keith Lee similarly said, 'One of our concerns is if engaging these kinds of audiences over biodiversity or water risk is going to stretch them a little bit, especially if they don't necessarily see the inter-linkages between all of the issues'.

Despite the acknowledged need for more specialist knowledge to interpret non-financial data, some respondents also favoured focusing efforts and resources to alter the nature of professional financial education to closely integrate fundamental sustainability expertise. Sustainability awareness and skills have traditionally been peripheral to financial education in universities and professional courses. One area for improvement is to develop professionals that can competently bridge specialised ESG expertise with conventional corporate interests and financial concepts.

Ben Caldecott suggested: 'Universities have a really important role to play but I do think a lot of this be will be from the finance professionals and continuing professional development

opportunities'. For instance, 'the core finance professionals launched on 30 June, the UK Green Finance Education Charter, which commits these professions to adopting climate-change sustainability into their core curriculums.' Felicia Jackson, the founder of SUFINDA, echoed this sentiment, calling for the widespread continued education of basic sustainable finance skills and literacy. 'Quite frankly, there should be rolling training for everyone, in business or in finance, in every country, because until you get everyone to understand and accept the changing basics, they're not going to recognise the need for the holistic approach'. Apart from the UK Green Finance Education Charter, other efforts to integrate green finance skills into core professional and executive education include capacity-building initiatives from financial regulators such as the HKMA's Centre for Green Finance and the IFC's Green Banking Academy. Business schools and MBA programmes have also sought to systematically incorporate sustainable finance education standards into their curricula. One example is the UN Global Compact's initiative, the Principles for Responsible Management Education, which currently boasts more than 650 signatories from various higher education institutions. Noting this trend, BNY Mellon's Frances Barney said 'organisations such as CFA Institute and PRI Academy are offering programmes to help fill the need for standardisation, and as regulatory frameworks provide additional structure, these signs suggest a way forward for the industry to raise the general level of ESG awareness for investment professionals globally'.

It was also heavily emphasised that substantive professional training to understand ESG issues should occur at all levels of an organisation. Felicia Jackson noted that currently, 'we're teaching junior staff or new entrants to finance, the basics [of ESG analysis]. Then you draw from people who've been through those trials, bring them together in groups and build a wider holistic understanding.

> 'Quite frankly, there should be rolling training for everyone, in business or in finance, in every country, because until you get everyone to understand and accept the changing basics, they're not going to recognise the need for the holistic approach'.
>
> **Felicia Jackson, SUFINDA**

You also need people on the strategy or investment boards of businesses who understand that [climate change] is actually a survival issue and that the fundamentals of the way our economies work look like they are set to change.'

Many central banks were also acutely aware of the need to broaden the range of expertise involved in policy-making. Enrico Bernardini noted, 'one cannot just get ESG data and put them into the hands of a financial analyst without knowing the investment goals to achieve (e.g. a combination of risk protection, yield enhancement, social or impact overlay). Besides, there is a need to understand how the physical risk translates into financial or economic risk'. Reflecting this sentiment, the Bank of Greece's Theodora Antonakaki shared, 'We have that mismatch between the long-term science of climate modelling and macroeconomic forecasting models, due to the latter's short-term nature… central banks are looking into getting more from science and working more together with scientists, but at the same time, building up in-house capacity to address issues related to climate change and biodiversity'.

## FILLING TECHNICAL GAPS, ENGAGING WITH SCIENCE

Some central banks already engage with scientists to fill gaps in technical knowledge. The Deutsche Bundesbank has worked with the Potsdam Institute of Climate Impact Research to investigate the physical impact of global warming. Since 2009, the Bank of Greece set up the Climate Change Impacts Study Committee, drawing together scientific expertise across the fields of physics, climatology, environmental economics, agronomy, forestry, transport engineering, sociology and medicine to have a better understanding of the economic, social and environmental impact of climate change.

Apart from engaging at an individual or institutional level, international platforms and organisations are collaborating with central banks to fill in the technical gaps when it comes to sustainable supervision. Satoshi Ikeda shared that 'the NGFS is now working with the Integrated Assessment Modelling Consortium (IAMC), Potsdam Institute of Climate, to involve climate experts. Scenario discussions help to enhance our knowledge and data gaps. The WWF has developed a tool to assess nature-related risks to financial institutions. Working with them allows us to get a sense for what data would be required for this purpose. Out of these collaborations we can develop a level of internal expertise and awareness of data requirements'.

## PRACTICAL LIMITATIONS

In practical terms, it is unrealistic to expect regulators and investment managers to field large teams of dedicated specialists in a short time frame. In the absence of such human expertise, it makes sense to use technological systems for sustainability data that are easily accessible and understandable. Ben Caldecott opined, 'The market will respond. What will emerge are data- and analytics- providers creating products and services that are intuitive for users e.g. think Google Earth for finance. Developing these is going to be one of the big commercial prizes'. Similarly, Blackrock's Isabelle Mateos y Lago said, 'We've set up a system that automates this interaction of data and materiality, insights and all of the data trails that we have in the firm. That makes it easy for people who are non-specialists to effectively leverage "collective intelligence"'. ■

## 6. The 19 traps for ESG data policy and how to avoid them

By stage in data lifecycle

Source: OMFIF analysis

### Missing the train on setting standards
Given strong demand for standards, lack of coordinated action from regulators may leave gaps for individual private-sector actors to develop their own initiatives.

### Regulatory arbitrage
Unevenly applied and ambitious actions could prompt outsourcing investment to less stringent jurisdictions, negating progress.

### Misjudging materiality
To be truly sustainable in the long term, data requirements need to recognise the endogeneity of sustainability factors, looking beyond the impact of ESG risks on the financial sector to identify the sector's impact on ESG.

### Regulatory overburdening
Disclosure requirements need to be more than a box-ticking exercise; data sources beyond disclosures need to be explored to fulfil requirements.

### Greenwashing
Progress needs to be inclusive while recognising that not every participant has access to the same resources to fulfil data requirements. If demands are too stringent, it could lead to greenwashing.

### Structural blind spots in disclosure-setting regimes
Regulators need to be aware of areas where big investors do not invest for lack of scale, leading to gaps across asset classes, geographies or due to company size.

### Missing the forest for the trees
Much progress has been made on climate-related data standards but regulators should not ignore other sources of non-financial sustainability risk given interlinkages in the ecosystem.

### Tracking diversified revenue streams
Regulations need to account for the complexity of tracking impact in big corporates which are active across multiple value chains.

### Accounting for data irregularities
Standards must be able to incorporate one-off events such as natural disasters or pandemics in modelling.

### Disruptions to collection methods
Sustainability risks such as natural disasters or pandemics may impair fieldwork and access to data and monitoring.

### The ends do not justify the means
Data collection technologies must be sustainable and respect local ecosystems and cultures during the collection process.

### Squandering resources and energy
Given limited resources, efforts must be focused on the sectors and asset classes that have the biggest impact. Prioritising should be driven by impact rather than by political objectives or feasibility.

### Suboptimal market structures
Regulators need to be mindful of competition issues in data provision, considering the drawback of having too many providers versus a monopoly.

### Conflicts with other areas of government policy
Different countries may have different data security and privacy laws; harmonising ESG data standards and open standards needs to be consistent across borders.

### Account for human error and machine readability
Efforts to set standards focus on content, but format is also important: units, country codes and names need to be consistent to ensure they can be read by machines.

### Don't forget about meta-data standards
Even if data-collection processes are harmonised and transparent, final outcomes could still be compromised or arbitraged if there is a lack of guidance on how to use them.

### Account for critical thresholds
Scenario models need to take into account the irreversible nature of climate change beyond unknown tipping points.

### Ensure models are forward looking
Data frameworks for understanding companies' impact on ESG factors should also consider the potential impact of their transition: what may be considered a non-sustainable company today is not considered risky if it is on the right track to more sustainable practices.

### Don't make the perfect the enemy of the good
Regulators must weigh up the danger of waiting too long – in order to collect sufficient data and evidence to conduct pro-sustainability tweaks in regulatory requirements – against the urgency of the climate threat.

Key:
- **Selection**
- **Collection**
- **Supporting infrastructure**
- **Use/Modelling**

CHAPTER 3:

# MOVING BEYOND DISCLOSURES TO FILL GAPS IN THE DATA

**New technologies for data collection and analytics, such as advances in geospatial technology and artificial intelligence, are opening up ways to analyse non-financial impact. Raw data quality and expertise to assess data points remain key issues. At the same time, focus is expanding from climate change to broader environmental data, adding to the complexity of data collection and analysis.**

TECHNOLOGICAL innovations are altering the landscape for sustainable data, as well as how financial regulation and investment can make use of such datasets. New technologies such as remote sensors, fixed-wing drones and monitoring devices – combined with data analytics technologies such as machine learning, AI and sentiment analysis – are opening up ways to estimate or generate proxies for non-financial impact. Cort illustrated, 'There's just no way to do real-time monitoring and disclosure around the data. Even if you're going to use large datasets, one of the solutions has been to use proxy data, for instance, on oil and gas supplies going into large regions. From satellite data, one can determine how much oil is delivered into Chinese ports and based on historical performance, estimate how much of that is going to be burned by an individual company'.

The main technologies underpinning advances in non-financial and sustainable investment areas are divided into (1) collection technologies and (2) analytic technologies.

Collection technologies cover a broad range of devices and platforms for gathering data that can improve the quality of obtainable ESG data by expanding the detail, coverage and timeliness. Data analytic technologies include more advanced and sophisticated algorithms and processing techniques e.g. machine learning, computer vision and natural language processing to handle and interpret patterns and structures in the expansive datasets generated by collection technologies. For some private-sector respondents, given the likelihood of non-financial data becoming more widely available for the public, in-house analytic capacities would give companies and investment houses a competitive edge over others when employing similar bodies of non-financial data. For instance, Crystal Wan said, 'There's always going to be a space for a kind of arms race in processing and analysing alternative datasets'.

Underpinning these two areas are innovations allowing data to be stored securely and conveyed at rapid speeds. Distributed ledger technologies, encryption techniques and cloud computing have enabled the collection, storage and analysis of much larger datasets, so they can be applied to sustainability issues such as water quality, deforestation, corporate reputational and governance issues and physical climate risks.

The Bank of England's Michael Sheren said such innovations facilitated greater regulatory usage of data. 'Something that is absolutely critical is the need for collecting, monitoring, measuring and transporting data digitally; the old analog manner will be insufficient as huge amounts of data need to be gathered and analysed'.

## RAW DATA QUALITY

Within those broad categories, advances in sustainable data technologies generally fit into two camps: the first covers developments in natural language processing to interpret and scan through a lot of textual information while the second covers geospatial data and analysis driven by new enabling technologies. These include sensors, platforms for data capture, high-resolution satellite imagery with high refresh and revisit rates and spectral bands. The use of such technologies has been further supported by a growing ability to store information in the cloud, as well as by advances in algorithms, neural networks and computer vision.

The improvements in data

# DATA INSIGHTS

**With Leon Saunders Calvert, Head of Sustainable Investing at Refinitiv**

***The pandemic has highlighted the importance of ESG beyond climate-related issues. How has this affected awareness of ESG data gaps and the demand for more holistic datasets?***

Covid-19 has made clear that financial markets cannot divest or diversify away from social and humanitarian crises. Markets mirror the real economy, which is directly impacted by major events. There is a need to internalise and quantify external risks into the investment management process. Investors must assess their impact on biodiversity, socioeconomic inequality, racial diversity and employee welfare, among others. This is a major challenge. Companies are, understandably, under mounting pressure to report racial and ethnic diversity within their workforce. But in many countries, employees are not obligated to report these data to their employer, making corporate transparency difficult.

***Many central banks and regulators are expected to develop taxonomies, mandatory disclosure regimes and stress tests that align with sustainability priorities. What implications for data requirements are likely to emerge from this?***

There is no standard accepted practice for how to define data points within most ESG metrics. If a company reports a data point, it could mean something different at another company reporting the same data point. This foundational issue needs to be addressed. Second, there is no agreed best practice as to which data points ought to be disclosed. What is material for a company in one sector may look different to a company in a different sector. Third, there is no standard reporting practice, so whatever data points a company discloses may be reported on differently by other organisations. The industry is addressing these issues. Data providers such as Refinitiv must ensure we capture as much raw data as possible, and normalise this information so that it can be used against regulatory and industry frameworks and, critically, enable benchmarking.

***What steps are being taken at Refinitiv alongside other stakeholders to help foster a digital ecosystem that can provide high-quality, reliable ESG data as a public good?***

At the core of Refinitiv's mission is to provide transparency to financial markets to support optimised capital allocation. Collecting and normalising these data is a time consuming process requiring expert knowledge. Factoring in the risks associated with the transition to a low-carbon economy, for example, is crucial, and I think we would caution non-institutional investors before using this type of data for investment purposes. Nevertheless, transparency in this space is a good in and of itself and Refinitiv will shortly be launching a Free To Air offering on Refinitiv.com carrying the ESG scores of the more than 9,000 companies for which we have data.

collection and in data analytic technologies are mutually beneficial. But merely collecting more or different alternative data does not directly translate into an immediate enhancement of ESG data quality. More often than not, there is an additional requirement to analyse the patterns contained in the raw data to determine the quality and usefulness in investment and supervision decisions. At the same time, advanced data analytics alone cannot compensate for a lack of primary datasets. Dr Schumacher expanded, 'Granular raw data are missing in a lot of cases, especially for environmental data. AI and machine learning are approaches for refining data. If low-quality data come in, low-quality outputs will inevitably also come out.'.

Offerings that can aggregate vast amounts of ESG company disclosure points, standardise them and enable comparability are being increasingly demanded by investors.

Even as technologies offer up ways to improve the quality and accuracy of alternative data, it is important to focus on improving the resilience of the pipeline for primary ESG data production to ensure that timely and relevant data can still be produced in times of disruption. This is especially important in the present environment as Covid-19 control measures could potentially disrupt the flow of ESG data production due to restrictions on travel and human interaction.

On the socioeconomic side, a lot of data on social protection and labour issues come from household surveys that are conducted periodically for development objectives by international organisations. But such surveys are typically done less frequently than once a year, especially in emerging economies. Tim Herzog, senior data scientist at the World Bank explained 'That is not exactly the time frequency that investors are looking for, they're looking for quarterly data or even faster if they get it'.

## GEOSPATIAL DATA

Data collection technologies which can minimise dependence on humans – such as remote sensors, satellite imagery and analytic approaches for

geospatial data – are likely to attract considerable interest in future.

Geospatial monitoring and analysis have promising applications for areas such as biodiversity, deforestation, land tenure and land use patterns, water quality and sub-national economic development. Tim Herzog explained, 'Geospatial and its sub-branches are probably the most attractive, especially since the cost is coming down', while Keith Lee said, 'Being able to pair [data about a company's physical facilities and its locations] and overlay that with existing datasets on environmental conditions [can be exploited] in the future to get around issues with ESG disclosures'.

For regulators, geospatial applications can potentially help develop more targeted frameworks of risk management and capital allocation, linked to geographical exposure to climate change. Del Villar Alrich said, 'Another tool that we would love to somehow reach between banks, the broader economy, investors and other agencies is an atlas of vulnerability to climate change'.

The use of drones can complement satellite imagery, allowing a more nuanced analysis, for example of biodiversity. Take the example of a forest; satellite imagery can prove useful in extimating deforestation levels by measuring the tree cover, but it does not record biodiversity. This is where drone technology comes in useful, moving vertically under the tree canopy to record the variety of species.

Having these sources of spatial data is less useful in the absence of context and geography. Even where the quality of the data imagery is high, the data may ultimately be less useful where there is ambiguity in ownership. For example, Kim Schumacher said, 'We know the Amazon has been deforested because we have satellite imagery. However, the hardest part is to attribute deforestation activities to certain corporate actors." It can be very challenging to tie land impacts onto a particular consumer product trading globally'. It is particularly difficult in spatial analysis to profile companies with extensive global value chains and diversified revenue streams, obtaining data on supply chain tracking and linking these to sustainable themes such as emissions levels. This ties into the underlying challenge of obtaining sufficiently granular data covering the various characteristics, attributes, ownership, and operations at the asset level.

For example, apart from ownership and supply chain gaps, attributional issues could also be hard to pinpoint precisely in geospatial data. According to Ben Caldecott, it would be useful, but difficult, to determine 'What proportion of water pollution in a river system comes from that [specific economic activity], in that catchment area'. Moreover, for remote sensors and satellite monitoring, the more granular a dataset is in terms of region, the less external validity it may have. Another respondent shared the opinion that 'It's hard for me to see how [satellite and drone sensors] scale to a dataset that actually gives you a broad overview of the economy and how different actors perform'.

## FLORA, FAUNA AND FINANCIAL RISKS

While the brunt of focus on sustainability has hitherto revolved around climate change issues, organisations such as the WWF, UNDP and NGFS have increasingly called for more attention to be paid to the financial stability impacts of natural capital loss, the importance of ecosystems to business, and the risk to the economy and humanity.

Despite being a relatively new addition to the list of sustainability priorities, recent events such as the Covid-19 pandemic have accelerated greater recognition for biodiversity and natural capital as prominent themes of concern for the financial community. While the NGFS has mainly focused on climate risk management, many of its members have given compelling reasons to include biodiversity issues within its scope of work. Frank Elderson, the chair of the NGFS, has described loss of biodiversity as 'one of the greatest and most urgent challenges of our time'. These themes are now emerging in official work. The WWF has estimated that the annual value of critical ecosystems to businesses – for example, potable drinking water, breathable air, heat absorption, forests, food and pollination – is nearly $125tn. They have also estimated that $44tn of economic value generation, more than 50% of global GDP is moderately or highly dependent on nature. In June 2020, De Nederlandsche Bank, the Dutch central bank, published a report highlighting how failing ecosystems can translate into greater credit risks for banks. The report stressed the importance of understanding the physical, transition and other transmission risk channels from biodiversity loss to financial performance. One aspect of biodiversity risk management was contingent on risk profiling linked to the geographic locations of business activities and their value chains. However, despite the heightened awareness of these risks, Keith Lee expressed concern that biodiversity may still be 'an arcane concept for [regulators and investors] to wrap their heads around'.

Further elaborating on the novelty of understanding and creating effective standards for biodiversity risk measures, one respondent said, 'We all agree on what a tonne of carbon is, but for biodiversity, how do you compare the high north to the tropics? It's not to say one region is more valuable than the other simply because there's more species in one area. So it becomes slightly problematic… there's a lot of work to be done to iron all of these details out'.

Ray Dhirani, the head of Sustainable Finance at the WWF, commented on the current challenges in driving action on biodiversity sharing that 'While we are making some headway on addressing climate change, for biodiversity, which is equally important, progress has been slower. One issue is general awareness about biodiversity and the link to investment; however, another issue centres around metrics and comparability when dealing with biodiversity. We have a dual crisis of climate change and biodiversity loss

> 'Right now we have a problem related to the fact that ESG scores are tuned to or are more lax for corporates in emerging markets. This is in terms of both ESG scores and what an ESG index actually means. Index providers are doing tropicalised ESG indices, and you get the impression that the rating providers are finding issues, jump-starting the ESG indices market'
>
> **Emerging market central bank**

currently unfolding, and we need to understand and urgently address both of these interrelated issues.'

Financial institutions and governments have made notable recent strides to engage nature-related risks on the same level as the TCFD's work on climate change. In July 2020, the UK and Swiss governments alongside an initial group of 10 financial institutions, including AXA, BNP Paribas, DBS, Rabobank, Standard Chartered, Yes Bank and the World Bank, committed to joining a working group to establish a complementary Task Force for Nature-related Financial Disclosures. The official launch of the TNFD is planned for the first quarter of 2021 to establish a basis for common agreement on reporting, metrics and data needs to understand financial intuitions' impact on biodiversity. A task of the TNFD will be to examine the potential to 'create nature materiality', through regulation, liability and reporting changes, without which nature loss will continue. Currently Investor AUM of $6.5tn is supporting the ask for data providers to look into biodiversity data and metrics.

## COVERAGE AND COMPARISON

New technologies will enable the collection of better data and extraction of more insightful patterns from these datasets, but questions remain about existing data coverage across geographies and how regulators in individual jurisdictions should engage with investors and data providers in relation to sustainability. Imperfect coverage in data or uncritical comparisons across context could distort the reliability of ESG benchmarks as a universal and representative tool for regulators and investors. Developing on this, Todd Cort said, 'Right now we're looking at coverage rates for companies that are shockingly low. So we have entire sectors where we're estimating and gap-filling data to the tune of 10% to 50% in developed markets. In emerging markets, that gap rate becomes even higher'.

On a practical level, differences in local market conditions can affect how easy it is to use primary non-financial data. This includes instances where data have been written down in different units, or listed by different names (e.g. country codes or full names), making it harder to use machine-reading or AI processes.

There are also different opinions on the merits of contextualising ESG benchmarks and approaches to local conditions to promote sustainability, because of the risk of potentially compromising on universal standards. For instance, promoting ESG practices in emerging markets such as China could mean adapting to local corporate or structural characteristics. Wang Yao said, 'Localisation is a challenge for current data analysis due to the differences in regulations and documentation in different countries... investors all hope that they can have a localised ESG evaluation or rating system. Many of China's listed companies are state-owned... this is the opposite form of governance in western countries so sometimes there are [structural] differences in ESG indicators'. Proponents of this position argue that green finance standards must be contextualised to the actual state of readiness of companies and financial institutions and develop in a progressive manner.

Yet verging too far in adapting to local contexts could also be counterproductive. Emphasising the quantity or volume, rather than quality standards for green finance in economies where sustainability is still nascent, could harm the credibility of the concept among international investors. One emerging market regulator explained, 'Right now we have a problem related to the fact that ESG scores are tuned to or are more lax for corporates in emerging markets. This is in terms of both ESG scores and what an ESG index actually means. Index providers are doing tropicalised ESG indices, and you get the impression that the rating providers are finding issues, jump-starting the ESG indices market'. In the view of this regulator, leniently benchmarking data comparisons confined to specific contexts would be setting 'A dangerous precedent as if one caters too much to the sensitivities of a local market, the ESG index of a stock or bond market is not going to be transparent to foreign investors'.

Another central bank said, 'We would emphasise that we incorporate various characteristics under a common framework... I recognise that there may be national characteristics. But again, for compatibility and transparency, one should move as far as possible to common frameworks, whether between countries or between various financial instruments'. Variation in non-financial disclosure requirements and data reporting metrics is unlikely to be resolved easily. But as data capture and data analytic technologies play a bigger role in determining financial assessments of sustainability, central banks and other financial regulators will need to be more conscious of how representative or diverse these data are.

As investors and regulators deepen their use of technology to generate and interpret data on sustainability issues, cross-jurisdictional controversies related to governance, standards and benchmarks will extend from disclosures to the design of data infrastructure and analytical algorithms. These questions are now being addressed in emerging forums such as the UN Digital Ecosystem for the Planet. ■

# DEVELOPING A GLOBAL SUSTAINABLE DATA ECOSYSTEM

## Insights from covering the UN Digital Ecosystem for the Planet

THE UN Environment Programme's recent call to develop a Digital Ecosystem for the Planet highlights the need for a common vision, directed strategy and governance framework that will help make sustainability data open and available for public use. A digital ecosystem can be defined as a complex distributed network or interconnected socio-technological system with adaptive properties of self-organisation and scalability. There are four elements to a global digital ecosystem: raw data; a supporting technological infrastructure; algorithms and analytics; and insights and applications.

As work proceeds with increasing the capacity to capture, store and process alternative data, it is important to address risks such as how these datasets are used, accessed and applied. According to the UN, a well-functioning Digital Ecosystem will address four important governance risks relating to (1) the market power of private companies enabling the collection of data e.g. private satellite networks and other remote sensors, as well as those responsible for publishing these datasets, (2) the transparency of metadata standards informing the generation of trustworthy, representative data, (3) data security and privacy in the digital ecosystem, and (4) the direct environmental impacts from the digital ecosystem's operations, which make intensive use of computing, and e-waste.

While the benefits of consolidating policies and resources for a shared digital ecosystem are undeniable, data sharing and data sovereignty are likely to be polarising topics, especially as global tensions in technology and trade escalate between countries such as the US and China. Alluding to this, Felicia Jackson explained 'the key is going to be management of how data collection is perceived, the management of how data sharing is understood... data is at an inflection point where it's the most important thing everybody wants. Everybody wants comparable reliable, robust data, but no one quite knows how to get it, and people are very scared about the implications of what having that much data might mean on a societal level.'

As data cooperation and consolidation becomes more urgent to manage systemic societal risks such as the Covid pandemic, Felicia Jackson went on to note One of the challenges we've seen in the last 18 months is this move away from multilateralism. There has been real pushback... during Covid, the fact is that it couldn't have been managed without cross border communication, the sharing of data and global action. However, data sharing and the reliability of information is probably at its most critical stage at the moment, in terms of trust in data, reliability of data, and in terms of privacy concerns, and social concerns. Whether it be for contact tracing and app tracking for the purposes of pandemic management, or for asset-level emissions data, regulatory frameworks to manage cross-border data flows should be developed alongside actual technological capabilities.

## CHAPTER 4:

# ACCELERATING ESG MOMENTUM IN INVESTMENT AND SUPERVISION

**With the evolution of standardised ESG data, central banks, regulators and investors will have to find ways to incorporate these advances into their supervision or investment strategies, depending on asset class or sector.**

INVESTMENT and reserve managers will need to address how ESG data can be integrated with their investment or supervisory strategies, and customised according to the asset class in question.

Explaining further, Blackrock's Crystal Wan said, 'Even for the same issuer, say a company issuing both equities and bonds, the investment risk from ESG factors from the equity, which is perpetual, versus a bond that is maturing in the next couple of years, is going to have different implications in your portfolio construction. The time horizon of data is also very different for different asset classes'. Data requirements and timeliness could change depending on the level of analysis of a particular asset. For bonds linked to sovereign credit ratings, 'A lot of the measurements that you can make are slower moving and longer term in nature, versus sentiments that can change in real time very quickly'.

For institutional investors who manage portfolios with multiple assets, understanding what data to apply and how to use them from an aggregate perspective can be daunting. Crystal Wan explained this challenge further. 'If you have a multi-asset portfolio, and you're aggregating different types of raw data from different types of disclosures, how do you then make them informative and useful in a total portfolio perspective?'

The same applies to regulators. Reserve Bank of Australia Deputy Governor Guy Debelle noted that 'The challenges we have to address are to take the outcomes from climate modelling and map them into our economic modelling. Similarly, the scenario analysis from climate models needs to be translated into the horizons of our economic models, taking account of price changes and how that affects decision-making.' Similarly, the Bank of England's Sarah Breeden noted that 'Climate change is a risk we see looking forwards not backwards. Companies with the exact same current carbon footprint today could have very different strategies for the future – one might have a clear path to net-zero, another could be gambling on new technology or policy inaction, and a third might just not have thought about it yet. So to be decision-useful, disclosure has to move from the static to the strategic. To be forward looking. Using scenario analysis to help us better understand the impact of different climate pathways.'

As datasets on non-financial sustainability issues proliferate, regulators and investors will need to consider which assets and sectors to focus on. One respondent said, 'It's inherently labour-intensive to make these linkages between the data you collect on the impacts and looking at individual asset owners or even just companies and developers'. Given these constraints, 'It would be helpful identifying specific assets that are creating impacts in areas where we understand them to be particularly vulnerable or sensitive'. Industry players are relatively optimistic that new technologies and advancement in analytics will progressively enhance their investment and risk management capabilities. For instance, Frances Barney from BNY Mellon voiced the view that 'over time, data and data analytics' capacity as an enabler of ESG investment should increase... innovation in technology is complementing human expertise, providing investment teams with a greater ability to effectively manage, monitor and analyse ESG factors across their portfolios'.

Some regulators are more sanguine, as supervisors such as the JFSA's Satoshi Ikeda also point out that there needs to be better data availability and awareness, not just on individual assets, but also how they inter-link with each other within the global supply chain networks. 'Certain analyses on supply chain management and where businesses source their materials integrated into a database would be very helpful in risk assessments of financial institutions. There is a long way to go to complete that work. A temporary solution is doing scenario analyses.'

There are several ways to identify which assets or sectors to

> 'Covid-19 will direct awareness to other ESG risks and exacerbate the situation of a lack of data. It is difficult to do minute analyses but there is a need for a broad picture of ESG risks, the SDGs, and the datasets required for this'.
>
> **Satoshi Ikeda, Japan Financial Services Agency**

prioritise. Issues to consider include the magnitude of environmental impact, the degree of economic influence and technical feasibility. Ben Caldecott opined, 'There are five or six sectors that account for most of global carbon emissions. So you could start there, or you could do it by market capitalisation, or by technical competence and simplicity. Some sectors are harder to do, but some sectors don't have very many assets. Fortunately, many of the most polluting sectors tend to have not that many assets. Power generation, shipping, aviation, and heavy industry are some examples'.

## SUSTAINABILITY DATA IN A POST-PANDEMIC WORLD

At an initial glance, the Covid-19 crisis has stalled momentum for ESG integration in some jurisdictions. As governments deal with the health and economic consequences of the Covid-19 crisis, sustainability policies in some jurisdictions have been postponed. For instance, much-anticipated climate-related regulations, such as the Bank of England's inaugural climate stress test exercise, have been deferred to the middle of 2021 as economic policy priorities focus on the pandemic.

Nonetheless, many respondents were confident that despite short-term delays, the pandemic would not disrupt medium- and long-term focus on ESG and in fact foresaw increased awareness and demand in data for a broader array of non-financial issues linked to economic welfare, social resilience and financial market stability. For instance, Satoshi Ikeda noted that 'Covid-19 will direct awareness to other ESG risks and exacerbate the situation of a lack of data. It is difficult to do minute analyses but there is a need for a broad picture of ESG risks, the SDGs, and the datasets required for this'.

In particular, many see an inflexion point in awareness, research and action on various ESG priorities. Biodiversity and environmental loss, public health and social/race risks are becoming particularly important. Isabelle Mateos y Lago shared, 'Up until the start of this year, there was a lot more emphasis on the E part of ESG. What we've learned in recent weeks is that S and G matter a great deal as well… certainly, the emphasis has been rebalanced across these three pillars'.The zoonotic origins of the Covid-19 pandemic serve as a reminder of how important it is to increase awareness and to act on other systemic environmental risks. According to Keith Lee, 'there is definitely an opportunity to try and build upon this current crisis to draw awareness to the issues linked to nature loss, link it to deforestation, link it back to climate change, and hopefully that does see an increase in attention being paid by the financial community to reduce deforestation'. Just as research, policy action and corporate disclosures on climate risks were driven by the TCFD and the NGFS, many participants now see the next step, and extension of these efforts, to be a Taskforce for Nature-related Financial Disclosures, or TNFD. Already, financial regulators in several countries are developing policies or incentives for financial institutions to internalise biodiversity risks. Since 2008, the Banco Central do Brasil has made access to rural credit in the Amazon conditional on firm compliance with environmental regulation on land use and deforestation. A more recent example is the Monetary Authority of Singapore's proposed guidelines detailing its explicit expectations on financial institutions' environmental risk management as part of the country's Green Finance Action Plan.

Climate change action could be just the beginning of re-focusing attention on data related to risk mitigation and responsible governance rather than purely impact. Todd Cort explained, 'Future financial performance from ESG may be more accurately tracked by measurement of management systems and governance structures rather than past performance'. Current responses to climate change would set important precedents in terms of the data needed to scrutinise governance processes and 'assess risk and disruption and our business resilience strategies'.

There are concerns about the capacity of investors to grapple with data on new ESG risks as these become mainstream. Yet there is also room for optimism that the pandemic could inspire institutions to tackle such issues in the long term. For instance, the Banca d'Italia's Enrico Bernardini noted the broadened ESG emphasis saying: 'The Covid crisis is shaping the background dramatically, both in terms of public sensitivity for different pillars, but also that the regulatory environment is changing very quickly e.g. for laws on social and health protection of workers, or supply chain reshaping from companies'.

Governments around the world are opening the fiscal floodgates to provide critical lifelines to their economies. A study by economists Cameron Hepburn, Joseph Stiglitz, Lord Nicholas Stern and others surveying over 200 central bank and government officials and other experts identified five government policies as the most promising in delivering such a 'green stimulus': clean physical infrastructure, building efficiency retrofits, investment in education and training, natural capital investment, and clean R&D. Meanwhile, many central banks are also doing whatever seems necessary via their operational mandates in terms of regulation, supervision and reserves management.

As the line between fiscal and monetary policy becomes increasingly blurred, there will be greater demand for regulatory action on sustainability issues, and clear ways of delivering public investment that is socially beneficial over the long term to build back better. As regulators ponder and take action to plan for economic recovery via stimulus initiatives such as the EU's Covid-19 Recovery Plan, high-quality data on non-financial risks and impact will be needed more than ever to develop, monitor and evaluate any 'green strings' that will be attached to this unprecedented surge in government spending. ■

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