Summary: Sustainable and Responsible Investment in Central Banks' Portfolio Management - Practices and Recommendations

Overview

This summary provides an overview of the 'Sustainable and Responsible Investment in Central Banks' Portfolio Management - Practices and Recommendations' report by the Network for Greening the Financial System (NGFS), published in May 2024. The report serves as a comprehensive guide for central banks on the adoption and advancement of sustainable and responsible investment practices within their portfolio management. It outlines the economic and financial risks posed by climate change and the importance of central banks' role in fostering a climate-neutral economy through SRI practices. The document includes a set of non-binding recommendations, case studies, and survey results that reflect the current state and future trajectory of SRI in central banking.

Section 1: Setting the Scene: Central Bank Investment Portfolios

This section outlines the characteristics of central bank investment portfolios and their capacity to incorporate Sustainable and Responsible Investment (SRI) practices. It references the results of the NGFS SRI survey, which indicate the current status of SRI adoption by central banks and sets the stage for the report's 10 non-binding recommendations. The chapter emphasizes the importance of integrating sustainability risks-environmental, social, or governance factors that could materially impact investment value-into central bank investment strategies. It also discusses the challenges of aligning investment practices with real-world impact, such as fostering the climate transition, which is complicated by the legal mandates of central banks. These mandates, often enshrined in law, typically prioritize objectives like price stability, monetary and financial stability, and sometimes employment. The first recommendation urges central banks to integrate sustainability factors into their investment portfolios while adhering to their legal mandates.

Section 1.1: Motivations for the Adoption of Sustainable and Responsible Investment Practices by Central Banks

Central banks are increasingly considering sustainability-related risks and impacts when managing their investment portfolios, motivated by the desire to enhance financial characteristics and generate positive real-world outcomes. The Network for Greening the Financial System (NGFS) has identified two primary objectives for sustainable and responsible investment (SRI) in central bank portfolios: addressing sustainability risks to improve portfolio performance, and directing capital towards entities that benefit the environment and society. The degree to which these objectives are pursued depends on each central bank's specific mandate and legal framework.

Central banks have the option to integrate sustainability factors within the scope of their existing mandates, which can lead to improved risk-adjusted returns and a better understanding of long-term risks and opportunities. This integration can also reduce reputational risks and contribute to societal impact. For example, central banks may choose to exclude companies with high greenhouse gas emissions from their portfolios to mitigate climate risk or engage with them to gain insights into economic processes relevant to their mandates, such as the relationship between the energy transition and inflation.

The NGFS encourages central banks to lead by example and incorporate sustainability factors into their

operations, highlighting the potential benefits of a better understanding of long-term investment risks and opportunities, reduced reputational risks, and positive societal impacts.

Section 1.2: Central Bank Investment Portfolios

Central banks manage various investment portfolios with different objectives, including FX investments, own funds, pension funds, and third-party portfolios. Own fund portfolios aim to generate returns within a certain risk tolerance and are not directly tied to policy objectives, often including a mix of equities, corporate bonds, and sometimes private debt, alongside government and supranational debt. Third-party portfolios are influenced by client demands, such as those managed for local governments or the ECB, and their objectives and asset allocation are determined by the third party. Pension portfolios, serving as long-term retirement savings, invest in a broader range of asset classes and geographic locations compared to own and policy portfolios.

The report discusses the central banks' motivations for engaging in Sustainable and Responsible Investment (SRI) practices, primarily driven by the desire to mitigate sustainability and reputational risks and to set a positive example for the financial sector. The impact perspective is also gaining importance, with some central banks having explicit sustainability references in their mandates. The NGFS SRI survey indicates that central banks are increasingly adopting SRI practices, particularly in their own funds and FX investment portfolios, with formal SRI policies becoming more common.

The asset composition and management style of central bank portfolios vary, with FX reserves typically invested in high-quality bonds and managed in-house, while own funds and pension portfolios have a more diverse asset mix, including equities and corporate credits. The management of these funds ranges from in-house to external, through mutual funds, ETFs, or discretionary mandates. The survey results show that SRI adoption is most formalized in own funds, followed by FX investments, pension funds, and third-party portfolios.

Section 1.3: SRI Strategies

Central banks face challenges in applying sustainable and responsible investment (SRI) strategies to their portfolios, which often consist of bonds issued by (sub-)sovereigns, supranationals, and agencies. The Network for Greening the Financial System (NGFS) identifies five SRI strategies: negative screening, best-in-class, ESG integration, impact investing, and voting and engagement. The effectiveness of these strategies can be limited by a small number of issuers and the complexity of assessing sustainability performance due to limited ESG data. Sovereign issuers, however, provide more ESG data, but conceptual issues persist.

Diversified asset classes allow for a broader application of SRI strategies. Central banks can invest in green bonds, which are feasible for labeled bond investing. Negative screening and ESG integration are common in foreign exchange reserves, own funds, and pension funds, often based on international standards and laws. Best-in-class strategies, which include carbon metrics, are mostly applied to own funds portfolios. Voting and engagement strategies are less common and typically managed through external asset managers. Carbon reduction strategies are used by some central banks, aligning with net-zero commitments.

Labelled bond investing is the most applied SRI strategy across central bank portfolios, with green bonds being the largest share. However, only a few central banks have explicit target allocations for labeled bonds, and even fewer measure the positive impact of these investments. Various frameworks are used to assess and select labeled bonds.

The NGFS report suggests that there is no consensus on the best way to integrate sustainability into investment portfolios. The strategies used depend on the central bank's SRI objectives and portfolio characteristics. A formal and transparent SRI policy, approved by the board, is recommended to ensure sustainability is embedded in the investment process.

Section 2: Governance of Sustainable and Responsible Investment Policies

Central banks should establish a formal and transparent sustainable and responsible investment (SRI) policy, approved by the board, to demonstrate leadership in sustainability and ensure its integration into investment processes. The policy should clearly define SRI objectives and scope, detail the investment approach for achieving these objectives, and outline the decision-making framework to ensure consistency. It should also be flexible to accommodate new asset classes and criteria, and be reviewed at least every three years to remain current with the evolving field of SRI. Additionally, central banks are encouraged to enhance their sustainability expertise through knowledge building and staff training.

Section 2.1: Formalisation of SRI Policies

Central banks are increasingly formalizing sustainable and responsible investment (SRI) policies, with a public policy being a clear indicator of commitment to SRI and ensuring ongoing effectiveness. The NGFS SRI survey indicates a significant rise in central banks with formal SRI policies since 2020, primarily focusing on climate and broad ESG considerations, with some also addressing nature and sustainable development goals. The survey reveals that 78% of central banks plan to expand their SRI scope, with current priorities being broad ESG, net zero, and nature-related issues. Despite the challenges in analyzing nature-related risks, their material impact is recognized. An integrated approach to SRI that addresses multiple themes, such as the climate/nature nexus, is seen as beneficial. Data from the survey shows that 84% of central banks with formal SRI policies prioritize broad ESG, followed by 67% for net zero and 47% for nature-related issues. Looking ahead, a similar percentage of banks are considering adopting these principles in their investment portfolio management practices.

Section 2.2: Decision Making Process

Central banks should establish a transparent governance framework to oversee and update their Sustainable and Responsible Investment (SRI) strategies, ensuring continuous attention to their effectiveness. The Network for Greening the Financial System (NGFS) recommends that central banks clearly define the roles and responsibilities of different bodies in this process. Transparency in governance and climate-related disclosures is crucial, with central banks advised to disclose whether they have a formalized SRI policy, the principles of SRI, and the decision-making bodies responsible for SRI. High-level SRI objectives should align with central banks' legal mandates, with the board and management playing a key role in design, implementation, and oversight.

The NGFS SRI survey indicates that while 22% of central banks have dedicated committees for SRI policy, others integrate sustainability into existing committees or establish working groups. Decision-making bodies are involved at various stages of the investment process, with board members often participating in the design of SRI strategies. Some central banks also engage external stakeholders, such as ethics committees, and the executive board typically approves SRI policies.

Capacity building is also emphasized, with central banks encouraged to train staff, hire dedicated employees or consultants, and participate in industry forums and working groups to engage with market participants and enhance their sustainability practices.

Section 2.3: Capacity Building in Central Banks for Sustainable and Responsible Investment

Central banks are actively enhancing their expertise in sustainable and responsible investment (SRI) by investing in staff knowledge and capacity. The Network for Greening the Financial System (NGFS) SRI survey reveals that central banks are focusing on research, capacity building, and collaboration with the NGFS and other international organizations. While the proportion of central banks with staff dedicated to sustainability has remained stable at 35%, there has been an overall increase in the number of full-time employees dedicated to SRI, ranging from 0.5 to 44 in recent years. These employees fulfill various roles essential for SRI implementation, including portfolio management, risk management, market analysis, and reporting. The survey also notes that central banks apply sustainability information using various frameworks and standards, with guidance from the NGFS and the OECD, to interact with companies and other stakeholders.

Section 3: Measure

Investors utilize various frameworks and standards to integrate sustainability information into the investment process, which enhances the measurement of exposure to sustainability factors. The OECD's guidance forms the basis for investor interaction with companies and stakeholders. For climate-related risk and opportunity assessment, investors often rely on guidance from the TCFD, GFANZ, and PCAF. Those aiming to contribute to the climate transition frequently base their approach on guidance from industry bodies like the NZAOA or PAII, which in turn draw on climate targets, pathways, and scenarios from SBTI, TPI, and the NGFS.

The report recommends assessing which standards and frameworks, such as TCFD and ISSB, can better understand sustainability risks and impacts. It also advises on determining the most suitable data, metrics, and tools to measure exposure to sustainability factors. Table 5 in the report provides an overview of various initiatives supporting the implementation of sustainable and responsible investment (SRI), noting their diverse ambitions, objectives, scopes, and characteristics, which range from binding to non-binding and from public to private, with focuses on either methodology or reporting.

Section 3.1: Sustainability Standards and Frameworks

Central banks assess their exposure to sustainability factors by considering a variety of international initiatives and principles. These include the OECD guidelines for multinational enterprises on responsible business conduct, the UN Global Compact, the UN Sustainable Development Goals, and the UN Principles for Responsible Investing, among others. Companies not adhering to UNGC or OECD guidelines are viewed as controversial due to potential reputational risks. The UN PRI offers six principles for integrating ESG issues into investment practices. The International Sustainability Standards Board has adopted TCFD recommendations to establish a global baseline for sustainability disclosures, initially focusing on climate-related information. The table provided outlines various initiatives, highlighting their scope, focus areas, and the aspects they address, such as high-level commitment, exposure and scenario analysis, target setting, enabling actions, and reporting metrics. Central banks are encouraged to align these initiatives with their sustainable and responsible investment (SRI) policies to enhance their understanding of sustainability factors.

Section 4: Sustainability Goals in Central Bank Investment Processes

Central banks are encouraged to incorporate sustainability factors into their investment processes by setting explicit sustainability goals, which can be either quantitative or qualitative. These goals can be applied to specific portfolios or across entire asset classes. Some central banks have adopted a targeted

approach, allocating funds to climate solutions such as renewable energy investments, while others have integrated sustainability goals across their entire investment portfolios, including the exclusion of issuers that violate the United Nations Global Compact (UNGC) principles. The report recommends translating high-level sustainability objectives into specific, actionable goals and considering their implications for traditional investment objectives. It also suggests integrating sustainability factors throughout the investment process using a combination of socially responsible investment (SRI) approaches. To monitor progress, central banks can employ metrics and ESG scores, as previously discussed in chapter three of the report, to assess broad sustainability risks.

Section 4.1: Sustainability Goals

Central banks that have adopted sustainable and responsible investment (SRI) practices are increasingly setting sustainability goals, with 47% having established some form of sustainability goal and 39% setting a net zero target. These goals are often focused on managing risks and creating real-world impacts, such as investing in decarbonization, climate solutions, and sustainable development goals. Tools and metrics used include tilting investment towards low carbon or net zero committed investees, dedicated allocations to green projects, and enhancing ESG scores within portfolios. However, the ability to reduce GHG emissions is often limited by market average decarbonization trajectories and external factors influencing corporate decisions.

The NGFS SRI survey indicates that central banks are also considering forward-looking measures like decarbonization trajectories and implied temperatures to track progress. Despite the challenges, some central banks are incorporating sustainability considerations into their asset allocation models as a fourth pillar, alongside liquidity, safety, and risk-return. The net zero targets set by central banks are primarily expressed in terms of carbon metrics, such as carbon footprint or carbon intensity.

Section 4.2: Implementation Approaches for Integrating Sustainability in Central Bank

Investment Processes

Central banks incorporate sustainability considerations into their investment processes, which are generally divided into strategic asset allocation and portfolio construction. At the strategic level, they aim to integrate risk-return and sustainability factors, using tools such as ESG scores, carbon footprints, climate scenarios, and Paris-aligned benchmarks. However, data and methodological limitations often challenge this integration. In portfolio construction, central banks apply sustainability criteria to select securities and determine portfolio weights, balancing SRI metrics with traditional risk and return measures. Sophisticated techniques are employed to manage the trade-offs between SRI metrics, diversification, and sector-specific impacts. The NGFS SRI survey reveals that over half of the central banks practicing SRI also consider sustainability in their risk management frameworks. Some have established performance-attribution systems to evaluate the impact of SRI strategies on returns and tracking errors. The document includes case studies from DNB and BCRA on integrating sustainability into strategic asset allocation. Additionally, central banks are encouraged to align with net-zero pathways to achieve carbon neutrality by 2050.

Section 4.2.1: Net Zero Goals

Central banks are increasingly considering net zero strategies as part of their sustainable and responsible investment (SRI) practices, aiming to mitigate transition risks and support the climate transition. These strategies involve setting decarbonization targets for their portfolios and investing in climate solutions. Decarbonization targets are achieved through negative screening, best-in-class selection, and stewardship, with carbon reduction pathways guiding the reduction of the portfolio's carbon footprint. Climate solutions

investments focus on innovative technical solutions for energy efficiency and low-carbon production.

The International Investors Group on Climate Change (IIGCC) and the UN-endorsed Net Zero Asset Owner Alliance (NZAOA) provide guidance on setting clear interim targets for carbon footprint reduction. The NZAOA, referencing the latest IPCC report, has established portfolio-level interim targets, aiming for a 22-32% reduction by 2025 and 40-60% by 2030 from a specified base year. To ensure these targets lead to tangible impacts, the NZAOA recommends investor engagement with asset managers and investees to develop credible transition plans.

Investment targets for climate solutions typically involve allocations to companies or projects with significant green revenues. Engagement with companies is crucial to raise awareness, understand their strategies, and mitigate the risks of greenwashing and climate transition.

Section 4.2.1.1: Investing in Companies Acting Towards the Transition

Central banks can influence corporate behavior towards climate transition by investing in companies with low greenhouse gas (GHG) emissions or those with high emissions but credible transition plans. While favoring low-emission companies can meet decarbonization targets in the short term, it may not lead to actual long-term decarbonization and could result in a fallacy of composition. High emitters need to invest in green technologies, which is capital intensive, and some high-emission sectors are essential for the economy. Central banks can use benchmarks like the Transition Pathway Initiative to compare firms' emissions against sector peers.

Engagement and voting are tools for central banks to pressure companies to reduce GHG emissions and align with net zero goals. This includes voting against management or supporting shareholders' climate resolutions, particularly when engagement is not progressing. Central banks may also engage with external asset managers on voting and engagement practices, and consider reducing or terminating investment relationships if managers do not meet expectations.

Stewardship is resource-intensive and presents legal, reputational, and knowledge risks. Central banks can establish objectives, formulate expectations, and measure results to manage these risks. The NGFS SRI survey indicates central banks are cautious with voting and engagement strategies due to operational and reputational considerations. However, knowledge sharing on stewardship within the NGFS is being considered by central banks.

Investing in climate solutions involves allocating funds to sustainable projects. Labelled bonds are commonly used by central banks for this purpose, but there are concerns about their actual impact on GHG emissions reduction at the issuer level. Investors may need to conduct additional analysis to assess the quality of green bonds.

Overall, central banks can play a significant role in fostering the transition to a sustainable economy through their investment strategies, engagement with companies, and collaboration with external asset managers and stakeholders.

Section 4.2.1.2: Investing in Climate Solutions

Investing in green bonds, including those that finance environmental projects and renewable energy, is considered an investment in climate solutions, particularly when aligned with the EU Taxonomy and the Sustainable Development Goals (SDGs). Central banks face specific challenges when investing in sovereign green bonds, such as lower liquidity compared to traditional assets, longer maturities requiring financial engineering to manage duration risks, and potential impacts on currency composition and

diversification due to the uneven issuance of green bonds across countries. The development of sovereign green bond markets is hindered by issues of comparability, transparency, and the availability of impact measures.

Central banks are exploring various sustainable and responsible investment (SRI) strategies, including setting up thematic or green impact portfolios focused on renewable energy and the energy transition. While some central banks prefer third-party specialist products for corporate holdings, a self-directed approach using climate-related metrics is favored for sovereign holdings. However, SRI strategies can conflict with a market-neutral approach, potentially affecting market pricing mechanisms and sectoral capital allocation. Adjustments within sectors can maintain market composition while influencing funding costs for firms with different greenhouse gas (GHG) emissions profiles. Excluding sectors or over-allocating to specific ones could lead to accusations of policy interference and reputational risks for central banks.

The adoption of SRI policies is still emerging and presents trade-offs when combining sustainability goals with investment strategies. Central banks must navigate these challenges while contributing to the transition towards a sustainable economy.

Section 4.3: Trade-offs and Challenges in Sustainable Investment Policies

The adoption of Sustainable and Responsible Investment (SRI) policies by investors, including central banks, is still developing and faces several challenges. Investors may encounter trade-offs between sustainability goals and financial returns. There is no consensus on the expected returns of sustainable investments, with some studies suggesting that sustainability-aware investors can achieve better risk-adjusted results, while others indicate a potential for lower risk-return efficiency. Sustainable investments have shown stable performance, which may be attributed to increasing demand, but long-term returns are expected to depend on market equilibrium.

Central banks must consider the interplay between various sustainability goals, such as the potential conflict between high ESG scores and high greenhouse gas (GHG) emissions. They should also be cautious of carbon leakage, where firms may appear to reduce emissions but in reality, they are transferring pollution outside their perimeter. ESG ratings may not fully capture such phenomena.

The NGFS SRI survey reveals that most central banks anticipate trade-offs between sustainability and other objectives, particularly liquidity, followed by return and safety. In the event of such trade-offs, a majority of central banks are willing to sacrifice some return and, to a lesser extent, liquidity and safety. Central banks may need to integrate sustainability preferences into their utility functions to manage these trade-offs.

Prosperi and Zanin propose a modeling framework to project stock returns under different carbon price scenarios, highlighting the importance of preparing for climate transition risks. Regular evaluation of SRI policies allows central banks to monitor progress and adjust their strategies accordingly.

Section 5: Evaluate

Central banks should regularly evaluate their Sustainable and Responsible Investment (SRI) policies to ensure they remain aligned with evolving methodologies, market practices, data, societal trends, and new knowledge. This evaluation process includes annual assessments of contributions to sustainability goals, updates to metrics and methodologies, and redefining portfolio management frameworks and objectives. It is critical to assess the effectiveness of SRI approaches and consider setting more ambitious sustainability goals.

Monitoring external managers who implement SRI policies is essential, involving an iterative process to enhance ESG incorporation, stewardship, and real-world outcomes. The Principles for Responsible Investment (PRI) provides guidance and tools for selecting, monitoring, and evaluating investment managers, including a disclosure tool and a stewardship assessment framework.

Recommendations include adopting global standard disclosure practices to enable comparability and regularly updating SRI policies based on new knowledge and experience. This includes revising policies to incorporate new themes, expanding to new asset classes, or setting more ambitious targets. Regular and transparent reporting, such as adopting the Task Force on Climate-related Financial Disclosures (TCFD) recommendations, is encouraged to improve SRI policy continuously and align with market practices.

Section 5.1: Monitoring and Reporting on Sustainable and Responsible Investment Policies by Central Banks

Central banks that have adopted Sustainable and Responsible Investment (SRI) practices are increasingly monitoring and measuring the impact of these strategies on their risk-return profiles, with 26% actively doing so and another 26% considering it. Among these banks, 66% utilize SRI metrics, primarily focusing on carbon metrics such as carbon footprint, weighted average carbon intensity (WACI), or total carbon emissions, with 18% also including Scope 3 emissions. Additionally, 34% monitor ESG scores, 21% use forward-looking metrics like implied temperature rise (ITR), and 13% assess the presence of transition plans or Science Based Targets initiative (SBTi) validation.

There has been a significant increase in the disclosure of carbon metrics following the Task Force on Climate-related Financial Disclosures (TCFD) recommendations, with 45% of central banks now reporting a number of carbon metrics, up from 15% in 2020. This disclosure aligns with global standards and contributes to the comparability of information.

The effectiveness of SRI policies is evaluated regularly, with central banks recommended to reassess their SRI goals at least every three years and evaluate policy effectiveness annually. This includes assessing trends in sustainable finance to ensure the SRI policy remains current and incorporates new insights. Central banks are encouraged to use evolving sustainability regulations and industry standards to evaluate their SRI policy design and to benchmark their SRI performance against relevant sustainability and climate standards or peers. This forward-looking assessment helps central banks to understand the impact of their investments, including whether companies are genuinely reducing greenhouse gas (GHG) emissions or simply transferring them, potentially leading to carbon leakage.

Section 5.2: Evaluating the Effectiveness of the SRI Policy

Central banks utilize periodic evaluations to systematically assess their Sustainable and Responsible Investment (SRI) policies, gauging success and pinpointing areas for improvement. These evaluations consider financial and sustainability risk metrics, real-world impact, broader market developments, and performance against climate benchmarks or peers. Risk assessment involves analyzing financial and sustainability risks to determine alignment with predefined risk parameters. Impact assessment measures the tangible effects of SRI portfolios, with studies indicating that investor decarbonization efforts can lead to significant real-world outcomes.

The evaluation process also involves benchmarking against peers and engaging with experts to refine SRI strategies. Central banks can enhance their evaluation by becoming signatories to the UN-endorsed Principles for Responsible Investment (PRI), which aids in benchmarking against market participants. Evaluating the economic impact of SRI strategies both before and after implementation helps central banks

balance financial objectives with sustainability goals. This includes monitoring tracking error and setting bandwidths for portfolios managed internally. The report encourages central banks to collaborate and determine the most effective combination of SRI strategies to achieve real-world impact.

Section 6: Next steps

The report acknowledges the progress central banks have made in incorporating sustainability criteria into their portfolio management, particularly in the use of and disclosure of sustainability-related metrics. However, it notes the challenges in integrating forward-looking and alignment techniques due to the current limitations in the quality, transparency, and actionability of these metrics. Central banks are recognized for their efforts to mitigate climate-related risks and support a smooth transition to a sustainable economy, with an understanding that concrete steps are necessary to integrate climate considerations into investment processes.

The Sustainable and Responsible Investment (SRI) workstream of the NGFS will continue to focus on capacity building to enhance SRI practices among its members. It plans to evaluate common stewardship practices and principles, considering central banks' experiences to foster real-world impact through investment steering. The NGFS also aims to develop expertise in assessing investees' transition plans and to establish common criteria for credible and useful transition plans.

Looking ahead, the SRI workstream will broaden its scope to address financial risks and impacts associated with nature and biodiversity loss, reflecting their growing recognition by investors. This expansion of focus underscores the increasing awareness of the interconnectedness of climate and environmental issues within the financial system.

Section 7: Case studies

De Nederlandsche Bank (DNB) incorporates sustainable and responsible investment (SRI) criteria into its strategic asset allocation (SAA) process, which is reviewed every three years and determines the investment distribution across various asset classes. DNB's dual investment objective includes achieving solid risk-adjusted returns and contributing to sustainable prosperity, in line with its mission as a central bank. To this end, DNB has integrated Paris-aligned benchmarks from MSCI to evaluate the impact of SRI on portfolio performance.

The SAA process at DNB considers SRI and climate risks at multiple levels. Qualitatively, it assesses the potential for SRI integration within each asset class, considering factors like Paris alignment frameworks and ESG indicators. Quantitatively, it employs long-term scenario analysis based on IPCC climate scenarios to evaluate risks and returns across asset classes under different climate transition scenarios. This analysis helps to determine how various scenarios might affect the optimal asset allocation.

However, the integration of SRI in the SAA process faces several challenges, including model limitations due to uncertainties in climate pathways and technological innovation, reliance on estimated rather than reported carbon data, and the potential for mixed signals from asset classes that perform well in climate transition but may not offer the best SRI opportunities. Additionally, the scenario analysis does not fully account for the impact dimension of responsible investment, and the top-down approach may overlook the positive real-world impacts achievable through bottom-up strategies within asset classes.

Despite these limitations, the climate analyses provide valuable insights into the potential effects of climate change on DNB's portfolio. The results are used as supportive information rather than the primary basis for investment decisions. DNB plans to refine its SAA approach as better data and models become available.

Section 7.1: The Integration of ESG Considerations in Central Banks' Strategic Asset Allocation

The Asset Management department of Bank Negara Malaysia (BNM) leads the integration of Environmental, Social, and Governance (ESG) considerations into its strategic asset allocation (SAA), with the Board responsible for approving the SAA and key investment decisions. BNM's approach is supported by an external advisor for economic scenario modeling and climate analysis. The Board, advised by DNB's Investment Committee and Risk Management Committee, ensures that reserve management objectives are met, ESG metrics are tangible and measurable, and there is an increased allocation in ESG-labelled bonds. BNM's ESG investment framework is built on maintaining reserve management objectives, benchmarking with other central banks, and using relevant data. BNM has been increasing its exposure to ESG-labelled bonds and is committed to continuous capacity building and progress in ESG investments.

Section 7.2: ESG Integration in Bank Negara Malaysia's Investment Strategy

The section details a three-step integration process for sustainable and responsible investment (SRI) in financial portfolio management. Initially, since 2012, a negative screening strategy has been employed to exclude investments in non-SRI sectors such as defense and tobacco. A top-down asset allocation framework is then applied, which is informed by macro-economic and financial market outlooks, and considers fundamental and valuation assessments to project asset class returns. The third step involves a mean-variance optimization that incorporates ESG ratings with expected returns and credit ratings to determine the optimal portfolio. The Bank Negara Malaysia (BNM) standardizes ESG metrics by subscribing to a single data provider, and selects the Strategic Asset Allocation (SAA) based on risk-adjusted returns, liquidity needs, and ESG ratings.

The Banco Central de la República Argentina (BCRA) began evaluating the impact of ESG investing on its reserves management in 2021. A study recommended that BCRA integrate "environmental protection" into its investment objectives and monitor international developments through participation in the Network for Greening the Financial System (NGFS). Subsequently, BCRA updated its investment guidelines to include proactive strategies promoting environmental protection.

BCRA developed a two-stage plan to align reserve management with the Paris Agreement's objectives. The first stage involves incentivizing counterparties through environmental scoring, and the second integrates these scores into strategic asset allocation. BCRA selected the MSCI Implied Temperature Rise (ITR) as its primary environmental metric due to its transparency and comparability, utilizing Bloomberg's platform for accessibility.

Section 7.3: A Sequential Screening Strategy of Financial Counterparts Based on Environmental Scores and Their Introduction in the Strategic Asset Allocation

The first stage of Sustainable and Responsible Investment (SRI) implementation by the BCRA involved classifying counterparties based on their environmental scores (E-scores), which was formally adopted in January 2023. This classification used the Implied Temperature Rise (ITR) metric, alongside three other metrics (ISS Quality Score, Sustainalytics ESG Risk Score, and CDP Climate Score) to minimize model risk and ensure full coverage of eligible counterparties. Counterparties were categorized into "green," "brown," or "yellow" groups based on their alignment with the Paris Agreement objectives. The "green" group, considered leaders, received a 10% increase in credit limits, subject to high credit profiles. The "brown" group, considered laggards, faced credit limit restrictions, while the "yellow" group received no penalties or rewards.

The second stage of SRI implementation, to be proposed for Board approval in the first quarter of 2024, aims to integrate environmental scores into the BCRA's strategic asset allocation (SAA) model. The model will incorporate the Climate Change Performance Index (CCPI) to estimate the environmental score of investment portfolios within the efficient frontier determined by the current SAA framework. This integration seeks to align the BCRA's investment strategy with environmental considerations while maintaining risk-adjusted returns and hedging against external shocks.

Section 7.4: Sustainability Transition of the Developed Market Equity Portfolio

Latvijas Banka (LB) has integrated sustainability into its investment management, focusing on climate-related risk and ESG factors. LB's investment portfolio, primarily in fixed income (82%), equities (11%), and gold (7%), now includes sustainability as a guiding principle alongside capital preservation, liquidity, and income generation. The equity class, particularly in developed markets, is seen as the most effective for implementing a sustainable and responsible investment (SRI) strategy due to better data availability.

LB's sustainability strategy, implemented in 2022 for developed market equities, emphasizes climate risk mitigation with a goal of carbon neutrality by 2050 and an initial target of a 50% reduction in carbon intensity. The strategy includes thematic investments in green opportunities and a transition glide path. Stewardship responsibilities are outsourced to an external asset manager with a comprehensive policy.

The strategy also involves engagement over exclusion, preferring to influence corporate behavior rather than outright divestment. Portfolio tilting is used to favor companies with better ESG scores and practices in biodiversity and waste management. The sustainability strategy was developed in alignment with Latvia's national goals, EU policies, and Eurosystem targets, with a focus on climate neutrality and addressing challenges such as climate change adaptation, inequality reduction, pollution prevention, and biodiversity conservation.

LB's approach includes a preference for a broad market index over a Paris-aligned benchmark and a gradual implementation of thematic tilting, with annual reviews. The Bank is also working to incorporate sustainability objectives into other portfolios and expects that sustainability-related data disclosures will improve over time, allowing for further enhancements in risk management frameworks.

Section 7.5: National Bank of Belgium - Labelled Bond Strategy

The National Bank of Belgium (NBB) has integrated sustainability as a key objective in its strategic asset allocation policy, which is guided by the NBB's Socially Responsible Investment (SRI) Charter. The Charter outlines five pillars: Screening, Embedding, Financing, Disclosing, and Engaging. Despite considering a switch to a Paris Aligned benchmark, the NBB has opted to maintain its current broad market benchmark for several reasons, including lower portfolio turnover, tracking error, index license fees, and the flexibility to separate strategic asset allocation from sustainability considerations.

Collaboration with an external manager has provided the NBB with analytical and operational capabilities for daily portfolio rebalancing, as well as access to the manager's proprietary sustainability data model. This model, which combines data from various providers, is considered efficient and reliable by the NBB, especially given the limited sustainability data available in-house.

The NBB has a dedicated strategy for investing in labelled bonds, which are thematic assets that support the transition to a sustainable and inclusive net-zero economy. As of the end of 2022, approximately 10% of the NBB's total bond portfolio, valued at around EUR 2 billion, was invested in thematic assets. The NBB

aims to increase this share, aligning with its labelled bond target outlined in the SRI Charter and climate-related financial disclosures.

The NBB ensures that proceeds from labelled bond issuances are allocated to projects that meet green, social, or sustainability objectives, adhering to standards such as the Green Bond Principles, Social Bond Principles, or Sustainability Bond Guidelines by the International Capital Market Association (ICMA). The NBB also supports the UN Sustainable Development Goals through these investments.

The governance process for implementing the SRI Charter involves the NBB's Financial Markets Department, the Investment Committee, and the Board of Directors. The Investment Committee oversees the Charter's implementation, while the Board decides on strategic directions. The Financial Markets Department staff monitors key indicators and reports on progress and challenges.

Despite the benefits, there are challenges in setting a labelled bond target, such as portfolio size fluctuations and high greenhouse gas (GHG) emissions from green bond issuers. The NBB addresses these challenges by analyzing portfolio evolution and setting relative targets. It also discloses the carbon impact ratio to provide a clearer picture of climate-related performance.

In summary, the NBB's approach to SRI emphasizes the importance of sustainability in investment decisions, the benefits of external management partnerships, and the commitment to increasing investments in thematic bonds while navigating the challenges associated with such a strategy.

Section 7.6: Bank of Finland - Selecting and Monitoring External Fund Managers

The Bank of Finland (BoF) employs a selection and monitoring process for external fund managers that aligns with its investment objectives of liquidity, safety, return, and responsibility. This process involves the use of a comprehensive in-house developed questionnaire, which assesses the fund managers' ESG integration, thematic investments, and norm-based screening approaches, as well as their capacity to manage ESG risks and opportunities. The selection and monitoring process is overseen by the Responsible Investment Working Group and the asset management office, with findings reported to the BoF Board.

The due diligence for appointing new external fund managers includes an analysis of their ESG/RI approaches, investment team capacities, and regulatory compliance. The process is designed to ensure that the BoF's climate targets for asset classes and the overall portfolio are met. Continuous monitoring of the fund managers' ESG/RI activities is conducted through annual questionnaires, meetings, and external reports, including PRI and GRESB reports for real estate investments.

Challenges in this process include the timely availability of necessary data for BoF's reporting and the need for internal capacity building among portfolio managers. Despite these challenges, the BoF maintains that the integration of such information requests into the investment decision-making process supports traditional central bank objectives without causing harm.

Section 7.7: Portfolio Decarbonisation Pathways and Corporate Transition Plans Assessment

Banca d'Italia (BdI) has integrated financial and sustainability objectives into its investment policy, aiming to mitigate financial risks, generate returns, and support the Paris Agreement and EU's carbon neutrality goals. BdI's Responsible Investment Charter and the Strategic Plan for 2023-2025 emphasize responsible investing and portfolio decarbonization. BdI uses data from Bloomberg, MSCI, and SBTi for corporate transition plans and has expanded its green bond holdings, adhering to ICMA's Green Bond Principles.

BdI engages with companies to understand and influence their decarbonization efforts, initiating dialogues with major carbon emitters in its equity portfolio. It addresses sustainability metric concerns, such as data delays, discrepancies in emissions projections, and the lack of a common framework for evaluating climate commitments.

Sustainability criteria are applied at the strategic asset allocation and security selection levels, with exclusions for certain sectors and a focus on issuers with strong ESG scores and decarbonization strategies. The governance of sustainable investments involves multiple committees, with the Climate Change and Sustainability Committee promoting ESG risk and opportunity analyses.

BdI's strategic allocation proposals consider financial, climate, and sustainability risks, and aim for portfolio decarbonization. The Investments Committee ensures alignment with strategic objectives, and the Governing Board oversees climate-related reporting. BdI's internal and external reporting includes financial and sustainability portfolio profiles and fulfills commitments to transparency and sustainable finance culture promotion. The challenges of ESG data availability and quality, particularly for private market investments, are acknowledged.

Section 7.8: Net Zero Investment Approach on Corporate Portfolio

The Hong Kong Monetary Authority (HKMA) has adopted a governance framework for responsible investment of the Exchange Fund, emphasizing the importance of considering ESG factors, including climate change, to unlock sustainable long-term values and reduce investment risks. The Exchange Fund Advisory Committee (EFAC) endorsed this framework and delegated ESG risk oversight to its Investment Sub-Committee (ISC), which approves the risk management strategy and monitors progress towards net-zero GHG emissions by 2050. The Sustainable Investing team within the Exchange Fund Investment Office collaborates with portfolio teams to implement the strategy and reports to the ISC.

Similarly, the Banque de France (BdF) is committed to aligning its own fund and pension fund portfolios with a global warming trajectory of well below 2°C, reflecting a broader movement among central banks to integrate sustainable and responsible investment practices into their portfolio management. Both institutions are part of a trend where central banks are setting net-zero targets and prioritizing ESG investments to support government climate strategies and demonstrate leadership in the transition to a sustainable economy.

Section 7.9: Banque de France - Temperature alignment / Net zero strategies for own funds and pension fund portfolios

The Banque de France (BdF) has aligned its investment portfolios with the Paris Agreement's sub-2°C warming target, achieving this for the equity component of its own funds by 2019 and maintaining it through 2022. This alignment was extended to the equity component of its pension liabilities portfolio in 2021, with both the equity and corporate bond components of this portfolio remaining within the 1.5°C to 2°C range by the end of 2022. To assess alignment, BdF evaluates companies' past and projected carbon emissions trajectories against a benchmark trajectory, using methodologies recommended by the Science Based Targets Initiative (SBTi) and in line with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations.

BdF employs a two-stage investment approach, filtering out companies least compatible with the 2°C target and favoring those that are aligned. Approximately 5% of the worst-performing companies are excluded from the investment universe, though exceptions are made for companies significantly contributing to the energy transition while maintaining overall portfolio alignment. The responsible investment strategy is

overseen by BdF's Finance Directorate and reviewed annually by the General Council, with strategic decisions made by the Assets-Liabilities Committee and the Pension Plan Strategic Committee. Execution is managed by a quarterly investment committee, and BdF's climate strategy is coordinated by an Executive Committee on Climate Change and supported by climate expert networks.

Challenges in this process include the complexity of data and its coverage, with S&P Global Sustainable1 providing carbon alignment data covering Scope 1 and Scope 2 GHG emissions for 2012-2030. These data are used to compare company-specific emissions trajectories with theoretical trajectories that would comply with sub-2°C global warming.

Section 7.10: Norges Bank - Climate Stewardship with Investee Companies

Norges Bank Investment Management (NBIM), the arm of Norway's central bank responsible for managing the Government Pension Fund Global, has updated its climate change expectation document to guide its engagement with investee companies. The document, revised in 2023, outlines NBIM's expectations for companies to integrate climate risks and opportunities into their strategies and emphasizes the role of company boards in overseeing climate risk management and transparent reporting of greenhouse gas (GHG) emissions. NBIM advocates for companies to set science-based interim emission reduction targets and commit to net-zero emissions by 2050 or earlier, in alignment with the Paris Agreement.

NBIM's climate action plan, published in 2022, details the fund's approach to managing climate risks and opportunities, aiming to drive portfolio companies towards net-zero emissions by 2050. The plan includes engaging with companies representing 70% of the equity portfolio's financed emissions, creating a focus list of around 250 companies for targeted dialogue. The fund may take actions such as voting against directors or proposals and filing shareholder proposals if companies fail to meet core expectations.

The fund faces challenges in maintaining a principles-based approach to dialogue without becoming prescriptive, and in dealing with data quality issues for benchmarking. Engagements are sector-specific and involve portfolio managers to understand the financial implications of companies' transition plans. The share of the fund's financed scope 1 & 2 emissions covered by credible net-zero targets has increased significantly, indicating progress in the fund's stewardship efforts. However, building relationships and knowledge for effective stewardship is a long-term process that may require several years of engagement with non-responsive companies.

Appendix: Net Zero Approaches, Considerations and Metrics

The Appendix of the report delineates the methodologies and metrics for central banks to implement net zero approaches in their portfolio management. It outlines strategies for portfolio construction, stewardship, and thematic investing, including considerations for the integration of greenhouse gas (GHG) emissions data, engagement with investee companies, and setting targets for climate solutions investments. The Appendix also lists various possible portfolio metrics to measure the effectiveness of these strategies, such as the percentage of revenue aligned with the European Union tax, share of fossil fuel revenues, and the implied temperature rise. Additionally, it provides a compilation of figures, tables, and boxes that support the report's analysis, including a three-step approach to the adoption of sustainable and responsible investment (SRI) by central banks, the current and future scope of central bank SRI policies, and a survey methodology on SRI portfolio management.

Appendix: Glossary

The Appendix of the document serves as a glossary, defining key terms and concepts related to

Sustainable and Responsible Investment (SRI) strategies, financial objectives, and various types of emissions and bonds. It includes definitions of investment approaches, strategies, and metrics used to assess and manage sustainability risks and opportunities within financial portfolios. The glossary also clarifies the roles and responsibilities of investors, such as fiduciary duty and stewardship, and outlines different asset classifications and allocation strategies pertinent to central banking and SRI practices.

Appendix: Acronyms

The Appendix of the report contains a comprehensive list of acronyms and abbreviations used throughout the document, providing a reference for the various terms related to financial regulation, climate change, and sustainable investment practices. This includes organizations, initiatives, benchmarks, and concepts that are pertinent to the central banking and financial sectors' engagement with sustainable and responsible investment.