

Progress report on the implementation of sustainable and responsible investment practices in central banks' portfolio management

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Joint foreword by Frank Elderson and Dr Sabine Mauderer



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The Covid pandemic is demanding our full attention, as we are still in the midst of an economic crisis. Governments and central banks have responded to this by taking unprecedented financial measures to steer our economies through the crisis. Yet, we cannot wait for the pandemic to pass before working towards a greener and cleaner future. The threat of climate change still exists, and the need to curb carbon emissions is as urgent as ever.

Thankfully, a growing number of central banks and supervisors is rising to the challenge. Mirroring this trend, NGFS membership has increased considerably. This month, as the NGFS celebrates its third anniversary, we count 83 members, compared with eight founding members. Collectively, we have made progress in the areas of micro-prudential and macro-prudential supervision, as well as in central banks' portfolio management and monetary policy. Moreover, the new workstream on bridging the data gaps is taking important steps to improve the quality of sustainability data essential to all the work of the NGFS.

A year ago, the NGFS published its inaugural guide on how central banks could integrate sustainable and responsible investment (SRI) practices into their portfolio management. The present SRI Progress Report shows that central banks are increasingly practising what they preach. They are progressively endorsing SRI principles in their investment strategies, alongside steps to improve monitoring and reporting. While this is an encouraging development, we are not there yet.

To accelerate these advances, we consider it paramount for central banks (i) to help improve the consistency, comparability and granularity of ESG data, (ii) to formalise SRI policies, and (iii) to embed SRI in governance principles and reporting practices. We are encouraging those central banks that have not yet embraced SRI principles to lever off the experience gained by first movers. Similarly, we are challenging central banks at the forefront of these developments to further enhance their SRI practices with the aim of meeting the goals of the Paris Agreement.

Our window of opportunity to limit global warming to less than 1.5 degrees above pre-industrial levels is closing fast. It is hence essential that we bundle our efforts and support a green recovery. The focus should not be on re-building the old economy with the inherent climate risks it presents. Now is the time to act and to lay the groundwork for an orderly transition to a more sustainable economy and climate-resilient financial system.

We are grateful to all NGFS members and observers for staying committed to our goals in these testing times. In the same spirit, we urge you to reap the full benefits of the network as a knowledge hub and a platform for exchanging views and experiences. Finally, our special thanks go to the NGFS community as well as the NGFS secretariat for their contribution to this SRI Progress Report. Without their tireless work, we would not be where we are today.

Contents

Joint foreword by Frank Elderson and Dr Sabine Mauderer	2
Executive summary	5
Origin of the NGFS	7
1. Introduction	8
2. Motivations for the adoption of SRI practices	9
3. SRI practices in central banks' portfolios	11
4. Application of SRI strategies	14
4.1 Negative screening	14
4.2 Best-in-class approach	17
4.3 ESG integration	17
4.4 Green bonds and impact investing	18
4.5 Voting and engagement	20
5. Monitoring, reporting, and data	22
5.1 Metrics	22
5.2 Data quality and availability	22
5.3 Reporting and disclosures	24
6. Embedding SRI in the organization and governance	26
7. Preliminary risk management considerations	28

8. Central bank case studies	29
8.1 Banca d'Italia: ESG policy integration in equity funds	29
8.2 European Central Bank: Low-carbon equity benchmarks in the pension portfolio	30
8.3 Deutsche Bundesbank: Sustainable investing in third-party portfolios	31
8.4 Banque de France: Publishing a dedicated SRI report	32
8.5 Bank of Finland: Experiences with becoming a PRI signatory	33
8.6 De Nederlandsche Bank: Climate stress testing the central bank's balance sheet	34
Bibliography	36
Annex 1: Characteristics of central banks' portfolios	38
Annex 2: List of survey participants	39
Acknowledgements	40
Glossary	41

Executive summary

The Network for Greening the Financial System (NGFS) believes that the adoption of sustainable and responsible investment (SRI) practices by central banks is important for better managing environmental, social and governance (ESG) risks and further greening the financial system. The pandemic strengthened the case for proper tail risk identification by demonstrating the impact ESG risks can have on the financial system. A similar perspective is required when addressing financial risks associated with climate change. Last year's SRI guide encouraged central banks across the globe to lead by example by including sustainability considerations in their portfolio management. This year's SRI progress report aims to keep this momentum going by reporting on the steps central banks have taken over the last year, as well as the future objectives needed to speed up the transition towards a carbon-neutral economy.

The SRI progress report builds upon a dedicated survey of NGFS members, representing a total of 40 central banks from five continents. Moreover, deep dives on selected themes were performed to gain a better understanding of central bank-specific considerations associated with the adoption of SRI principles. Compared with last year, the sample size grew by 50% reflecting a growing willingness among central banks to take action and enhance transparency. The survey responses highlight that awareness of reputational risks and the desire to set a good example are still considered key motivations for the adoption of SRI practices by central banks. Protecting against downward ESG risks also ranks prominently as it becomes more apparent that climate change can result in material financial damage.

As things currently stand, a large majority of the respondents have taken initial steps in adopting some form of SRI practices in one or more of their portfolios, or are planning to do so. This is remarkable given that central banks continue to face specific challenges in their pursuit of SRI, stemming from their policy mandates, portfolio composition and independency (NGFS, 2019b). Moreover, the relative share of SRI adoption has grown markedly for three out of the four most common portfolio types (policy,

own funds, pension and third-party portfolios). Similarly to last year, central banks are tending to implement SRI practices predominantly in their own portfolios, followed by the policy portfolios held for foreign exchange (FX) intervention and/or financial returns, and the pension portfolios.

Central banks have varying SRI objectives, and many of them are still determining what combination of investment strategies would best align with their portfolios' characteristics. The survey indicates that green bond investing, negative screening and ESG integration are currently popular investment strategies among the respondents. While less popular, (proxy) voting and engagement are also being utilized by a number of central banks. The deep dives point out that central banks take different approaches in the implementation of these strategies, as there is no one-size-fits-all solution. Moreover, many respondents have not yet formalized their SRI approach in a policy document, as they are still exploring which SRI objectives to pursue.

Central banks' monitoring and reporting frameworks are advancing, and steps have been taken to further embed SRI in their governance structures. Over one-third of the respondents monitor the carbon footprint of their investment portfolios, with half of them disclosing this information. Reporting in line with established frameworks is gaining traction but remains modest. Only 10% of the respondents indicate that they follow the recommendations issued by the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD), whilst another 30% are considering doing so. Progress has been made in terms of embedding SRI in governance structures, as some central banks have put a dedicated SRI committee in place or hired staff focusing on SRI. Finally, some respondents have started including climate or ESG-related risks in their risk management or control practices, and are exploring the possibility of applying climate stress testing to their own balance sheets. Sustained further efforts are needed to achieve a consistent and broad coverage of climate-related financial disclosures across the central bank community.

There is indeed still much work to be done, including with regard to the quality and comparability of ESG data. Over one-third of the respondents use ESG and climate-related data from (external) providers. Despite this, central banks remain cautious in their utilization of ESG data, mainly owing to limited comparability across providers. This is especially true for relatively new forward-looking metrics – such as 2°C alignment or other transitional and/or physical risk indicators – that may help banks to reach the goals set out within the Paris Agreement. More standardization and transparency, as well as engaging with ESG data providers, can help in converging towards more consistent and comparable metrics.

Similarly to last year, the progress report concludes with case studies of first-hand experiences of NGFS members to help keep momentum going. While further work is still needed on data issues, disclosures and a global taxonomy, awareness is growing among central banks around the world. A number of respondents have taken tangible steps towards adopting SRI practices for one or more of their portfolios. Some central banks have further advanced their SRI approach after having gained first positive experience. This highlights that objectives, scope and strategies can be adjusted and refined over time, as long as central banks take the first step. The case studies are intended to help build critical momentum and to remove obstacles preventing other central banks from following suit, thereby speeding up the transition towards a carbon-neutral economy.

Origin of the NGFS



8 central banks and supervisors established a Network of Central Banks and Supervisors for Greening the Financial System.



As of December 2020, the NGFS consists of

83 Members 13 Observers representing 5 continents.



The NGFS is a coalition of the willing.

It is a voluntary, consensus-based forum whose purpose is to share best practices, contribute to the development of climate –and environment– related risk management in the financial sector and mobilise mainstream finance to support the transition toward a sustainable economy.



The NGFS issues recommendations

which are not binding but are aimed at inspiring all central banks and supervisors and relevant stakeholders to take the necessary measures to foster a greener financial system.



1. Introduction

Awareness of the need to act on climate change is growing among financial market participants.

The number of assets managed or owned by signatories of the Principles for Responsible Investment (PRI), for instance, has increased by 22% over the last year and today amounts to a staggering \$2750 trillion (PRI, 2020). That said, the goal of a green and low-carbon economy consistent with the target of less than 1.5°C global warming above pre-industrial levels is still far off. The International Energy Agency (IEA) estimates that global CO₂ emissions will decline by almost 8% in 2020 as a result of the COVID-19 crisis (IEA, 2020). Such a reduction would be the largest in history, six times larger than the previous record reduction during the global financial crisis. To limit global warming to less than 1.5°C above pre-industrial levels, analysts estimate that global emissions would need to fall close to this year's drop every year for the coming decade (Carbon Brief, 2020).

The NGFS aims to contribute to the development of environment and climate risk management in the financial sector, as well as to mobilize mainstream finance to support the transition towards a sustainable economy (NGFS, 2020a). In its first comprehensive report *A call for action: Climate change as a source of financial risk*, the NGFS put forward six non-binding recommendations (NGFS, 2019a). In recommendation 2, the NGFS encourages central banks to lead by example in their own operations: without prejudice to their mandates, this includes integrating sustainability factors into the management of their portfolios where deemed possible and relevant (own funds, pension funds and reserves).

In 2019, the NGFS published the sustainable and responsible investment (SRI) guide for central banks' portfolio management (NGFS, 2019b). Within the guide, SRI was introduced as an umbrella term comprising multiple objectives, strategies and investment practices. These objectives range from addressing sustainability risks

to generating a positive impact, and the scope varies from climate-specific to broader ESG approaches.¹ The guide recognizes that there is no one-size-fits-all SRI solution for central banks, given their distinct legal mandates and portfolio characteristics. By outlining the possibilities and showcasing practical examples, the guide serves as an inspirational roadmap for those central banks wishing to adopt SRI practices in one or more of their portfolios or seeking to refine their current approach.

The 2020 progress report assesses the steps taken by central banks towards the adoption of SRI practices over the last year in order to keep momentum going and encourage other central banks to follow suit.

It builds upon the 2019 SRI guide by comparing the results of a new survey with the initial stock-take included in the guide. A total of 40 central banks representing five continents have submitted this year's survey, compared with 27 banks last year.² In addition to the survey, deep dives on selected themes have provided a better view of central bank-specific considerations. New case studies of NGFS members' first-hand experiences are included, yielding practical insights.

This progress report mirrors the structure of the SRI guide. Chapter 2 starts by describing the key motivations for the adoption of SRI practices. Chapter 3 discusses the survey results and sets out key observations by portfolio. Chapter 4 builds upon these results and debates central banks' rationale behind the application of specific SRI strategies. Chapter 5 explains how monitoring and reporting frameworks have been enhanced further. Chapter 6 describes what steps have been taken to further embed SRI in central banks' governance and organizational structures. Chapter 7 highlights the importance of SRI in risk management practices. The document concludes with the first-hand experiences of NGFS members in the form of six case studies on various themes (Chapter 8).

¹ We have chosen this classification to maintain consistency with last year's SRI guide. As there is no uniform terminology for sustainable and responsible investment, we acknowledge that other market participants may use different definitions. The PRI, for instance, uses another definition, which can be found here: <https://www.unpri.org/download?ac=10223>.

² A list containing all survey participants of this year can be found in Annex 2.

2. Motivations for the adoption of SRI practices

- **This year's motivations for the adoption of SRI practices in central bank portfolio management are largely consistent with last year's results. While the number of respondents has increased from 27 to 40, the top three motivations for SRI have remained the same.**
- **Awareness of reputational risks and the desire to set a good example are considered crucial by central banks. Protecting against downward ESG risks also ranks prominently, as it is becoming more evident that climate change can result in material financial damage.**
- **As of yet, there is no consensus on how central banks should address ESG and climate-related risks in their portfolio management, as many are still in the process of gaining a better understanding of the way SRI fits within their specific mandates.**

Reputational risk and setting a good example are again considered as the key motivations for the adoption of SRI practices (Table 1). In their role as public institutions, central banks are subject to public scrutiny if they fail to address stakeholders' climate change-related concerns. This is especially true if a central bank calls upon the financial sector to address climate-related risks, but fails to appropriately address these risks in its own operations. Against this backdrop, the NGFS encourages central banks to lead by example by integrating sustainability factors into their portfolio management without prejudice to their mandates (NGFS, 2019a and 2019b). Various central banks explicitly named this NGFS recommendation as a motivation for the adoption of SRI practices.

T1 Motivations for SRI as ranked by central banks in the 2020 and 2019 surveys

Motivation for SRI	Rank 2020	Rank 2019
Reputational risk	1	1
To set a good example	2	3
Protecting against sustainability risks (e.g. physical and/or transition risks)	3	2
Enhancing risk-return profile	4	4
Complying with international standards or frameworks	5	6
Generating positive impact (e.g. by investing in line with Paris Agreement, SDGs)*	6	N/A
Required by beneficiaries/stakeholders	7	5
Fiduciary duty	8	7
Other	9	8
Legal requirements*	10	N/A

* Not included in 2019 survey.

Protecting against downward ESG and climate-related risks ranks third in central banks' motivations.

This signals ongoing support for the notion that climate change and other ESG risks can lead to financial damage. There is no consensus, however, about the way central banks should protect themselves against these downward risks within their portfolio management, as this also depends on the leeway afforded by their mandate and the respective portfolio under consideration. Some central banks abide by a market neutrality principle in order to have a maximum impact without distorting relative pricing mechanisms.³ Others, however, have more room to follow a proactive approach and can choose to exclude (parts of) the investment universe or make relatively larger allocations to sustainable companies.

³ The interpretation of the principle of market neutrality varies and is under debate by central banking officials, academics and other policymakers. For the euro area, market neutrality is understood to mean that the distribution of central bank investments should be proportional to the eligible universe in terms of total outstanding in order to avoid distorting market functioning and creating relative pricing differences, the goal being to facilitate an efficient allocation of resources. This is now debated, however, as some argue that acting in accordance with the principle of an open market economy does not necessarily imply that a central bank should strictly adhere to market neutrality under all circumstances, particularly in the presence of market failures. This was recently highlighted by, amongst others, ECB's Executive Board Member Isabel Schnabel and ECB's President Christine Lagarde. See the survey on monetary policy operations for a discussion on principles set out in central banks' mandates (NGFS, 2020b).

Similarly to last year, improving the risk-return profile and complying with international standards ranked highly in central banks' motivations.

While some central banks observed that SRI investments were more resilient during the downturn triggered by the COVID-19 pandemic, this observation has not resulted in risk-return considerations ranking more prominently (fourth place in both 2019 and 2020). Regarding compliance with international standards, central banks mostly follow widely accepted principles related to human rights, environmental protection and controversial weapons. Specific frameworks that were mentioned include the UN Global Compact (UNGC) and the TCFD recommendations.

Two new answers were added to the list of motivations, namely generating a positive impact and abiding by legal requirements.

Generating a positive impact ranks sixth, suggesting that central banks may adopt an extra-financial SRI objective (i.e. real-world impact) alongside a financial SRI objective (i.e. risk-return-related motivations). Abiding by legal requirements is currently deemed least important, which suggests that central banks' adoption of SRI practices is not being driven by legal requirements stemming from climate change mitigation policies put in place by governments.

The broader adoption of SRI practices by central banks is important as it stresses the need for more collective action by policymakers and private actors.

The Bank for International Settlements (BIS) motivates central banks to be proactive in calling for broader, coordinated change in order to continue fulfilling their own mandates of financial and price stability over the longer term. The way in which central banks manage their portfolios can support this broader call for action. At the same time, central banks cannot replace governments and private actors in order to make up for their lack of action (Bolton et al., 2020). As such, central bank adoption of SRI practices can help to better manage ESG risks and enhance other climate change mitigation policies, but will not in itself be sufficient to mobilize enough capital to finance the transition.

3. SRI practices in central banks' portfolios

- **This year's survey confirms that central banks mostly adopt SRI practices in their own portfolios, followed by the policy portfolios held for FX intervention and/or financial returns and the pension portfolios.**
- **Central banks are taking steps to further adopt SRI practices in their portfolio management. The level of SRI adoption has grown markedly for three out of four portfolio types. Most progress is being made within the pension portfolios.**

Central banks typically hold different portfolios with various goals, depending on their respective mandates (Annex 1). Their investment practices are largely dictated by policy objectives. The SRI guide identifies four different portfolio types.

1. **Policy portfolios** are at the heart of central banks' mandates, and are generally held for FX intervention and/or financial returns, the execution of asset purchase programs or other monetary policy goals. These portfolios generally constitute the largest pool of liquid assets managed by central banks, and mainly comprise high-grade government and supranational debt. The discussion and survey responses in this report relate only to the portfolios denominated in foreign currency (FX policy portfolios).
2. **Own portfolios** are typically not dictated by a specific policy objective, and aim to generate returns within a certain risk tolerance level. The asset mix of these portfolios often includes equities, corporate bonds and sometimes private debt, in addition to government and supranational debt.

3. **Pension portfolios** serve as a long-term savings account for retirement and tend to have a longer investment horizon.⁴ These funds are generally invested in more diverse asset classes and geographic locations compared with those of own and policy portfolios.
4. **Third-party portfolios** are subject to client demands. Examples are the foreign reserves managed on behalf of a local government or of the European Central Bank (ECB). The objectives and asset allocation of these portfolios vary, as these attributes are determined by the third party.

The specific objectives and characteristics of a portfolio determine the extent to which SRI objectives can be adopted. The SRI guide concluded that the policy portfolios provide less room to adopt an SRI objective owing to the overriding policy mandate (NGFS, 2019b). Own portfolios were considered to afford more leeway to adopt SRI practices, as these are often held to generate a return and are generally less bound by the central bank's policy mandate. As holdings in pension portfolios are more diverse and tend to have a longer-term focus, these are also suited to the adoption of SRI practices (provided that this aligns with the beneficiaries' demands).⁵ Third-party portfolios are more heterogeneous and are subject to varying client demands.

This year's survey results highlight the fact that central banks are widely adopting SRI practices. Out of the 40 respondents, 88% integrate or are considering integrating SRI practices into one or more of their portfolios (compared with 92% of 27 respondents in last year's survey). Most central banks base their SRI approach on both ESG and climate-related considerations (Box 1).

4 Note that the NGFS survey, and therefore this progress report, only considers pension portfolios that are part of central banks' balance sheets. This means that pension schemes for central bank employees managed by a separate foundation or other off-balance-sheet vehicle are not taken into account.

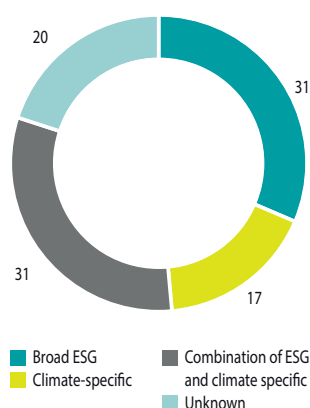
5 This is confirmed by the OMFIF GPI Survey 2020, which covers 17 large pension funds. The level of adoption of SRI practices appears most advanced for the pension funds, which rank above the surveyed central banks (50) and sovereign funds (17). The results suggest that out of the surveyed pension funds, 81% apply exclusions, 93% apply ESG policy integration, 62% invest in sustainable assets, while thematic and impact investing strategies are also widely employed. A diverse composition of portfolios, better data availability for equities and corporate bonds combined with the flexibility to invest across asset classes and in-house capabilities enable the pursuit of a wide range of SRI strategies (OMFIF, 2020).

Box 1

SRI scope

The survey results show that 31% of all central banks that have adopted or are considering adopting SRI practices follow a holistic approach in which they take both climate and ESG-related considerations into account. In contrast, 17% take only climate-specific considerations into account and 31% only assess ESG indicators (without separately looking at climate indicators).

C1 SRI scope taken by central banks (%)



Source: NGFS portfolio management survey 2020.

Note: 35 respondents (all central banks that adopt some form of SRI practices in one or more of their portfolios).

Own portfolios rank most prominently in terms of the adoption of SRI practices, mirroring last year's results (Box 2). Compared with last year, both the increase in the absolute number of respondents (+7) as well as the growth in the share of respondents adopting SRI practices (+14 pp) were most notable for these portfolios. This points to a growing commitment among central banks to invest these holdings in a sustainable and responsible manner. A case study by the Banca d'Italia (BdI) explains how it has applied ESG integration into equity funds in its own portfolios (paragraph 8.1).

The policy portfolios that are held for FX intervention and/or financial returns rank second in terms of the adoption of

SRI practices. An increase in the relative share of respondents adopting SRI practices can be observed compared with last year. FX portfolios generally need to be composed of liquid and creditworthy assets in a few major currencies, which would usually tend to limit scope for factoring in SRI practices. Despite these specific portfolio characteristics, more central banks have managed to adopt SRI practices in their FX policy portfolios.⁶ The survey responses in Box 2 explicitly refer to policy portfolios containing FX reserves, as portfolios held for the purpose of executing asset purchase programs and repo and refinancing operations were filtered out of this year's survey.⁷

The pension portfolios lag behind the own and policy portfolios somewhat in terms of the adoption of SRI practices, despite making strong progress since last year. While the adoption level is slightly lower compared with that of the own and policy portfolios, the pace of growth measured against with last year's is impressive (+20 pp). Moreover, 27% of the respondents are considering including SRI practices in their pension holdings, which suggests that adoption levels could increase further going forward. A case study by the ECB shows how exclusion and engagement strategies are combined with a low-carbon benchmark in its pension portfolio (paragraph 8.2).

The adoption of SRI practices within the third-party portfolios appears to be less straightforward, as no progress has been made here since last year. The number of central banks that manage assets on behalf of third parties in a sustainable and responsible manner is relatively low (28%), and has remained unchanged versus last year in absolute terms. Moreover, a large majority is not considering SRI practices for these holdings at all (72%), while most respondents are doing so for the other portfolio types. These observations are largely consistent with last year's results, and suggest that these portfolios may provide less room for the adoption of SRI practices. The case study by the Deutsche Bundesbank shows how a combination of exclusions and best-in-class was integrated into some of the portfolios managed on behalf of third parties (paragraph 8.3).

⁶ The composition of a central bank's balance sheet, and specifically its policy portfolios, is largely determined by its objectives, history, operational framework, and the financial system in which it operates. See the NGFS survey on monetary policy operations and climate change on a more extensive discussion on the degree of preparedness among central banks to factor in climate-risk in monetary policy operations (NGFS, 2020b).

⁷ While the 2019 survey did not use a split between FX and local currency policy portfolios, it is reasonable to compare the 2020 FX policy results with the 2019 "aggregate" policy portfolio results. Since there is only one central bank in 2020 that considers integrating SRI in the local currency portfolio, the 2019 "aggregate" policy portfolio results should largely represent SRI integration into FX policy portfolios. More in-depth analysis on the adoption of climate-related risk in monetary policy operations is treated separately in survey on monetary policy operations and climate change (NGFS, 2020b).

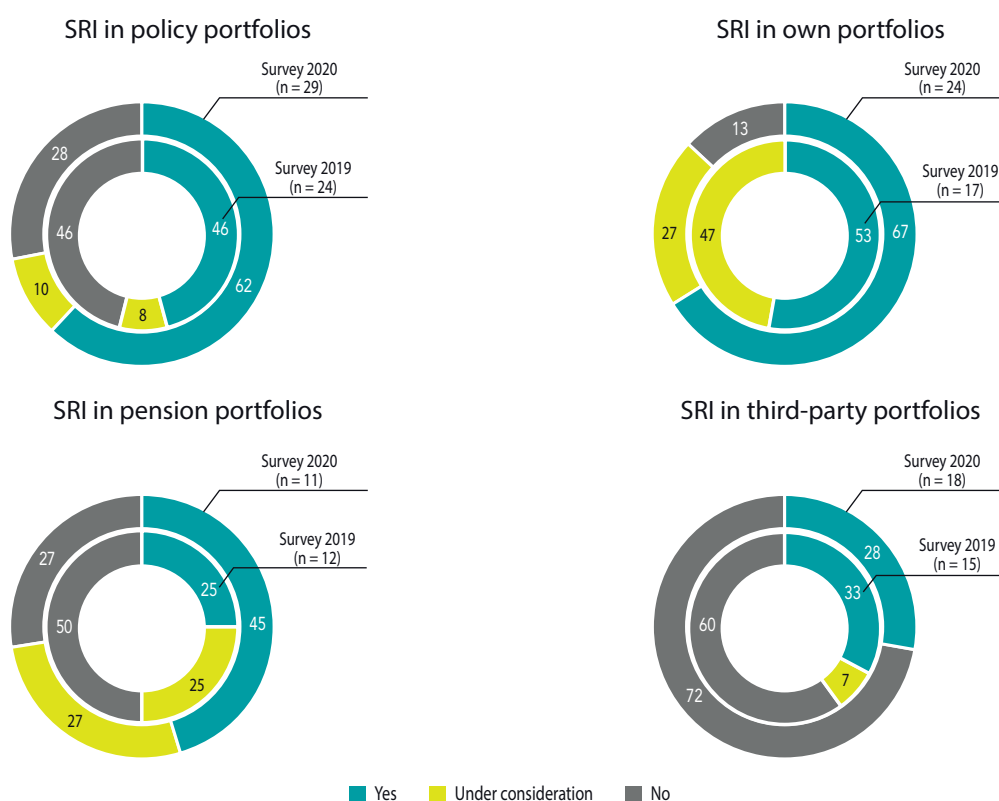
Box 2

SRI practices in central banks' portfolios

SRI practices have been adopted in 67% of own portfolios (note that two central banks report two separate own portfolios), and for another 21%, this step is being considered. In addition, 62% of the respondents with policy portfolios have adopted SRI practices, and another 10% are considering doing so. Out of the surveyed central banks that manage a pension portfolio, 45% currently have

SRI practices in place, and another 27% are considering implementing them. While the absolute number of central banks integrating SRI practices into their third-party portfolios remained stable (5) compared with last year, the relative share decreased due to a rise in the number of respondents.

C2 SRI practices in central banks' portfolios (%)



Source: NGFS portfolio management survey 2020.

Note: The number of respondents varies by portfolio type and year (as indicated above).

4. Application of SRI strategies

- **A growing number of central banks invest in green bonds.⁸ While several respondents have adopted green bond target allocations, part of the growth in this area seems to mirror increased market issuance and is therefore not the result of an active green bond strategy.**
- **Central banks are increasingly applying negative screening. Reputational risk prevents central banks from defining far-reaching exclusion criteria, but at the same time incentivizes them to apply at least a minimum set of exclusions. Going forward, more ambitious climate-related exclusions could result from commitments associated with meeting the goals of the Paris Agreement.**
- **ESG integration is more specific to own and pension portfolios, but different interpretations of this strategy make analyzing the results challenging.**

Central banks can consider various strategies depending on their respective SRI objectives and portfolio constraints. The SRI guide identifies five non-mutually exclusive strategies that central banks can combine to achieve their SRI objective.

1. **Negative screening** refers to restricting the investment universe on the basis of pre-selected criteria (or screens). This strategy is often seen as a first step in the adoption of SRI practices.
2. **Best-in-class** is a broad strategy that involves either positive screening or index-adjusted weighting (“SRI tilting”) by comparing the SRI characteristics of a firm to those of its peers.
3. **ESG integration** enhances traditional financial (risk) analyses by systematically including all financially material ESG-criteria in the investment analysis to improve the risk-return profile of the portfolio.
4. **Impact investing** aims to generate an intentional and quantifiable positive impact alongside financial returns, and can range from private to listed impact solutions. The latter entail investing in green bonds (or other labelled bond instruments with a SRI label).

5. **Voting and engagement** involves exercising one’s ownership rights and “voice” with the intention of changing a company’s behavior with regard to SRI issues.

The following paragraphs discuss the application of these strategies by central banks in their portfolio management.

4.1 Negative screening

Negative screening remains the most widely applied strategy across portfolio types and asset classes (Box 4). While the adoption of a negative screen is relatively easy to implement, and is often seen as the first step in SRI practices, some central banks note that the investment structure of outsourced assets can pose some limitations (Box 3).

Box 3

Investment structures and implementation possibilities

The investment structure of externally managed assets may pose challenges for the implementation of an exclusionary filter or other SRI strategy. Despite the growth in ESG investment solutions, existing open-ended funds and Exchange traded funds (ETFs) offer a pre-set combination of strategies. For these types of products, the exact strategy criteria – such as revenue thresholds for negative screens – are defined and determined by the fund manager. This poses challenges for asset owners, in this case central banks, that wish to implement a SRI policy with their own set of strategies, definitions, thresholds and/or thematic angles. A transition towards more customized funds or segregated mandates is therefore being considered by some central banks in order to accommodate their specific SRI ambitions.

⁸ This coincides with the findings of the OMFIF GPI Survey 2020 covering 50 central banks (as well as 11 sovereign and 17 pension funds). These survey results suggest that investment in sustainable financial assets (i.e. green bonds), negative screening and ESG integration are the most commonly applied strategies by central banks. A modest number of central banks also employ active ownership practices (OMFIF, 2020).

Reputational risk considerations feed into the decision to employ a negative screening strategy in two ways.

On the one hand, the strategy can be used as a means to address reputational concerns arising from investment in controversial companies. On the other hand, it demands a concise formulation of exclusion policies if central banks are not to be accused of making politicized investment decisions, which could create another set of unintended reputational risks in the process. Respondents set their exclusionary filters primarily on the basis of (inter)national laws, conventions, principles and standards, such as the international treaties on controversial weapons and the UNGC.

To date, central banks have been more hesitant to base exclusions on risks associated with investing in certain assets (i.e. stranded assets). Going forward, commitments associated with meeting the goals of the Paris Agreement may lead to more ambitious climate-related exclusions. While several central banks note that it would be undesirable to exclude entire sectors, limited activity-based exclusions (such as coal producers) and/or exclusion of a selection of highly carbon-intensive companies may be acceptable, especially if it is pursued with the aim of supporting an (inter)national organization that offers a framework for alignment with the Paris Agreement. Box 5 provides more information on organizations that have developed such frameworks and the proposed climate-related exclusions that form a part of them.

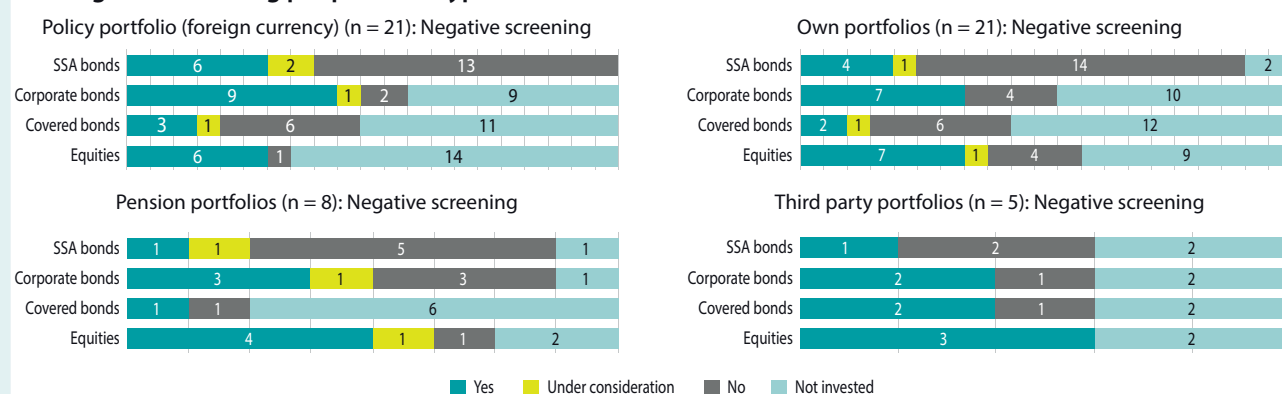
Box 4

Negative screening

Exclusions are applied by central banks in all portfolio types and across all asset classes, but mostly pertain to equities and corporate bond holdings. There is an increase in the number of central banks that apply negative screening to

their corporate bond holdings compared with last year, particularly within the policy portfolios (9 in 2020 vs. 5 in 2019) and own portfolios (7 in 2020 vs. 5 in 2019).

C4 Negative screening per portfolio type



Source: NGFS portfolio management survey 2020.

Note: The number of respondents varies by portfolio type (as indicated above), and only reflects those central banks that have adopted some form of SRI practices in the respective portfolio.

Paris aligned investing

While “Paris aligned investing” is still in its infancy, many initiatives have been launched to translate the Paris Agreement into concrete actions for investors and asset owners. In May 2019, the Institutional Investors Group on Climate Change (IIGCC) launched the Paris Aligned Investment Initiative (PAII) to help investors realize the climate goals set out in the Paris Agreement. The IIGCC published the Net Zero Investment Framework for consultation in July of this year (IIGCC, 2020). This framework consists of recommendations regarding Paris aligned methodologies and offers guidance throughout the entire investment process, from governance and objectives to implementation.

The United Nations-convened Net-Zero Asset Owner Alliance (AOA), backed by the PRI, also aims to facilitate the transition towards a carbon-neutral economy. In October 2020, the Alliance published a framework for target-setting (UN-NZAOA, 2020). Moreover, in Europe, the European Union's (EU) Technical Expert Group on Sustainable Finance (TEG) published a report on benchmarks, introducing frameworks for what they termed a Climate Transition Benchmark (EU CTB) and a Paris Aligned Benchmark (EU PAB) (EU TEG, 2019). These frameworks have been translated into a delegated regulation by the European Commission (EC) and can be used by index providers, asset managers and asset owners. Two Eurosystem central banks have indicated that they are considering aligning one or more of their portfolios with the EU climate benchmark framework.

At present, there is no harmonized definition or uniform methodology for Paris aligned investing. In general, Paris alignment means that a portfolio is constructed in such a way that carbon emissions and intensity are in line with the 2°C or 1.5°C scenarios depicted in the Paris Agreement. The *Alignment Cookbook* shows that there are multiple levels of alignment with various levels of ambition (Institut Louis Bachelier, 2020). This varies with, amongst other things, the selected scope of the objectives of the Paris Agreement (i.e. focusing either purely on the temperature objective or also on other overarching objectives). Moreover, there is a wide range of methodologies at hand to measure “alignment”. Following

the Cookbook’s “menu”, choices need to be made in order to derive the climate performance of companies and portfolios, scenarios for decarbonization benchmarks and portfolio and asset-specific benchmarks, and to translate this into alignment metrics.

While most frameworks do not consider exclusions to be a primary strategy in terms of achieving Paris alignment, some minimum exclusions do tend to be recommended. The IIGCC proposes “selective divestment” in three cases: (i) as a consequence of climate financial risk assessment, (ii) as a consequence of escalation following engagement, and (iii) for companies whose “primary activity is no longer considered permissible within a credible pathway towards global net zero emissions”. Examples of the latter include “thermal coal generation, production from oil or tar sands, exploration and development of new oil fields, or certain types of infrastructure with high lock-in potential”. The AOA argues that investors could conduct selective divestments as part of an engagement strategy or “as part of a broader strategy where the contribution to the real economy comes from how the proceeds from the divestment are used”.

A limited exclusion approach is also suggested by the EC in its delegated regulation (EC, 2020). In addition to “baseline exclusions” related to controversial weapons, tobacco and UNGC principles as well as the Organisation for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises, the delegated act includes “activity-based exclusions” of companies that derive (i) 1% or more of their revenue from exploration, mining, extraction, distribution or refining of hard coal and lignite, (ii) 10% or more of their revenue from the exploration, extraction, distribution or refining of oil fuels, (iii) 50% or more of their revenue from the exploration, extraction, manufacturing or distribution of gaseous fuels, and (iv) 50% or more of their revenue from electricity generation with a GHG intensity of more than 100g CO₂ e/kWh. The EC also requires the exclusion of companies that “significantly harm” any of their other environmental objectives as stated in Article 9 of the Regulation (EU) 2020/852.

4.2 Best-in-class

A small number of central banks apply some form of best-in-class approach, mostly within the equity holdings of their pension or own portfolios. Some central banks view their best-in-class approach as part of an ESG integration strategy, which might result in a slight underestimation of the actual number of central banks applying a best-in-class strategy (see paragraph 4.3). In the NGFS' SRI guide, best-in-class is defined as a broad strategy that involves either positive screening or

index-adjusted weighting, also referred to as ESG tilting, by comparing the ESG characteristics of a firm to those of its peers. Firms can be selected or reweighted based on (i) a best-in-sector approach (ESG leaders within the same sector), (ii) a best-in-progress approach (also referred to as ESG momentum), or (iii) a best-in-universe approach (only the highest-ranking firms, regardless of the sector). As part of a best-in-class strategy, some central banks optimize, for instance, the carbon footprint of (some) of their portfolios, aiming for a lower footprint than the benchmark.

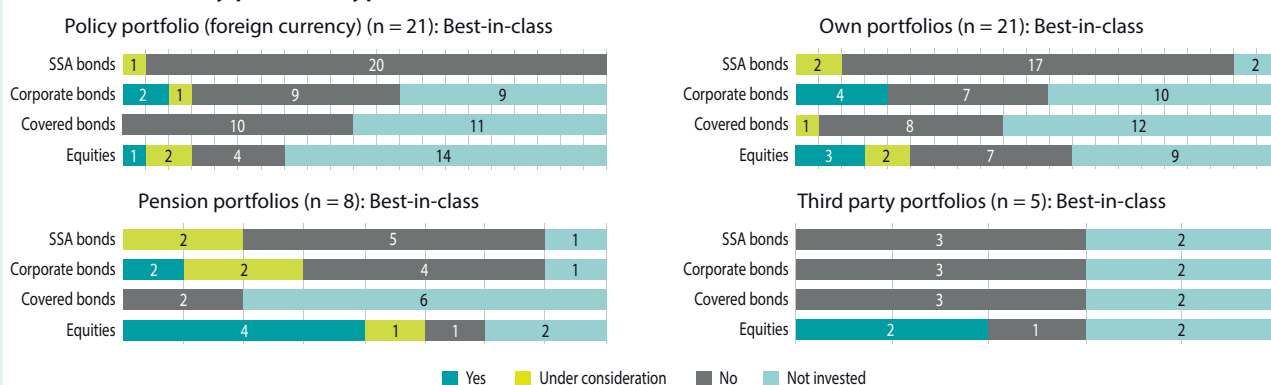
Box 6

Best-in-class

The application of a best-in-class approach is most common within the pension and own portfolios. Among the policy portfolios, we observe a small increase in the number of central banks applying best-in-class strategies

to corporate bonds (2 in 2020 vs. 0 in 2019). For the pension portfolios, a similar increase in equities (4 in 2020 vs. 2 in 2019) can be observed.

C6 Best-in-class by portfolio type



Source: NGFS portfolio management survey 2020.

Note: The number of respondents varies by portfolio type (as indicated above), and only reflects those central banks that have adopted some form of SRI practices in the respective portfolio.

4.3 ESG integration

The survey shows an increase in the number of central banks applying ESG integration to their portfolio management (Box 7). As there is no uniform definition of ESG integration, the way this strategy is implemented varies across central banks. Some consider ESG integration to be the umbrella term under which (a combination of) other SRI strategies fall. In that case, ESG integration can, for example, mean the application of a negative screen in combination with a best-in-class filter. Others, however,

see ESG integration as a *separate* strategy focusing on the (qualitative and quantitative) integration of E, S, and G criteria into traditional financial analysis. A hybrid approach also exists where a combination of strategies is complemented by an ESG optimization exercise. The objective of an ESG integration approach – regardless of its specific design – is generally to enhance the risk-return profile of the investment portfolios (PRI-CFA, 2018). Performance can be measured against a dedicated SRI benchmark (Box 8).

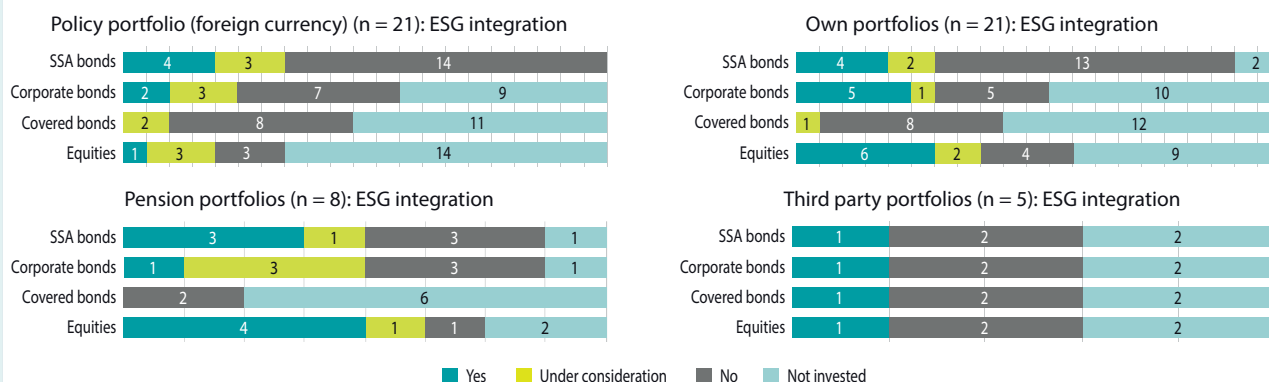
Box 7

ESG integration

In the policy, pension, and own portfolios, there is slight growth in the number of central banks applying ESG integration to various asset classes. For example, in the policy portfolio we observe an increase in the number of central banks that apply ESG integration to (sub)sovereign, supranational and agency (SSA) holdings (4 in 2020 vs.

1 in 2019). A similar increase is observed in the pension portfolios (3 in 2020 vs. 1 in 2019) and in own portfolios (4 in 2020 vs. 1 in 2019). Similarly, we observe increased ESG integration in the corporate holdings of own portfolios (5 in 2020 vs. 2 in 2019) and the equity holdings of the pension portfolios (4 in 2020 vs. 2 in 2019).

C7 ESG integration by portfolio type



Source: NGFS portfolio management survey 2020.

Note: The number of respondents varies by portfolio type (as indicated above), and only reflects those central banks that have adopted some form of SRI practices in the respective portfolio.

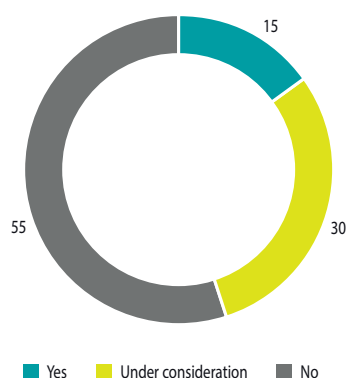
Box 8

SRI indices

SRI indices can be used to implement a passive SRI strategy or to benchmark the performance of an (active) SRI portfolio. Objectives, scope and strategies vary across indices, ranging from low-carbon solutions to ESG tilting. The survey shows that 45% of central banks currently use or are considering using an SRI benchmark.

C8 SRI indices used by central banks

(%)



Source: NGFS portfolio management survey 2020.

Note: 40 respondents.

When focusing on the integration of E, S and G criteria into financial analyses, an assessment is often performed to determine which criteria are financially material. Central banks indicate that this type of materiality assessment is generally performed by a specialized ESG data provider, or, in some cases, by an external manager. One central bank has conducted extensive research to establish materiality by empirically assessing the raw data points underlying various ESG scores (Lanza et al., 2020).

4.4 Green bonds and impact investing

This year's survey results show that a growing number of central banks are investing in green bonds (Box 9). This increase can be partly attributed to a growth in green bond issuance, but also to the adoption of dedicated target allocations. A larger number of green bonds is now reflected in market benchmarks and therefore in the portfolio composition of central banks that track these benchmarks. Several central banks, however, have adopted specific policies targeting green bond investments, such as a target allocation. Others have formulated a more general

desire to increase the number of green bonds in their holdings. In this light, the question arises as to whether central banks aim to actively help speed up the transition

towards a greener economy– in line with the desire to generate an intentional positive impact – or simply to move in line with broader market developments.

Box 9

Green bonds and impact investing

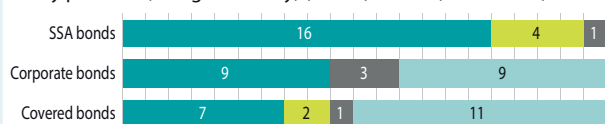
For central banks that have adopted SRI practices, the shift towards green (or other thematic) bond investing is most prominent for SSA holdings, followed by corporate and covered bonds. In the policy and own portfolios, 16 and 13 respondents respectively invest in green SSA bonds, compared with 8 and 6 last year. Slightly smaller increases are observed for corporate bonds

(+4 for both portfolios) as well as for covered bonds (+3 for both portfolios).

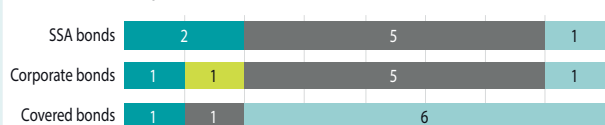
In line with last year's findings, not many central banks have applied impact investing (beyond green bonds) to their portfolios. Only in the policy and own portfolios do a few central banks indicate that they have applied, or would consider applying, this strategy.

C9.1 Green bond investments per portfolio type

Policy portfolio (foreign currency) (n = 21): Green (or thematic) bonds



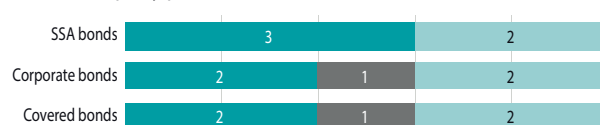
Pension portfolios (n = 8): Green (or thematic) bonds



Own portfolios (n = 21): Green (or thematic) bonds



Third party portfolios (n = 5): Green (or thematic) bonds



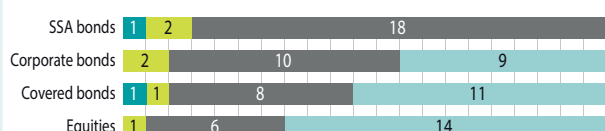
■ Yes ■ Under consideration ■ No ■ Not invested

Source: NGFS portfolio management survey 2020.

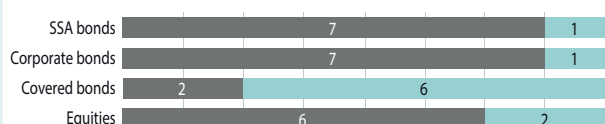
Note: The number of respondents varies by portfolio type (as indicated above), and only reflects those central banks that have adopted some form of SRI practices in the respective portfolio.

C9.2 Impact investments per portfolio type

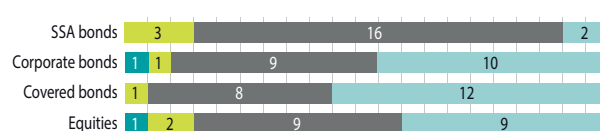
Policy portfolio (foreign currency) (n = 21):
Impact investing (beyond green bonds)



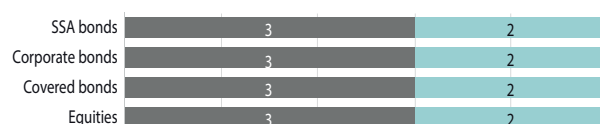
Pension portfolios (n = 8): Impact investing (beyond green bonds)



Own portfolios (n = 21): Impact investing (beyond green bonds)



Third party portfolios (n = 5):
Impact investing (beyond green bonds)



■ Yes ■ Under consideration ■ No ■ Not invested

Source: NGFS portfolio management survey 2020.

Note: The number of respondents varies by portfolio type (as indicated above), and only reflects those central banks that have adopted some form of SRI practices in the respective portfolio.

Central banks that have established a green bond target allocation point to a number of considerations for doing so, including obtaining market intelligence, helping to develop the market, and mitigating reputational risks.

An interesting question is to what extent these central banks are willing to accept lower yields to achieve their target allocations. Some central banks indicate that these decisions are at the discretion of the portfolio managers as part of their portfolio construction process. The potential existence of a “greenium” is mentioned by other central banks as one of the reasons for being more cautious in adopting a target allocation, as this may be incompatible with their fiduciary duty.

While the 2019 SRI guide classifies green bond investments as “impact investing”, this categorization is not undisputed. Impact investing can be defined as a strategy that aims to generate an intentional and quantifiable positive impact alongside financial returns (GIIN, 2019). In the case of green bonds, this can for example be expressed in terms of avoided or reduced carbon

emissions. Recent research by the BIS suggests, however, that green bond issuance does not necessarily translate into a (proportional) reduction in carbon emissions at the firm level (Ehlers et al., 2020). Green bond investors should therefore consider taking the (change in) carbon intensity levels of the issuing entity into account. More complex forms of impact investing beyond green bonds are not yet commonplace among central banks, as these often pertain to alternative asset classes such as real estate and infrastructure investments. At present, only one respondent follows an impact investing approach within its policy and own portfolios, whilst a few others are considering this strategy (Box 9).

4.5 Voting and engagement

This year’s survey suggests that there are no notable developments in the application of voting and engagement compared with last year (Box 10). A relatively large share of respondents that apply this strategy only do so

Box 10

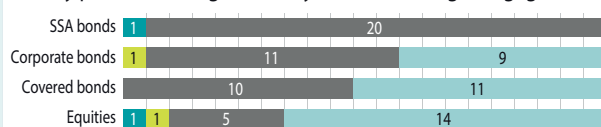
Voting and engagement

Voting and engagement are not widely applied by central banks. Yet within the own portfolios and pension

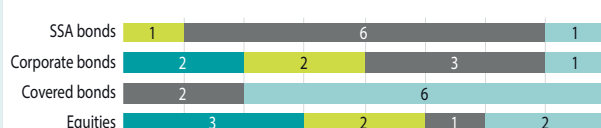
portfolios, several central banks have applied this strategy in their equity portfolios (6 and 3 respectively).

C10 Voting and engagement per portfolio type

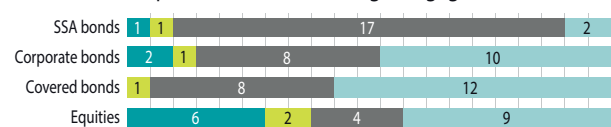
Policy portfolio (foreign currency) (n = 21): Voting & engagement



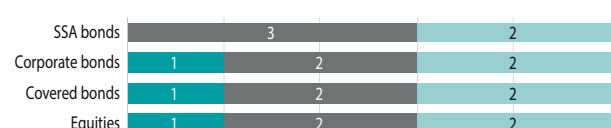
Pension portfolios (n = 8): Voting & engagement



Own portfolios (n = 21): Voting & engagement



Third party portfolios (n = 5): Voting & engagement



■ Yes ■ Under consideration ■ No ■ Not invested

Source: NGFS portfolio management survey 2020.

Note: The number of respondents varies by portfolio type (as indicated above), and only reflects those central banks that have adopted some form of SRI practices in the respective portfolio.

in their equity portfolios, suggesting that the emphasis may be on voting rather than engagement.⁹ Some central banks have their own (proxy) voting policy in place, and at least one central bank has published its policy. Whilst it is true that drafting and applying such policies is time-consuming and resource-intensive, it allows central banks to take control and set their own expectations, for example, regarding the disclosure of non/extra-financial information in line with (local) legal requirements and best practices.

While the added value of voting and engagement is widely recognized, some central banks are concerned about potential conflicts of interest or reputational risks. Application of this strategy could raise reputational issues, especially among companies that are partially state-owned. Direct interference with a company's management could be considered undesirable from that perspective. Clear (transparent) and objective policy guidelines and outsourcing the implementation to specialized engagement providers or external asset managers may help to address these concerns. Going forward, central banks could increase knowledge sharing on this topic in order to enhance their individual approaches.

⁹ As explained in the SRI guide, voting and engagement are commonly utilized by equity investors as they can explicitly exercise ownership rights. That said, the strategy is also gaining traction among fixed-income investors. Debtholders, for instance, can challenge the use of proceeds at investor roadshows.

5. Monitoring, reporting, and data

- **Central banks are monitoring multiple SRI aspects. Over one-third are explicitly measuring the carbon footprint of their investment portfolios. A slightly smaller share of respondents also measure the ESG score of the issuers in which they invest.**
- **Over one-third of this year's respondents use ESG and climate-related data from specialized (external) providers – an increase (in absolute terms) compared with last year.**
- **Central banks are taking steps to enhance transparency and improve disclosures. Almost half of the respondents that measure their carbon footprint now also report this metric publicly. In addition, whilst only 10% are currently reporting information in line with the TCFD's recommendations, another 30% are considering doing so.**

5.1 Metrics

Central banks use a combination of (high-level) ESG and climate-specific metrics to monitor the SRI impact of their portfolios. The selection of such metrics is generally determined by the strategies pursued and scope applied. For example, a central bank that applies a best-in-class ESG filter will likely monitor the portfolio's ESG score, whilst a central bank that aims to reduce the carbon impact of its portfolio will monitor its carbon footprint.

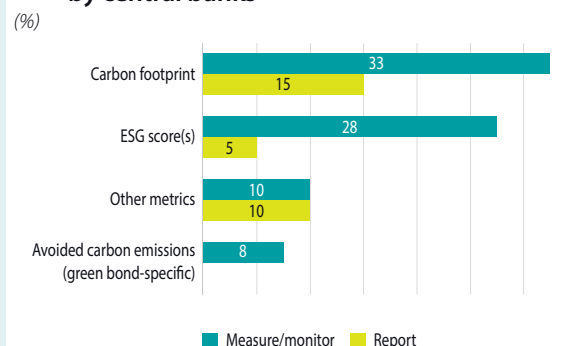
One-third of survey respondents explicitly monitor their carbon footprint over a wide range of portfolios (Box 11). In line with the recommendations of the TCFD, most central banks calculate several carbon emission metrics by taking into account (i) the absolute emissions, (ii) the emissions per unit of investment and (iii) the carbon intensity levels. The weighted average carbon intensity of a corporate bond or equity portfolio is generally computed on the basis of an issuer's scope 1 and 2 emissions per million of revenue, weighted by the issuer's share in the portfolio. For sovereign bond portfolios, carbon emissions tend to be based on a production model that includes domestic and exported emissions, as this is the method that countries use to report carbon emissions when setting national commitments.

Box 11

Monitoring and reporting metrics

The carbon footprint is the most monitored SRI metric by central banks (33%), followed by the ESG score of a portfolio (28%). Almost half of the central banks that monitor their carbon footprint also report it. This percentage is notably much lower for the reported ESG scores.

C11 Metrics monitored and reported by central banks



Source: NGFS portfolio management survey 2020.
Note: 40 respondents.

Several central banks also monitor other ESG and/or climate-related metrics. Examples include *energy consumption*, *water use*, and *2°C alignment*. As part of their green bond investments, 8% of the respondents also measure their avoided carbon emissions. It should be noted, however, that this is challenging, given that issuers do not always report this information in a comparable, verifiable and quantifiable manner. The use of external data providers or new, blockchain-based initiatives are being investigated by some central banks to overcome these issues.

5.2 Data quality and availability

Central banks can use ESG and climate-related data for a wide range of purposes beyond monitoring and reporting, including portfolio construction and risk management practices. Data quality and availability are key when translating any SRI policy into practice, especially when the implementation of a strategy relies heavily on data

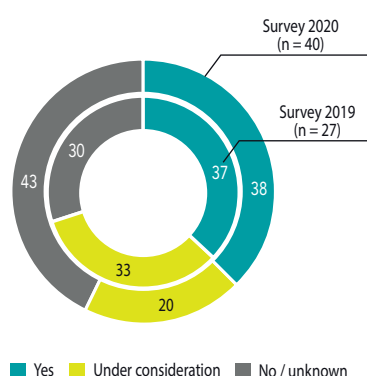
Box 12

External data providers

38% of the respondent central banks use and 20% are considering using data provided by specialized (external) data providers. In absolute terms, this means that five additional central banks use data from external providers compared to last year. Out of the 38%, two-thirds use more than one data provider.

C12.1 Use of external ESG data providers by central banks

(%)

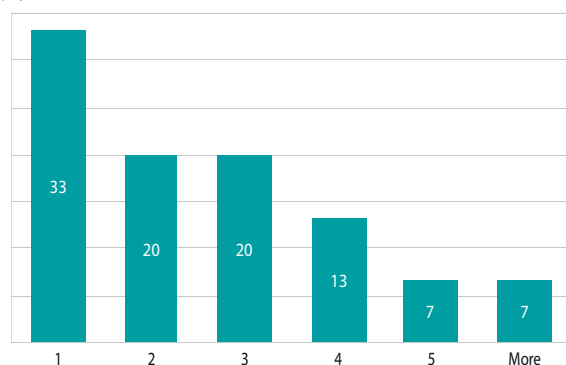


Source: NGFS portfolio management surveys 2020 and 2019.

Note: The number of respondents varies each year (as indicated above).

C12.2 Number of external data providers used by central banks

(%)



Source: NGFS portfolio management survey 2020.

Note: 15 respondents (all central banks that use at least one data provider).

(e.g. best-in-class or passive ESG integration). Many central banks use or are considering using ESG and climate-related data from specialized data providers (Box 12).

Despite continuous efforts to further improve the quality and comparability of ESG and climate-related data, various shortcomings remain. Data discrepancies can, for example, arise when data points are modelled, as estimation methodologies vary between providers and can change over time. Central banks, for instance, noted that data on carbon scope 1 and 2 emissions are relatively comparable across providers, while this is less the case for scope 3 emissions.¹⁰ Forward-looking metrics, such as those related to “Paris alignment”, and ESG scores also tend to vary across data providers. Moreover, typical central bank asset classes such as SSAs (including sovereigns) tend to lack proper coverage. As such, achieving consistency and comparability of data between different sources remains a challenge when attempting to measure ESG and climate-related exposures, and thereby complicates clear target-setting.

Several central banks emphasize that waiting for the perfect data is not an option. Steps need to be taken now, and data quality will improve faster if users engage with data providers to solve the issues they run into. Box 13 reflects on relevant considerations in the selection of a data provider. There are many ways in which central banks are dealing with data issues, such as:

- Comparing providers’ methodologies and selecting the one that best aligns with the central bank’s SRI objective(s)
- Creating a proprietary model combining raw ESG data points to enhance consistency. Box 12 shows that two-thirds of the respondents use more than one provider
- Reporting coverage ratios in the event of limited data availability
- Engaging with data providers (or companies) when encountering outliers and inconsistencies
- Smoothing differences in ESG scores by using multiple data providers and utilizing e.g. a “second-best rating” approach (although this might be akin to comparing apples and oranges due to the differences in methodologies).

¹⁰ The comparability of scope 1 and 2 emissions seems to be due to the fact that a relatively large number of companies are reporting these emissions. For companies that do not report such figures, estimation models still produce different outcomes across data providers.

Box 13

Considerations for the selection of ESG data providers

In order to select an ESG data provider that best suits a central bank's specific needs, various steps can be taken as part of the selection process.

- Determine which asset classes are covered and what metrics and data points are provided per asset class. Coverage of sub-sovereign, supranational and agency holdings is a particular point of focus for central banks.
- Look into the methodologies used to estimate missing values and forward-looking metrics, in addition to the quality assurance processes that the provider has put in place.
- Perform a quantitative exercise and back-test the data points of various providers to get a better understanding of their accuracy and materiality.
- Weigh up operational considerations such as the language of the supporting documentation, the provider's track record and costs.

Keeping up with rapidly evolving market developments is a key challenge. When reassessing their choice of ESG data provider, two considerations may be taken into account by central banks. First, looking into all the various methodologies, coverage ratios and quality assurance processes on offer is a time-consuming process. Second, switching data provider may result in reporting inconsistencies over time as methodologies may vary, producing incomparable numbers over time.

5.3 Reporting and disclosures

Disclosures can play a role at various stages of the investment process. Approximately half of the central banks with a formalized SRI policy publish (a high-level summary of) their approach, and almost one-third of the central banks without a formalized policy communicate proactively on their approach.¹¹ As indicated in Box 11 (in paragraph 5.1), various central banks also report on the ESG or climate impact of their investment portfolios.

Compared with last year, more central banks are now following existing SRI reporting frameworks that have been developed for private investors with the aim of improving the overall quality of reporting (Box 14).

In its first comprehensive report, the NGFS encourages all companies issuing public debt or equity as well as financial institutions to disclose in line with the recommendations of the TCFD (TCFD, 2017). This framework includes recommendations on disclosure related to governance, strategy, risk management and metrics, which are also relevant for central banks (the SRI guide included a more detailed assessment on the applicability of the TCFD framework for central banks). A case study by the Banque de France (BdF) discusses the disclosure process in more detail (paragraph 8.4).

The survey shows an increasing commitment of central banks to the Principles of Responsible Investment (PRI). Reporting on activities and progress is one of the six principles of PRI. A case study by the central bank of Finland discusses its experiences with becoming a signatory and its first time reporting (paragraph 8.5).

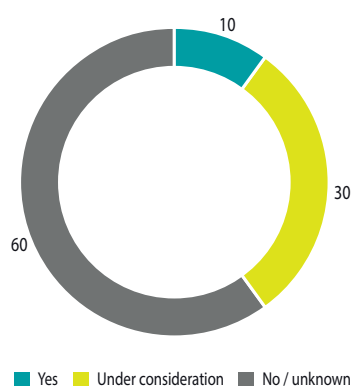
11 Box 15 in Chapter 6 elaborates how many central banks that adopt SRI practices have formalized this in a policy document.

Box 14

Reporting and frameworks

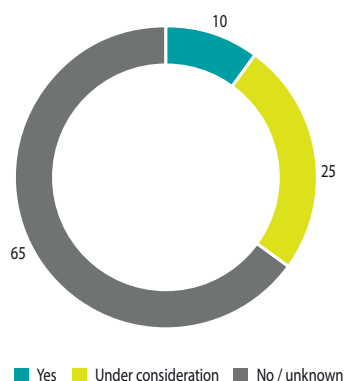
At present, four central banks (10% of all respondents) follow TCFD reporting standards, whilst another 12 (30%) are considering doing so. Furthermore, four central banks (10%) have signed up to the PRI, including the central banks of Finland, Hong Kong, the Netherlands, and Norway. Another 10 (25%) are considering becoming PRI signatories.

C14.1 Central banks committed to TCFD reporting (%)



Source: NGFS portfolio management survey 2020.
Note: 40 respondents.

C14.2 Central bank PRI signatories (%)



Source: NGFS portfolio management survey 2020.
Note: 40 respondents.

While central banks tend to support the disclosure of SRI-related aspects of their portfolios, some caution may be warranted. For example, the publication of a list of excluded companies could give rise to reputational risks. The publishing of such lists by central banks could lead to unintended standard setting, even more so since data providers use different definitions and thresholds to assess whether a company abides by certain norms or values. This can be mitigated by disclosing a (high-level) exclusion policy or principles. For similar reasons, not all central banks disclose the name(s) of their third-party ESG service provider(s), whilst others are fully transparent.

6. Embedding SRI in the organization and governance

- While central banks are clearly making progress in the adoption of SRI practices, not all decisions have been formalized or are the result of an official SRI policy. There is room for further formalization within central banks' own and policy portfolios.
- Several central banks are taking steps to formalize SRI within their organizational structures. Some have for instance put a dedicated SRI committee in place, and/or created dedicated SRI positions (e.g. SRI policy officers).

Not all central banks that integrate SRI into one or more of their portfolios also have a formalized policy in place (Box 15). Those without a formal policy might still be in the drafting process, or incorporating SRI in a more "implicit" manner. For example, Chapter 4 showed that several central banks invest in green bonds, without an explicit objective or target. At most central banks, the

executive board is responsible for approving SRI policy. In fewer cases, this task is part of the responsibilities of the head of reserve management or chief investment officer.

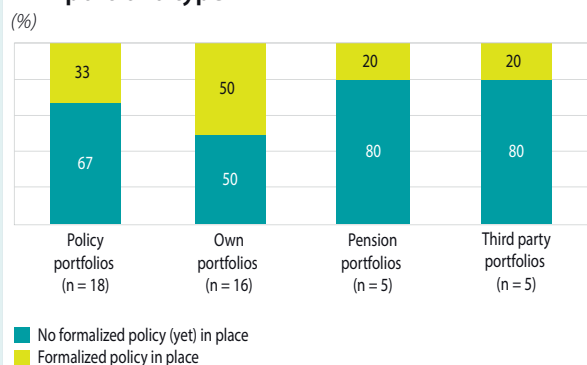
Central banks with formalized SRI policies have identified several key characteristics constituting a good policy document. First, it is important to clearly define the SRI objectives. Last year's SRI guide introduced two high-level objectives: (i) a financial objective focusing on enhancing the risk-return profile of the investments, and (ii) an extra-financial objective focusing on achieving real-world impact. Second, the scope of the policy needs to be established (e.g. a specific climate focus or a broader ESG perspective, see also Box 1 in Chapter 3). Third, the policy needs to clearly define the SRI strategies utilized to achieve the objective(s) (such as negative screening, best-in-class, etc.). Finally, a policy should also offer flexibility to ensure easy inclusion of new asset classes and criteria. The latter is especially relevant as the field of SRI is rapidly evolving and therefore requires frequent evaluations and policy updates. Most central banks with a formalized SRI policy also indicate that they evaluate their policy on a frequent basis.

Box 15

Formalized SRI policies

Not all central banks that adopt SRI practices have formalized their SRI approach in a policy. 67% of the respondents that adopt SRI practices in their policy portfolios have formalized their approach, whereas within own portfolios, this figure is only half.

C15 Central banks with formalized SRI policies per portfolio type



Source: NGFS portfolio management survey 2020.

Note: The number of respondents varies per portfolio (as indicated above), and only reflects those central banks that have adopted some form of SRI practices in the respective portfolio.

Some central banks have a dedicated SRI committee in place, or are considering putting such a body in place (Box 16). This committee typically has a distinct mandate from the investment committee. The mandate of an SRI committee can focus both on policy and/or daily SRI implementation, and may also discuss broader corporate social responsibility issues. Central banks with dedicated committees note that the advantage of having such a committee include a dedicated SRI agenda, safeguarding sufficient time for SRI issues, as well as serving as a platform to facilitate the exchange of knowledge.

A small majority of the respondents have dedicated staff working on SRI, and some central banks even have dedicated SRI portfolio managers. While having specific SRI resources offers benefits in terms of commitment, knowledge-building and transforming the mindset, there is a trade-off between SRI specialists and integration in the investment function. In the event that a central bank chooses to appoint dedicated SRI staff, it is crucial to ensure integration in front office teams, for example by means

Box 16

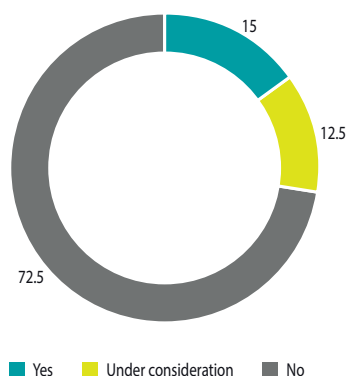
SRI committees and staff

15% of the central banks have a dedicated SRI committee in place, whilst another 13% are considering putting such a committee in place.

In total, 57% of all respondents have (dedicated) staff, such as policy officers, working on SRI topics, with an average of 3.7 full-time equivalents (FTE). This number is largely driven by two central banks that have 10 and 32 FTEs working on SRI/ESG. Several respondents that do not have any (dedicated) SRI staff note that SRI-related work is an integral part of the remit of the portfolio management team or other staff members working on investments. Eight central banks have (dedicated) portfolio managers working on SRI-related topics.

C16.1 Dedicated SRI committee

(%)

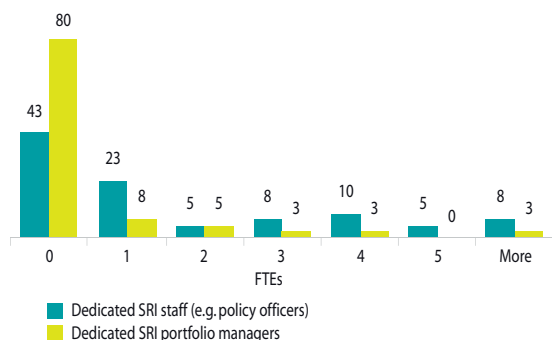


Source: NGFS portfolio management survey 2020.

Note: 40 respondents.

C16.2 Number of dedicated SRI staff and portfolio managers

(%)



Source: NGFS portfolio management survey 2020.

Note: 40 respondents.

of physical presence in the dealing room. The necessity for interaction between SRI staff and the front office does depend on the degrees of freedom allowed by the SRI policy. A limited exclusion strategy or passive best-in-class approach can be implemented in a rule-based manner and thus requires relatively little SRI expertise by the portfolio managers (though even these strategies require substantial groundwork, processes and understanding of risk/return implications). More complicated strategies such as active ESG integration and voting and engagement, however, require a greater exchange of knowledge between SRI specialists and portfolio managers.

7. Preliminary risk management considerations

- **Central banks are including climate and/or ESG-related risks in their risk management or risk control practices. Some central banks are also exploring the possibilities to apply climate stress testing to their own balance sheets.**
- **Risk-return characteristics of SRI investments are also being monitored. Some central banks noted that SRI portfolios were more resilient when the COVID-19 crisis hit financial markets at the beginning of this year.**

Several central banks take SRI considerations into account in their risk management and control practices (Box 17). Approaches vary across central banks, ranging from favoring entities with high green issuance, to the integration of ESG or climate-related risks in (credit) risk management. A case study by the Dutch central bank (DNB) shares some insights into its stress testing exercise and the results for its own portfolios (paragraph 8.6).

The survey indicates that six central banks assess the risk-return implications of the inclusion of SRI. Among them, it is common practice to use traditional financial indicators and compare the performance of SRI investments to traditional investments. Depending on the strategy and objective, central banks look, for instance, at the tracking error, value at risk and Sharpe ratio, and compare the results to either a broad market or an SRI benchmark. Today, it is still deemed challenging to integrate SRI into traditional performance attribution models. One central bank indicates that the effect of its ESG integration approach is reflected in its “traditional” performance attribution analysis, where the “selection” contribution can be attributed to a large extent to ESG integration.

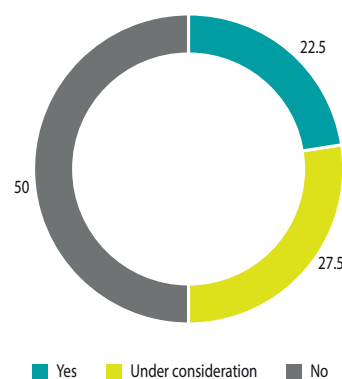
Some central banks found that their SRI portfolios were more resilient during the period of market stress triggered by the COVID-crisis in the first half of 2020. However, it is not fully clear whether this outcome can be attributed to specific E, S, or G factors, or simply results from underweighting sectors that were relatively hard hit by the crisis.

Box 17

Identification and management of ESG and climate-related risks

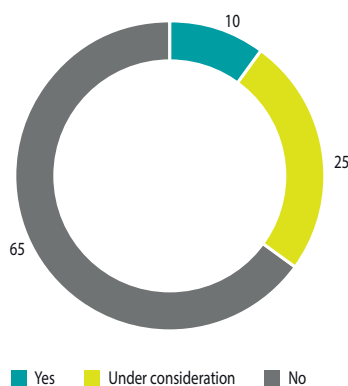
The survey shows that 9 central banks (23%) incorporate qualitative or quantitative SRI considerations in their risk control/management framework, whilst another 11 (28%) are considering doing so. Moreover, 4 central banks (10%) currently perform climate stress testing on (part of) their portfolios, whilst another 9 (25%) are considering doing so.

C17.1 Integrating ESG and climate-related risks in risk management practices of central banks (%)



Source: NGFS portfolio management survey 2020.
Note: 40 respondents.

C17.2 Climate stress testing by central banks (%)



Source: NGFS portfolio management survey 2020.
Note: 40 respondents.

8. Central bank case studies

8.1 Banca d'Italia: ESG integration in equity funds

The Banca d'Italia's (Bdl) ESG investment policy, while pursuing a suitable long-term return profile, has two objectives: a) contributing to sustainable economic development and promoting corporate social responsibility, and b) strengthening the management of financial and reputational risks. The Bdl is also committed to broadening the scope of its SRI initiatives and increasing public awareness of sustainability issues.

Since 2019, the Bdl has adapted the investment policy for its own funds by integrating ESG criteria for its internally managed equity portfolios (87% of the equity investments), comprising euro-area shares with a large component of Italian shares. More recently, the Bdl extended its ESG investment policy to include investments managed indirectly through ETFs or mutual funds in the United States and Japanese stock markets, which amount to approximately €1.5bn in total. The extension of the ESG policy to include these equity investments has brought about a geographical diversification in the Bank's commitment to sustainability. It is also useful for an assessment of ESG practices across companies in different jurisdictions.

Implementation in United States and Japanese equity funds

The selection process for suitable ESG instruments was organized in three steps: (i) a search for available ESG instruments; (ii) the selection of products in line with the Bank's investment policy; and (iii) the assessment of the financial and ESG features of a selection of products, with an evaluation of the investment managers.

The search for available ESG instruments was performed via a financial data platform and through direct interaction with leading investment managers in terms of assets under management and reputation. Instruments were selected for the shortlist according to the following requirements: a) a passive management style; b) the 'physical' replication strategy of the index; c) the currency of denomination (US dollars or Japanese yen); and d) a minimum size

for the assets under management, to avoid taking on a significant stake in any instrument. This selection posed some challenges, owing to the small size of ESG assets under management compared with the standard equity funds (in 2019, only a handful of ESG funds in the United States had assets exceeding \$1 bn).

The selection of products in line with the Bdl's investment policy focused on analyzing the ESG features of the shortlisted instruments in four steps. First, we investigated the construction of the underlying ESG index for the instruments. Then we selected the products with a sustainable investment strategy in line with that of the Bdl, e.g. featuring a norm-based exclusion (according to the UN Global Compact) and ESG integration criteria without excluding any sectors. In order to preserve market neutrality and portfolio diversification, Bdl then selected those instruments with a large number of constituents and sector alignment compared with the investable universe (represented by a broad non-ESG market capitalization index). The degree of sustainability for each instrument was compared with the ESG score of a major ESG data provider, together with other relevant environmental indicators such as carbon intensity.

The assessment of the financial features of a selection of products was based on a framework (developed in-house) that allows for homogenous comparison in terms of return and risk indicators. The main (non-ESG) market indices were used as benchmarks. Specifically, we employed the tracking error, which summarizes the active risk that derives from the integration of ESG criteria, with a preference for instruments with a low tracking error. We also employed the tracking difference, which is the relative return of the fund compared to the benchmark over different time horizons.

The final assessment of the asset managers also accounted for quantitative indicators, including the required fees (in terms of the total expense ratio), as well as qualitative features, such as experience in asset management, the degree of transparency and the services provided to customers. The direct exchange of information with the investment managers was also an important element in finalizing the selection process.

8.2 European Central Bank: Low-carbon equity benchmarks in the pension portfolio

The European Central Bank (ECB) operates defined benefit and defined contribution pension plans for its staff which is funded by assets held in a long-term employee benefit fund. The ECB's staff pension fund amounts to around €1.3 bn in plan assets as of end-2019 and is passively managed by two external asset managers by tracking specific market indices for each asset class and region. The ECB's pension fund pursues a broad SRI policy based on three pillars:

- A limited exclusion list based on the UN Global Compact (UNGC) and international treaties and conventions related to controversial weapons;
- Active engagement through proxy voting guidelines via its external investment managers. Both are signatories of the UN PRI, requiring them to incorporate SRI standards into their voting policies;
- A third pillar consisting of the replacement of all conventional equity benchmark indices with their low-carbon equivalents, which significantly reduced the equity funds' carbon footprint.

Implementation

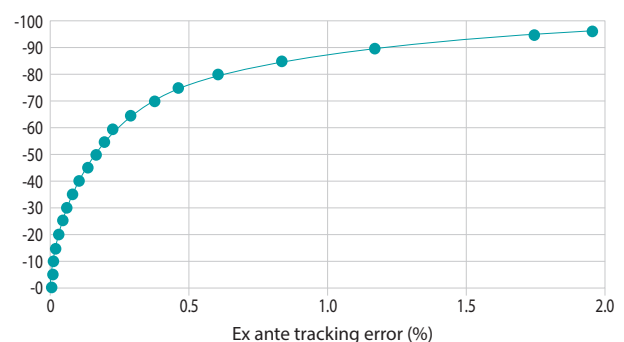
The ECB introduced proxy voting guidelines and limited exclusions in 2017, coinciding with the implementation of procurement decisions of new investment managers at the time. The experience has been very positive, and it has allowed the ECB pension fund to incorporate elements of SRI strategies and UN PRI best practices in its proxy voting with limited tracking error and with no adverse impact on portfolio performance.

More recently, in the context of its regular asset and liability management (ALM) study carried out in 2019 with the support of an external consultant, the ECB sought to further advance its SRI implementation reducing the carbon emissions of its pension fund within the passive management framework. Based on several comparisons and findings of the ALM study, the ECB replaced its equity benchmark indices with their low-carbon equivalents. The ALM study also considered shifts to low-carbon indices for other asset classes, but given the current lack of availability of reliable SRI (or low-carbon) benchmark indices for non-equity asset classes, the ECB decided to focus on

replacing its equity benchmarks as a first step. The ECB considered it important that the benchmark used an ex ante tracking error cap built into the index construction methodology, whilst at the same time showing a high correlation to the parent index and reducing CO₂ emissions substantially.

The low-carbon equity indices within the scope of its ALM study were expected to reduce the carbon footprint of the equity portion of the asset allocation in the range of 40% to 70% (see figure). The ECB considered and compared the characteristics of various available low-carbon equity indices, including their suitability for a passively managed fund, the clarity and availability of their methodology and the evolution of their historical performance. It shortlisted two equity index families before eventually selecting a benchmark with an established and concrete track record with relatively higher reductions in carbon emissions. The low-carbon equity indices aim at minimizing the carbon exposure within a low and constrained tracking error relative to the parent index, whereby the carbon exposure is measured as carbon emission intensity (scopes 1 and 2) and potential carbon emissions adjusted for market capitalisation. By applying a weight-tilting strategy with additional country and sector thresholds that maintain original country and most sector allocations broadly in line with the parent index, the indices obtain a significant reduction in carbon exposure within the given ex ante tracking error threshold. Based on the results of the ALM study, this change is not expected to have a meaningful impact on the future financial performance of the equity funds relative to that of the parent index.

Example of carbon intensity reduction as a function of tracking error



Source: Andersson et al. (2016).

Next steps

Going forward, the ECB aims to explore further avenues within the pension funds' SRI policy. For example, expanding low-carbon indices to fixed-income asset classes is planned to be part of this analysis.

8.3 Deutsche Bundesbank: Sustainable investing in third-party portfolios

The Deutsche Bundesbank manages several third-party portfolios on behalf of the Federal Government of Germany and German federal states. For the most part, these portfolios are earmarked for partially funding future pensions of civil servants. The Bundesbank provides analytical support and is in charge of the operational implementation of the investment objective and guidelines of the respective client. Currently, two thirds of the federal states for which the Bundesbank provides portfolio management services already integrate SRI into their investment policy, with an additional two planning to do so in the future.

Objective

In 2017, three federal states (later joined by a fourth) established a working group to agree on common SRI criteria for an equity index family including a euro area and an ex euro area index. The rationale behind this project was to set an example and create a standard for SRI by public sector entities. The SRI approach is based on a broad consensus which is meant to last and be unaffected by short-term political swings. At the same time, the index methodology had to strike the right balance between sustainability, tradability (i.e. liquidity of the components) and diversification. High average daily trading volumes and free-float market capitalizations were deemed important for the construction of a robust and tradable equity index family, suitable as a benchmark for investment volumes of billions of euro. The Bundesbank supported the process as coordinator and facilitator between the states and the financial community.

Sustainability approach

The states jointly had to define a set of SRI criteria, representing their common understanding of 'sustainability' and agreed upon the following multistage filtering process:

Step 1: Exclusions

- Companies involved in the development and production of controversial weapons;
- Companies that do not comply with the UN Global Compact;
- Companies that generate 5% or more of their revenues from (i) the production of adult entertainment goods, (ii) the production of nuclear power or related components or (iii) the extraction of fossil fuels, except natural gas;¹²
- The 10% most carbon-intensive companies (based on revenues) in the investment universe.¹³

Step 2: Best-in-class

- The remaining companies are screened in line with a best-in-class approach developed by the index provider
- The top 50% of companies based on their ESG score are eligible as index members

The index selects a mid-double-digit number of companies with the largest free-float market capitalization. Index weights are calculated as a product of a company's ESG score and its free-float market capitalization in relation to the sum of the individual products.

Implementation and performance

In June 2019, the four federal states chose an index provider, which calculates both indices in collaboration with companies specialized in ESG research and carbon emissions data analysis. In the following months, the Bundesbank started investing in accordance with the investment guidelines of the individual states.

Based on historical data (December 2012-2019), both ESG indices outperformed comparable conventional equity

¹² This criterion might be skipped in a less ambitious "cum fossil" version of the indices.

¹³ The same applies here.

benchmarks, thus providing another example that SRI does not necessarily yield lower financial returns. Additionally, after the beginning of the COVID-19 pandemic, the two ESG indices were more resilient, and outperformed comparable conventional equity benchmarks for the months March through June 2020.

For all the states involved, the use of these customized equity indices constitutes an important milestone in adopting SRI in their investment processes. This also applies to the State of Hesse, which started accounting for ESG aspects in its equity portfolio as early as 2007 and has reported a nearly constant portfolio ESG score ever since, but was able to reduce the carbon footprint of its portfolio by more than 75% since the introduction of the new indices.

8.4 Banque de France: Publishing a dedicated SRI report

In 2019 and 2020, the Banque de France (BdF) published its first two annual Responsible Investment (RI) Reports. These reports describe the implementation and the results of the RI strategy which applies to its own fund and pension portfolios. The BdF thus intends to communicate on its efforts to make a positive impact (e.g. to contribute to a 2-1.5°C trajectory and to the financing of the energy and ecological transition) and to set a good example among central banks and asset managers and investors. The BdF also intends to act in line with the legal requirements on extra-financial disclosure (set out in both French law and the EU regulation) and with the TCFD recommendations.

Disclosure considerations

Based on this first experience, several aspects of the disclosure process are worthy of being highlighted:

- Starting the disclosure process requires the national central bank (NCB) to set out its RI policy and strategy beforehand: general principles, objectives, governance, portfolios involved, operational strategies (exclusions, thematic investing, engagement, etc.), metrics, etc. The NCB also needs to clearly define the content of its RI report, which may involve referring to regulation (e.g. EU

Non-financial reporting directive (NFRD) and/or standards such as the TCFD recommendations (governance/strategy/risk management/metrics and targets). Based on this, the NCB also needs to select one or several data providers,¹⁴ which will be in charge of calculating the portfolios' ESG/climate performance. This preliminary process may require the support of consultants, for instance to define the overall strategy and/or to select the most relevant metrics based on the NCB's strategy.

- Once this framework has been set out, the first key aspect of the report's production is data processing. First, depending on the type of asset management (external, internal and/or asset management subsidiary), getting the full and detailed composition of the portfolios at one particular date (e.g. at year's end) in order to send it to the data providers may turn out to be complex (multiple information systems, multiple data formats, etc.). The data providers then calculate the portfolios' ESG/climate performance and send back these results in different formats (summarized presentation, raw data in Excel sheets, maps, charts, etc.). These formats therefore need to be agreed upon beforehand. The NCB may in turn want to recalculate and analyse the performance data and the metrics' evolutions against targets. Given the current state of data availability and the debates over ESG/climate methodologies, this process may imply a comparison and/or combination of data from different data providers for specific metrics (e.g. scope 3 emissions). In any case, the best practice is to disclose not only the metrics' results but also the methodologies and the coverage rates.¹⁵
- The production of the report itself then requires a number of contributions: writing by the responsible investment team and management, validation and foreword by the top management, shaping of the report by the communication department, English translation, and so on.
- Time management: given the complexity of the data processing and the number of stakeholders involved in the production of the report, time management is key. At the BdF, from the impetus that started the preliminary process (setting out an RI charter) to the publication of the first RI report, it took over a year. The production of the report itself takes about three months each year, bearing in mind that the data providers' work itself requires over a month.

¹⁴ The NCB may want to use different data providers for different metrics (depending on the providers' specialized expertise) or to use several data providers for one metric (to compare the methodologies and data).

¹⁵ Percentage of issuers covered by the analyses, which depends on the data availability.

- **Communication:** the production of a responsible investment/ESG/climate report is worthy of being widely communicated on, which may involve holding a press conference or, at the least, communicating to peers. Although the BdF publishes its Responsible Investment Report jointly with its Annual Report, in 2020 the BdF held a dedicated press conference for its RI Report, which allowed for numerous questions from specialized journalists. The communication process also helps with obtaining feedback from other institutions.

Depending on the portfolios, the content of the report needs to be in line with the central bank's confidentiality policy. For instance, to date, the BdF has not disclosed in detail the asset (i.e. per asset class) allocation of its two portfolios, nor has it disclosed the detailed geographical allocation of the assets.

Next steps

While focused on implementing its current responsible investment strategy (e.g. becoming aligned with a 2°C and then a 1.5°C trajectory, etc.), the BdF is constantly watching for emerging or developing issues and topics: fossil fuel exclusions, biodiversity, social aspects (the "S" in "ESG"), carbon pricing, etc. In 2020, the BdF established a Responsible Investment Committee, headed by the deputy Secretary General, which reviews every two to three months all the current strategic issues, including the RI strategy and annual reporting at least annually. Therefore, the BdF's Annual Report is likely to evolve in the coming years depending on the evolution of the RI strategy.

8.5 Bank of Finland: Experiences with becoming a PRI signatory

At Suomen Pankki, the central bank of Finland (BoF), investment reserves consist primarily of high-grade fixed income assets and external funds containing equity and real estate. Norm-based screening and external fund managers' ESG evaluations are, for example, already utilized as part of the central bank's SRI practices.

Becoming a signatory

The BoF became one of the first central banks to sign the UN PRI in December 2019. Signing the PRI was deemed suitable as it is a global, respected initiative that gives a clear structure of the key elements of RI without being too prescriptive. The principles allow for the utilization of different SRI strategies; a signatory can have its own unique way of incorporating and integrating ESG and still align with the PRI. With over 3,000 signatories to date, signing the principles opens up a whole new community to engage with and to learn from. As becoming a signatory is a public commitment, it also makes it easier to communicate to stakeholders that BoF is taking ESG issues into consideration.

Experiences with reporting

While, at first sight, the UN PRI reporting requirements may seem daunting, the framework effectively walks its signatories through the most important sections. Furthermore, it is not necessary to get everything done in one day, as the period during which the report can be filed is very long. The reporting burden also reduces over time as the signatory gains more experience over time and the framework allows for prefilling. The reporting and the assessment are beneficial as the whole process gives the signatory feedback and helps in the development of ideas and tools. Signatories can benchmark themselves against various peer groups and gain knowledge on what the ESG trends are. The assessment report is confidential and not (automatically) shared by the PRI.

Central bank-specific challenges

As a central bank, the level of transparency can be limited due to the characteristics of the various portfolios under management. Part of the reserve portfolios, for instance, may be tied to stricter policy objectives. This, however, is not a problem as the principles can be signed for those parts of the reserves that are within the scope of the investment decisions. Furthermore, an assessment of the reporting framework, carried out before signing the PRI, gave BoF the confidence that signing the principles would not require the central bank to publish any sensitive information that it cannot disclose to the public.

Internal discussions were also held on various other aspects associated with signing the PRI such as the potential and immediate cost, the amount of resources needed for developing our SRI strategy in the future and on the potential reputational risks of the reporting requirement. Many of BoF's concerns were answered by talking with the PRI staff. BoF also felt that the so-called "grace period", where new signatories are exempted from public reporting for the first year, would be beneficial for the institution.

Lessons learned and next steps

BoF decided to sign the PRI while the central bank's SRI policies were not yet finalised. Despite the grace period, BoF used the first reporting as a "test-round" and the assessment report thereof as a tool to help the central bank further develop our policies and processes. After receiving the assessment report, BoF is confident that the chosen development path is the correct one for the central bank. In the meantime, BoF also hired a full-time RI specialist, dedicated to responsibility issues, who will further develop the SRI strategy for the Bank.

Currently, the number of central banks which have signed the PRI is still limited. The development of a more tailored reporting element that takes into account the special elements of central bank portfolios might encourage more central banks to sign.

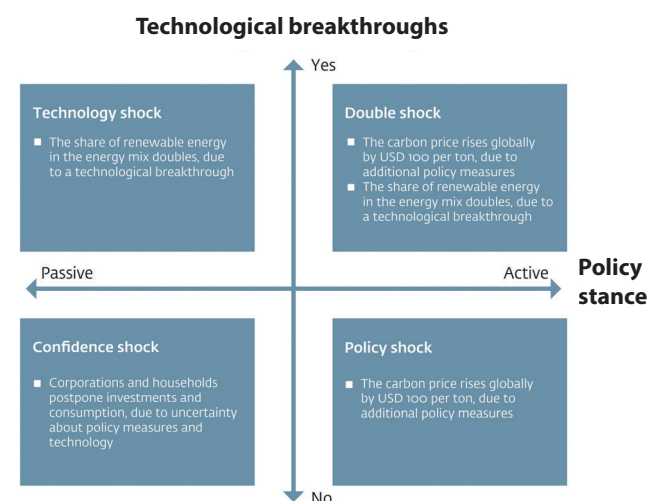
8.6 De Nederlandsche Bank: Climate stress testing the central bank's balance sheet

In March 2019, De Nederlandsche Bank (DNB) signed the PRI and published a Responsible Investment (RI) Charter, outlining the pillars of its RI policy. As part of the pillar "Develop", DNB performed a climate stress test on its own balance sheet, based on the methodological framework developed for supervisory purposes by its Financial Stability (FS) department.¹⁶ The goal of this exercise was to gain a better understanding of the climate-related risks in our portfolios.

Scenarios

The stress test focuses on energy-transition risks and introduces four "severe but plausible" scenarios. The scenarios revolve around two transition risk drivers: government policy and technological developments. These drivers are translated into four scenarios:

- a *policy shock*, where a set of policies to reduce CO₂ emissions is abruptly implemented, leading to a sharp carbon price increase,
- a *technology shock*, where unanticipated technological breakthroughs cause the share of renewable energy in the energy mix to double,
- a *double shock*, where the climate change mitigation policies and abrupt technological breakthroughs occur simultaneously,
- and a *confidence shock*, where uncertainty regarding government policies causes a drop in consumer, producer and investor confidence.



Central bank-specific considerations

With several adjustments, the FS methodology was translated into a framework adequate for application to a central bank balance sheet. As a member of the Eurosystem, our balance sheet is, to a large extent, driven by monetary policy implementation. Due to the pooling and redistribution of monetary income within the Eurosystem, the economic exposure to monetary assets can differ from

¹⁶ An energy transition risk stress test for the financial system of the Netherlands, DNB, 2018.

accounting exposures that are obtained from the balance sheet. For illustrative purposes, this case study focuses on DNB's own portfolios and does not include the exposures originating from the monetary assets.

Impact on own portfolios

DNB's own portfolio is invested in (semi-) government bonds, corporate credits and equities. While the impact on the first asset class was calculated in tandem with the monetary assets, the latter two allow for a closer look. Both asset classes are outsourced to external managers. As outlined in our RI Charter, these managers are selected to exclude controversial weapons producers, screen for UN Global Compact violations, integrate ESG into the investment decisions and vote and engage with the companies in the portfolios. So far, these managers have not followed a specific climate strategy in addition to the aforementioned RI strategies.

Table 2 shows that, as may be expected, the double shock scenario has a large impact on both corporate credits and equity portfolios.¹⁷ Sectors that are relatively hard hit in this scenario include *manufacturing*, *electricity and gas*, and *mining and quarrying*.¹⁸ For corporate credits,

the policy shock scenario has a relatively large impact, again driven by *manufacturing* and *electricity and gas*, but also by a market-wide sudden rise in interest rates. In the confidence shock scenario, a stock market crash drives the major impact on the equity portfolios, instead of specific sectoral exposures.

T2 **Impact level of stress test scenarios on corporate credits and equities. Impact-levels range from low to high (-/--/---).**

	Corporate credits	Equities
Policy shock	---	--
Technology shock	-	-
Double shock	---	---
Confidence shock	-	---

Next steps

The energy transition stress test was a first step in improving our understanding of the climate-related risks to DNB's balance sheet. From this year onward, the annual report will include information on the carbon footprint of DNB's own portfolios. We will also investigate the possibilities to add a climate strategy to our current RI Charter.

17 For the calculations, the balance sheet of end-November 2019 was used as a reference.

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IIGCC (2020)**

Paris Aligned Investment Initiative: Net Zero Investment Framework for Consultation

**U.N.-convened Net-Zero Asset Owner Alliance –
UN-NZAOA (2020)**

Draft 2025 Target Setting Protocol, October.

Annex 1: Characteristics of central banks' portfolios

T3 Characteristics of typical central bank portfolios as identified in 2019 SRI guide

	Policy portfolios	Own portfolios	Pension portfolios	Third party portfolios
Dictated by	Policy goal – determined by central bank mandate	Financial return goal – e.g. to help cover operating expenses	Fiduciary duty – managed on behalf of beneficiaries	Third-party mandate – managed on behalf of an external party
Main objective	To support, implement and maintain confidence in monetary policy and currency management.	To generate returns within set risk tolerance levels. Secondary objective can be to gather market intelligence.	To provide for the retirement pension obligations of the central bank's employees.	Set by a third party. Varies, e.g. financial return, short-term liquidity provision or foreign exchange intervention.
Character	Assets meet high standards in terms of liquidity and credit quality in order to be able to absorb shocks in times of crisis or when access to borrowing is curtailed. Can be subject to market neutrality.	Subject to risk-return considerations. More freedom in investment decisions, but interference with monetary policy or currency management should be prevented.	Long term investment horizon in line with the pension liabilities. Short-term volatility is less of a concern.	Depends on main objective of funds. Cases where central bank manages foreign exchange reserves on behalf of the government.
Asset classes	Limited. Mostly (sub-) sovereigns, supranationals and agency (SSA) and some corporate/covered bonds and equity.	Diverse. Mix between SSA, corporate/covered bonds and equity, and potentially private debt.	Diverse. Mix between SSA, corporate/covered bonds, equity, and private debt.	Diverse. Mainly SSA, followed by corporate/covered bonds, and equity.
Duration	From short to medium term. From 3-6 years for majority. Less than 2 years for one-third of respondents.	Short term. Less than 2 years for majority.	Longer term. More than 6 years for two-thirds of the respondents.	Balanced. Varies from short term (0-2 years), medium term (3-6 years) and longer term (> 6 years).

Source: NGFS' SRI guide 2019.

Annex 2: List of survey participants (2020)

Banca d'Italia
Banco Central do Brasil
Banco de España
Banco de la República (Colombia)
Banco de México
Banco de Portugal
Bank Al-Maghrib
Bank Negara Malaysia
Bank of Canada
Bank of England
Bank of Finland
Bank of Greece
Bank of Korea
Bank of Latvia
Banque Centrale des États de l'Afrique de l'Ouest
Banque centrale du Luxembourg
Banque de France
Central Bank of Cyprus
Central Bank of Hungary
Central Bank of Ireland
Central Bank of The Republic of Armenia
Central Bank of Malta
Danmarks Nationalbank
De Nederlandsche Bank
Deutsche Bundesbank
Eesti Pank
European Central Bank
Hong Kong Monetary Authority
Lietuvos Bankas
Monetary Authority of Singapore
National Bank of Belgium
National Bank of Cambodia
National Bank of Georgia
Norges Bank
Oesterreichische Nationalbank
Reserve Bank of Australia
Sveriges Riksbank
Swiss National Bank
The Central Bank of the Russian Federation
The People's Bank of China

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Glossary

Best-in-class	An SRI strategy that involves either positive screening or index-adjusted weighting (“ESG tilting”) by comparing the ESG characteristics of a firm to its peers.
ESG	Environmental, Social, and Governance.
ESG integration	An SRI strategy that aims at enhancing traditional financial (risk) analysis by systematically including ESG criteria in the investment analysis to enhance risk-adjusted returns.
Green bonds	Bonds for which the proceeds should be used exclusively for (predefined) green projects.
Impact investing	An SRI strategy that aims to achieve a quantifiable positive impact alongside financial returns.
KPI	Key Performance Indicator.
Negative screening	An SRI strategy that systematically excludes companies, sectors or countries from the investment universe.
Own funds	Any portfolio of a central bank that is not related to a formally mandated (policy) goal, but that is held, for example, to make up for operating expenses or for gathering market intelligence. For Eurosystem central banks this includes the ANFA portfolios.
Pension funds	Portfolios managed by central banks that serve as long-term savings account for retirement and have a longer investment horizon.
Policy portfolios	Any portfolio which has been formally mandated to the central bank, e.g. for monetary policy purposes, foreign exchange interventions, etc.
RI	Responsible Investment.
SDG	Sustainable Development Goals – seventeen goals adopted by all UN Member States in 2015 with the aim of ending global poverty by 2030 while maintaining global stability.
SRI	Sustainable and Responsible Investment – used throughout the guide as an umbrella term under which multiple strategies and investment practices can be placed that explicitly take climate or broader ESG criteria into account.
SSA	(Sub-)sovereigns, Supranationals and Agencies.
Third-party assets	Assets that a central bank manages on behalf of a third party.
Voting and engagement	An SRI strategy that involves exercising ownership rights and “voice” with the intention of changing a company’s behaviour with regards to ESG issues, such as the violation of international standards and norms.



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