

The Green Central Banking Scorecard

2024 Edition



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Endorsements

The following organisations have expressed their support for the key messages of this report, though this does not necessarily mean they endorse the score and rank of every country.



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Executive summary

The Green Central Banking Scorecard ranks G20 countries on the progress of their central banks and supervisory institutions towards incorporating environmental considerations in their operations across four categories: Research and Advocacy, Monetary Policy, Financial Policy, and Leading by Example. The scoring assessment is based on literature reviews, expert consultation, and bilateral interactions with the ranked institutions. The 2024 edition of the Green Central Banking Scorecard also utilises an updated methodology to recalibrate the scoring process to reflect new developments in the green central banking field since the 2022 edition.

This report assesses the progress made by G20 central banks and supervisors towards the recommendations made in the 2022 edition of the scorecard, within the wider context of countries' historical environmental impact, as well as in relation to global imbalances in monetary and financial power. The urgent need for institutions to implement high impact green policies is emphasised, especially those in countries bearing the largest historical responsibility for the climate crisis.

The 2024 rankings place the EU and its G20 member countries (France, Germany and Italy) in the top four positions, and Brazil and China also rank highly. The progress of these institutions provides real-world examples of effective green policy implementation for other central banks to follow. In contrast, the lack of action by the United States Federal Reserve on addressing environmental risks is identified as a global cause for concern. We argue that the G20 institutions that have rhetorically embraced the need for greener monetary and financial policy must call on the Fed directly to take action.

The Scorecard for 2024 highlights several key trends and areas where further action is required. The most advanced central banks have begun acknowledging the concept of double materiality, recognising both the financial causes and consequences of climate change in their policies and strategies. However, even among the top performers, there are substantial gaps in the adoption of high impact policies necessary to steer financial systems away from carbon-intensive activities and toward sustainable alternatives. For example, while some central banks are moving toward greening their operations and incorporating climate considerations into their financial supervision, there is still a noticeable reluctance to abandon the outdated notion of market neutrality, which perpetuates investments in environmentally harmful assets.





















The global economy's continued reliance on fossil fuels inflicts a dual negative effect on price stability. Central banks must respond by integrating environmental considerations into their inflation forecasting, macroeconomic modelling, and monetary policy tools. Addressing climateflation also requires closer collaboration between central banks and governments to develop new international monetary arrangements which relieve the constraints on low-income countries' capacities to enact their own green transitions.

The report puts forward 14 recommendations for central banks and supervisors for 2024, including three new recommendations (in comparison to the 2022 edition): recognise that achieving inflation targets requires taking action against ‘climateflation’, coordinate with governments to increase fiscal space for green public investment, and support the development of unsustainable taxonomies.

The Scorecard calls for central banks to act with the urgency that the climate crisis demands. Only through decisive action and international cooperation can these institutions play their essential role in supporting a just transition to a sustainable economy.

Green Central Banking Scorecard

2024 Results

Rank	Country	Research and Advocacy (out of 10)	Monetary Policy (out of 50)	Financial Policy (out of 50)	Leading by Example (out of 20)	Total Score 2024 (out of 130)	Grade 2024 (A+ to F)
1 (1)	 France	10	23	47	16	96	B+
2 (3)	 Germany	10	28	45	10	93	B+
3 (2)	 Italy	10	23	48	10	91	B+
4 (4)	 European Union	10	23	44	10	87	B
5 (6=)	 Brazil	10	18	33	10	71	B-
6 (6=)	 China	5	22	31	3	61	C+
7 (5)	 United Kingdom	10	11	24	8	53	C
8 (8)	 Japan	6	16	10	10	42	C-
9 (9)	 Indonesia	5	14	15	4	38	D+
10 (12)	 India	5	5	13	7	30	D+
11= (15)	 Australia	10	0	15	1	26	D
11= (18)	 South Africa	10	1	11	4	26	D
13 (10)	 Canada	5	1	16	3	25	D
14 (14)	 Russia	5	0	14	2	21	D
15 (11=)	 Mexico	5	2	1	9	17	D-
16 (13)	 Republic of Korea	5	8	2	1	16	D-
17 (16)	 United States of America	5	0	9	1	15	D-
18 (17)	 Turkey	2	0	5	3	10	D-
19 (19)	 Argentina	4	0	0	1	5	F
20 (20)	 Saudi Arabia	1	0	0	0	1	F

Summary of Recommendations

Central banks and financial regulators should consider the following recommendations:

Research and Advocacy	<ol style="list-style-type: none"> 1. Act on environmental risks beyond climate: explore and address risks related to biodiversity loss, water scarcity, and other ecological threats, as well as risks related to climate change. 2. Adopt and advocate for a precautionary approach to addressing climate and ecological crisis: recognise that environmental risks are characterised by radical uncertainty. 3. Adopt a double materiality framework: assess how the negative environmental impacts of financial institutions further increase the financial system's vulnerability to environmental risk. Refer to data collection and modelling processes that account for these feedback loops in policy discussions and decisions. 4. Recognise historical responsibility for climate change: central banks in countries with the largest historic contribution to climate change bear the most responsibility for taking decisive action in the near term.
Monetary Policy	<ol style="list-style-type: none"> 5. Recognise that achieving inflation targets requires taking action against 'climateflation': account for climate and nature risks within inflation forecasting, and adopt tools to mitigate these risks. 6. Create green lending schemes: offer a green discount rate to incentivise and increase lending to sustainable activities. 7. Strengthen green asset purchase programmes and collateral frameworks: positively screen for green assets while negatively screening environmentally harmful assets. 8. Coordinate with governments to increase fiscal space for green public investment: implement policies that support the mobilisation of public funds towards green projects at scales appropriate for tackling the climate crisis.
Financial Policy	<ol style="list-style-type: none"> 9. Adapt capital requirements: increase risk weights for new and existing fossil fuel exposures and introduce environmental systemic risk buffers. 10. Consider limits on dirty lending: consider imposing limits on lending to the most environmentally destructive projects and companies. 11. Require all financial institutions to disclose evidence-based transition plans: make transition plans based on scientific evidence mandatory, supervise to what extent financial institutions are achieving their targets, and apply appropriate enforcement mechanisms to ensure targets are met.
Leading by Example	<ol style="list-style-type: none"> 12. Support the development of unsustainable taxonomies. Classify economic activities and financial assets according to their degree of environmental harm, and seek convergence between unsustainable taxonomies in different jurisdictions. 13. Align all non-monetary portfolios with the Paris Agreement and environmental goals: exclude assets linked to the development of new fossil fuel projects and other environmentally harmful activities. 14. Empower citizens and civil society to understand and engage with central banking: as public institutions, G20 central banks and financial regulators should engage with a wide cross section of society, especially through participatory events.

1. Introduction

Since the last Green Central Banking Scorecard was published by Positive Money in 2022, the escalating interaction of climate and ecological crisis, price instability, and social inequality has only become more stark.

Research by Christian Aid found that following the 28th United Nations Climate Change Conference (COP28) held in November 2023, extreme weather events caused a minimum of \$41 billion of damage in just six months, predominantly in the Global South (Pearce and Ware, 2024). In February 2024, Positive Money published a report titled 'Inflation as an Ecological Phenomenon', which warns of the increasing threat to macroeconomic stability posed by extreme weather events as climate breakdown accelerates (Barnes and Schröder Bosch, 2024). The report also highlighted inflation driven by fossil fuel prices, such as that triggered following Russia's invasion of Ukraine in February 2022. More recently, tremors in oil prices have followed Israel's genocide in Gaza, with the prospect of escalation into a regional war involving major oil-producers such as Iran threatening more severe price instability, on top of already devastating humanitarian consequences (Ambrose, 2023; Jolly 2024). This interconnected ecological, economic and geopolitical upheaval reaffirms the need for central banks to ramp up their contribution to decarbonising economies and bringing about a just global green transition.

There is still a long way to go in aligning central banking with this global challenge. In this report, we highlight several crucial concepts and perspectives that are currently insufficiently embedded in central banks' approaches to environmental issues. These include, but are not limited to: 'climateflation', the escalating impact of climate breakdown on price stability; 'double materiality', which recognises the material influence of financial institutions' policies on environmental outcomes; environmental crises and risks beyond climate (such as biodiversity loss and deforestation); and historical responsibility for ecological breakdown, which problematises the perspective that all central banks should hold equal capacity and responsibility to lead the way on implementing transformative green policies.

The Green Central Banking Scorecard project scores and ranks G20 countries on the progress of the central banks and supervisory institutions towards implementing a comprehensive range of green policies and initiatives. The scorecard project tracks a broad range of actions that central banks and supervisors could adopt, which are separated into four categories: Research and Advocacy, Monetary Policy, Financial Policy, and Leading by Example. To achieve full marks on the scorecard, an institution must have fully implemented multiple high impact policies across all four categories. The scoring assessment is based primarily on quantitative data collection, but also draws on literature reviews, consultation with experts in the field, and bilateral interactions with central bankers and supervisory institutions.

1.1 Updates to the methodology for the 2024 edition

As more G20 central banks are now undertaking research and advocacy on climate change, we have recalibrated the Research and Advocacy category. In the 2022 Scorecard, all countries but three achieved full marks in this category, even though some institutions were relatively passive members of the NGFS with few actual actions taken (Eames and Barmes, 2022).

Under the new methodology, membership in the Network for Greening the Financial System (NGFS) is now awarded differently depending on whether the membership involves playing a leading role: five points are awarded to institutions that have staff acting as NGFS steering committee members, or as chairs of NGFS work streams or task forces. Other institutions who are simply NGFS members are awarded one point. Previously, all countries were awarded five points for NGFS membership.

A further change to the Research and Advocacy category is that institutions that have adopted a double materiality research framework are now awarded five points. A double materiality framework is critical for research and advocacy work to have substantial impact, and the new five point award provides an alternative route for achieving maximum points in the Research and Advocacy category outside of NGFS leadership.

The other methodology changes made in this edition have had less direct effects on scoring than the above changes, and are in line with the recommendations made in the Green Central Banking Scorecard Methodology Review (Speer and Yadav, 2024). Please see Appendix 1 for an overview of the finalised changes to the methodology and scoring system made in this edition, following that review.

1.2 Reflections on the African Union joining the G20

In September 2023, the African Union was granted permanent member status in the G20. Previous editions of the Green Central Banking Scorecard have included all G20 members, and developed a special procedure for assessing the European Union collectively alongside the individual G20 countries. However, the 55 member states of the African Union have no central monetary and financial institutions that could be assessed in the same manner to the European Central Bank (ECB) and European Banking Authority (EBA), and assessing the individual policies of all 55 African Union member states is beyond the current scope of the Scorecard project. As a result, the African Union has not been included in the 2024 rankings.

The inclusion of African Union member states in the scorecard warrants further consideration, which the G20 Green Central Banking Scorecard project will take forward. Considerations should include structural imbalances in the international monetary and financial system that advantage or disadvantage high income and low income countries (see section 3.2). Policy recommendations more closely calibrated for central banks and supervisors in low income countries would also be desirable. However, central banks and supervisors within the countries that have made the largest historical contribution to climate change (Evans, 2021) have the greatest responsibility for progressing towards green central banking. Advocacy for green central banking should therefore prioritise action by these institutions.

2. Action or apathy?

Assessing green central banking in 2024

2.1 Green Central Banking Scorecard – 2024 Rankings

Table 1 shows the final scores for G20 central banks and financial regulators as of August 2024, including scores for individual categories. These results reflect a comprehensive review of green monetary and financial policies.

Table 1: G20 countries ranked by green monetary and financial policies





















Rank	Country	Research and Advocacy (out of 10)	Monetary Policy (out of 50)	Financial Policy (out of 50)	Leading by Example (out of 20)	Total Score 2024 (out of 130)	Grade 2024 (A+ to F)
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6 (6=)	 China	5	22	31	3	61	C+
7 (5)	 United Kingdom	10	11	24	8	53	C
8 (8)	 Japan	6	16	10	10	42	C–
9 (9)	 Indonesia	5	14	15	4	38	D+
10 (12)	 India	5	5	13	7	30	D+
11= (15)	 Australia	10	0	15	1	26	D
11= (18)	 South Africa	10	1	11	4	26	D
13 (10)	 Canada	5	1	16	3	25	D
14 (14)	 Russia	5	0	14	2	21	D
15 (11=)	 Mexico	5	2	1	9	17	D–
16 (13)	 Republic of Korea	5	8	2	1	16	D–
17 (16)	 United States of America	5	0	9	1	15	D–
18 (17)	 Turkey	2	0	5	3	10	D–
19 (19)	 Argentina	4	0	0	1	5	F
20 (20)	 Saudi Arabia	1	0	0	0	1	F

Table 2 shows the final scores for G20 central banks and financial regulators as of August 2024 alongside the institutions' scores in the previous edition of the scorecard in 2022.

Table 2: Comparison of scorecard rankings of G20 countries in 2022 and 2024

Rank		Country	Total Score 2024 (out of 130)	Grade 2024 (A+ to F)	Total Score 2022 (out of 130)	Grade 2022 (A+ to F)
1 (1)	-	France	96	B+	70	B-
2 (3)	▲	Germany	93	B+	60	C+
3 (2)	▼	Italy	91	B+	61	C+
4 (4)	-	European Union	87	B	58	C
5 (6=)	▲	Brazil	71	B-	53	C
6 (6=)	-	China	61	C+	53	C
7 (5)	▼	United Kingdom	53	C	56	C
8 (8)	-	Japan	42	C-	35	D+
9 (9)	-	Indonesia	38	D+	30	D+
10 (12)	▲	India	30	D+	21	D
11= (15)	▲	Australia	26	D	17	D-
11= (18)	▲	South Africa	26	D	13	D-
13 (10)	▼	Canada	25	D	28	D
14 (14)	-	Russia	21	D	18	D-
15 (11=)	▼	Mexico	17	D-	23	D
16 (13)	▼	Republic of Korea	16	D-	19	D-
17 (16)	▼	United States of America	15	D-	16	D-
18 (17)	▼	Turkey	10	D-	14	D-
19 (19)	-	Argentina	5	F	6	F
20 (20)	-	Saudi Arabia	1	F	0	F

2.2 Which countries are making progress and which are falling behind?

Countries that are making progress

The European Union member countries—France, Germany, and Italy—have taken the top three positions on the scorecard, with the European Union collectively taking the fourth position. France, leader of the 2022 scorecard, has remained in first place with a slightly higher score than Germany and Italy, which have placed in the second and third positions respectively. All three EU member countries have been awarded a B+ grade.

In absolute scoring terms, Germany gained the most ground, improving by 33 points since the 2022 edition, moving up one place to overtake Italy, which has gained 30 points. France remains the leading country, but its progress, with only 26 additional points, is less than that of its EU peers.

The high scores of all three European Union countries are very dependent on the strong progress made at the EU level, with many of their highest scoring actions implemented by the ECB, along with some by the EBA. The ECB is tilting corporate bond holdings on a path aligned with the Paris Agreement, implementing economy-wide climate stress tests, and also requiring financial institutions to incorporate environmental risks into their risk management processes by the end of 2024. In addition, it has publicly discussed a number of high impact green policies that no other G20 banks have openly considered, including climate-related quantitative and qualitative restrictions on banks' portfolios, and requiring banks to publish transition plans compatible with the Paris Agreement. As a result, the European Union has collectively achieved a B grade.

Brazil has achieved a B- grade in 2024, improving from joint 6th position in 2022, to 5th position in 2024. While the Banco Central do Brasil has yet to fully implement any high impact policies, the institution has implemented a wide range of medium impact actions and formally committed to a high impact monetary policy (reviewed in detail in section 3). Brazil is therefore making good progress in line with the scorecard project's recommendations, and is on course to improve its grade further.

China has also made progress, achieving a C+ grade while retaining the same ranking in 6th position. The People's Bank of China (PBoC) has facilitated large-scale green investment through the Carbon Emission Reduction Facility (CERF), and their coal lending facility has ceased lending additional funds, marking an important step forward to greening their operations. However, large-scale loans to coal enabled by the PBoC remain outstanding, which has held back China's overall score and prevented it from reaching the highest ranks.

Japan has implemented an innovative monetary policy approach by including the Government of Japan's Climate Transition Bonds in the Bank of Japan's market operations and asset purchasing programmes. However, while they show great potential, Japan has yet to scale up these programmes enough to have any significant impact. Another significant policy is the Climate Response Financing Operations, through which the Bank of Japan has provided £35 billion in loans to support financing of the private sector for their efforts on climate change (Bank of Japan, 2024). However, the private institutions were given control over how to define 'green' for the purposes of this instrument, which casts uncertainty over the programme's efficacy. The full potential of the Bank of Japan's green policy-making therefore remains unrealised, and Japan has remained in eighth position in the 2024 rankings.

Indonesia is making slow but steady progress as well: despite facing the challenge of the Indonesian economy's heavy reliance on fossil fuel exports, the Bank of Indonesia has improved their score in the Monetary Policy category by including green considerations within its foreign reserves management (which mobilises funds towards green projects in the Asia Pacific Region), in addition to providing operational support for, and investing in, the Government of Indonesia's 'green sukuk' instruments (Bank of Indonesia, 2024).

The other countries that have made progress in the 2024 edition are India, Australia, and South Africa. India's rank has increased from 12th to 10th, having made formal commitments to multiple medium impact policies, including mandatory disclosures for financial institutions, and system-wide stress testing exercises, as well as discussing further medium impact actions. Australia's case has both positive and negative aspects: while the Reserve Bank of Australia has only taken minimal action, primarily conducting research while taking no more impactful actions,

Australia's financial supervisor—the Australian Prudential Regulation Authority (APRA)—is making progress in their stead, and has committed to consider climate risk in their supervision, as well as conducting a climate scenario analysis with Australia's five largest banks. Finally, South Africa has progressed in the 2024 edition: it is among the countries playing a leading role in the NGFS, and has repeatedly issued climate-related guidance for financial firms. However, it has yet to implement any medium impact actions beyond its contributions to the NGFS, which will be required to increase its score further.

Countries that have stalled

While the UK has made strong progress in previous editions of the scorecard, and is among the higher ranking countries in the G20, in the 2024 edition its progress has stalled. The UK is still graded C, as it was in 2022, with a slightly lower overall score (under the new methodology, one of the Bank of England's actions in the Financial Policy category has been awarded at a lower impact level). It has not committed to any high impact monetary policies, and has only implemented a few medium impact policies, with the most notable highlight being the greening of the Bank of England's Corporate Bond Purchase Scheme (Bank of England, 2023).

Canada has also stalled, falling from 10th position in 2022 to 14th in 2024. The Bank of Canada was previously considering incorporating climate considerations into its collateral framework, but that discussion, along with other monetary policy improvements the Bank was considering, has not been continued. However, Canada's financial supervisor has committed to making disclosure of climate-related financial risks mandatory for financial institutions, in addition to other minor climate-related actions, leaving Canada with the same overall grade of D that it had in 2022.

Countries that are falling behind

In 2022, the Banco de México announced that it was considering including Environmental Social and Governance (ESG) considerations in its foreign reserves management programme (Banco de México, 2024). However, as of July 2024, no policies or actions have clearly materialised. The Banco de México issued a statement in 2021, and updated the statement in November 2023, which mentioned that investments in the international reserve assets account of the Bank hold an objective of incorporating, to the extent possible, considerations related to sustainability (Banco de México, 2023). Corresponding actions within the Bank's foreign reserve portfolio, or in its purchases, are not yet evident¹.

In 2021, the Bank of Korea issued a paper titled "Bank of Korea's Response to Climate Change" (Bank of Korea, 2021), which sets out the Bank of Korea's approach to addressing climate and environmental challenges, and makes various formal commitments. These include the integration of green assets within its open market operations framework. In May 2024, the Bank of Korea confirmed directly to Positive Money that it had created an 'Office of Sustainable Growth' (launched in February 2024) to develop the strategy established in its aforementioned paper. However, the institution also stated that the development of this strategy was constrained due to the lack of green certification procedures and the scarce availability of green bonds, despite the Korean Green Taxonomy (K-taxonomy) including guidelines on the issuance of green bonds (Song, 2022), and green bonds being the most issued securities by corporations and financial institutions in the Republic of Korea (Ministry of Environment, 2023).

¹ The Mexican newspaper "El Economista" has called on the Banco de México to advance the transparency of its international reserve portfolio, as has been done by Brazil and Colombia (Morales, 2024).

The Republic of Korea's ranking has fallen from 13th in 2022 to 16th in 2024 (partly due to the Bank of Korea's NGFS membership being worth fewer points under the new methodology), and it has retained its D- grade.

Russia's grade has slightly improved from D- to D, and it has held steady at 14th position in the rankings. The Central Bank of the Russian Federation (CBRF) has implemented just two notable policies at medium impact level: adjusting the capital requirements it places on banks based on the climate impact of the loans they issue, and broad stress testing of financial and non-financial companies (Bank of Russia, 2024). Despite the slight progress in this edition, the CBRF has not followed through on some climate commitments it previously made, and has made no new commitments to medium or high impact policy. Russia is therefore falling far behind the higher scoring institutions.

The remaining countries—the US, Turkey, Argentina and Saudi Arabia—are the four lowest ranking countries in the 2024 scorecard rankings. The central banks and supervisors of these countries have taken minimal to no action to green their operations, and remain at the starting line, falling far behind the other G20 members due to a lack of progress across all categories.

2.3 Inaction at the Federal Reserve

As one of the world's leading economies, the United States possesses significant resources and influence. The Federal Reserve's refusal to effectively integrate climate considerations into its monetary policy and financial regulation represents a pattern of missed opportunities for substantial progress.

With its high-income status and the global dominance of the dollar, the US is uniquely positioned to set a global benchmark for integrating green policies into monetary and financial frameworks. This potential leadership role is crucial, as positive action would help reduce the current diverging standards on climate rules and push through international market risk rules². Instead, US climate disclosures have been watered down and mired in legal challenges (Costa, 2024a; Lee, 2024a), exemplifying the political resistance to embedding climate considerations into the US economy.

The absence of robust climate policies from the Fed undermines international confidence in the US's commitment to addressing climate change. As a key player in global finance, the Fed's actions—or lack thereof—send a powerful message to other countries and institutions. By failing to prioritise climate considerations, the Fed acts as an obstacle to wider progress. For example, the 2024 'Banking on Climate Chaos' report authored by eight NGOs found that the three commercial banks that provided the largest amount of finance to fossil fuel expansion between 2016 and 2023 were all US-based³, reflecting the lack of climate regulation in that jurisdiction. Thus, the Federal Reserve's poor performance is not only a national issue, but a global concern.

We call on global financial leaders to hold the Fed accountable, and urge it to adopt climate policies and set an example for others. For those at the forefront of the NGFS, this should be a top priority, given the profound impact an environmentally-focused US central bank would have on the global financial landscape. The Fed must go beyond merely acknowledging climate risks: it must join the growing international consensus that green central banking is essential to redirect financial flows towards green activities. Without decisive action from the Fed, financing the green transition will be significantly more challenging.

² The EU has delayed Basel III market risk rules as a consequence of delayed US action (Tamma et al, 2024).

³ https://www.bankingonclimatechaos.org/wp-content/uploads/2024/07/BOCC_2024_vF3.pdf

3. Progress towards our recommendations

In this section, we review the most significant actions taken by the central banks and supervisors of the highest ranking countries on the 2024 scorecard: France, Germany, Italy, the European Union⁴, Brazil, and China. We then take a wider perspective on how imbalances in the global monetary and financial system result in some countries' institutions having more capacity to green their operations than others, and reassert that countries with the greatest historical responsibility for climate change bear the greatest responsibility for action.

3.1 Top achievers in relation to the 2022 Scorecard's recommendations

The higher scoring countries in the 2024 edition—countries awarded a C+ grade or above—have implemented a wide range of green policies which provide positive examples for other central banks and supervisors to follow. In the previous edition of the scorecard, we put forward 12 recommendations for G20 central banks and supervisors; the actions reviewed here reflect the progress made towards those recommendations.

European Union

The EU has achieved the highest recorded score in the Monetary Policy category to date, at 26/50 points. This is partly due to making formal commitments to multiple medium impact policies in this category, including considering climate change in longer-term refinancing operations and structural monetary policy operations (Caswell, 2022). The ECB has also fully implemented a climate risk stress test of the Eurosystem balance sheet in 2022, as part of its action plan to include climate change considerations in its monetary policy strategy. It is tilting corporate bond holdings with an aim “to gradually decarbonise...on a path aligned with the goals of the Paris Agreement”⁵; i.e., to hold the increase in the global average temperatures to well below 2°C above pre-industrial levels, and to pursue efforts to limit temperature increase to 1.5°C above pre-industrial levels.

Tilting asset purchase programmes away from the most environmentally harmful activities falls in line with the scorecard's recommendations (see section 5), and we encourage the ECB to further develop the policy through strengthened tilting and exclusions. It must be noted, however, that there are potential limitations to the impact of this policy implied by the ECB's announcement in early 2024 that it would be seeking to shrink its bond portfolio (Arnold, 2024).

In addition to following through on these formal commitments, it is important for the EU institutions to progress towards implementing high impact monetary policies, such as enforcing limits on fossil fuel lending, lowering interest rates for green lending, and excluding fossil fuels from collateral frameworks and asset purchase programmes (in line with this report's recommendations in section 5). Such policies remain under-discussed by the ECB as possible approaches, leaving the EU (as well as France, Germany, and Italy) with room for improvement in this category. While the ECB have acknowledged the potential effectiveness of a green lending facility, it

⁴ In the scorecard rankings, the European Union represents the intra-national actions of the ECB and EBA. We provide a short overview of this approach in the Appendix (see A1.5).

⁵ The Governing Council decided to increase the tilt on 2 February 2023. See: <https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.pr220704~4f48a72462.en.html>

is argued such a facility would be at odds with the current regime of monetary tightening, despite this stance overlooking the longer-term threat of climateflation (Schreiber and Krebel, 2023).

Progress in the Financial Policy category is markedly strong, securing the EU a score of 44/50 points, which in turn has provided the other EU member states ranked in the scorecard with very high scores in this category. The ECB conducts system-wide climate stress tests on an annual basis, and has set deadlines for banks to meet the ECB's supervisory expectations for managing climate-related and environmental risks by the end of 2024. The ECB has warned of significant fines for banks that miss these deadlines (Costa, 2024c). It has also engaged in discussions on multiple high impact policies in this category, such as the potential introduction of a sectoral Systemic Risk Buffer (Bartsch et al, 2024), climate-related quantitative and qualitative restrictions on banks' portfolios (Baranović et al, 2021), and requiring banks to publish Paris-compatible transition plans (Elderson, 2021).

Other important contributions of the EU have been work towards the Extended Environmental Taxonomy (Platform on Sustainable Finance, 2022), which classifies economic activities most responsible for environmental harms, and the ECB's climate and nature plan (European Central Bank, 2024a). However, there has been no progression of the Extended Environmental Taxonomy since 2022. The EU should continue this work and move towards implementing an unsustainable taxonomy. Finally, the ECB has adopted EU Paris-aligned benchmarks for all equity investments in its staff pension fund, and increased the share of green bonds in its own funds portfolio (European Central Bank, 2024b).

France

In addition to the strong progress made at the EU level, the Banque de France (BdF) has formally committed to a responsible investment charter for its non-monetary portfolios. The charter includes explicit exclusionary policies for fossil fuels (committing to a complete exit from coal and unconventional fossil fuels by the end of 2024), as well as to align all equity portfolios with a 1.5°C global warming trajectory.

The BdF has also been steering and leading the work of the NGFS on nature-related risks (including biodiversity), to go beyond climate-related issues. Extending analyses of nature risks beyond climate is essential for reducing environmental harms, and providing a roadmap for central banks to implement this through the NGFS work is an important contribution. Since 2023, the BdF has also published the biodiversity footprint of its non-monetary portfolios, as well as the organisational biodiversity footprint of the BdF.

Another area the BdF has shown leadership in is advocating for a 'double materiality' approach. Double materiality recognises that financial institutions themselves impact the state of the climate and environment, as well as ecological conditions impacting financial institutions. The BdF applies a double materiality approach in the management of its own (non-monetary) investment portfolios, and encourages others to do so through research publications, speeches, conferences, and other fora.

Further progress for the BdF towards achieving green central banking will require more high impact policies to be implemented, either at the EU-level or at the national level, especially within the monetary policy category. In this edition, we put forward policy proposals in line with the scorecard's recommendations that the BdF and other leading central banks should consider, such as green lending schemes through dual interest rates, asset screening, and coordination with governments to enable green investment (see section 5).

Germany

In the Monetary Policy category, the key areas of the Bundesbank's progress include a sustainable investment framework for its foreign reserves that promotes investment in green assets (Deutsche Bundesbank, 2023), and the development of an in-house macro model that it uses to take feedback effects within physical and transition risks into account when analysing monetary policy (Hinterlang et al, 2023). In Financial Policy, the Bundesbank has conducted a national level climate stress test on Germany's 'Less Significant Institutions' sector, in addition to the European-wide stress test (Frankovic et al, 2023). The Bundesbank also led the procurement of the climate-related data on thousands of companies on behalf of Eurosystem central banks (Deutsche Bundesbank, 2022a).

The Bundesbank also applies sustainable investment policies to its euro-denominated non-monetary portfolio, including tilting based on carbon risk ratings and greenhouse gas intensity, and discloses climate-related information for its own balance sheet (Deutsche Bundesbank, 2022b). It also manages several third-party equity portfolios with reference to Paris-aligned benchmarks (Hessisches Ministerium der Finanzen, 2023). Finally, the Bundesbank currently chairs the NGFS, is a member of the steering committee, and has led the workstream on scaling up green finance (NGFS, 2021a).

Despite achieving a grade of B+, primarily due to benefiting from the actions of the ECB and EBA, the Bundesbank has been criticised for hindering the ECB's efforts to take an active role in financing the green transition (Green Central Banking, 2024). With Bundesbank executive board member Sabine Mauderer now leading the NGFS (Walker, 2024), and committing to intensify its progress, the Bundesbank should refrain from future resistance to high impact green policy at the EU level and follow the example of France and Italy in advocating for more ambitious measures to tackle the climate crisis.

Italy

The Banca d'Italia has been notably active at the EU level, contributing expert input to a wide range of discussions and processes in support of advancing green policy. Highlights include Banca d'Italia policy experts' participation in EBA-level discussions on the potential introduction of a sectoral Systemic Risk Buffer (European Banking Authority, 2023). Additionally, experts contributed to the technical discussion and drafting of EBA guidelines on ESG risks management (European Banking Authority, 2024), and helped design templates for ESG disclosures for financial institutions (European Banking Authority, 2022). Further contributions were made towards microprudential and macroprudential climate-related capital-based measures at the EBA level and ECB level (European Banking Authority, 2023), and the development of ECB statistical indicators of financial institutions' climate risk exposures (Banca D'Italia, 2024).

At the international level, the Banca d'Italia has co-chaired the NGFS workstream "Net Zero for Central Banks", and has acted as co-lead of the subgroup "Sustainable Responsible Investment practices for Central Banks", which has published recommendations and technical documents on central banks' portfolio management and decarbonisation (NGFS, 2024c). The Banca d'Italia also contributed to the drafting of an NGFS technical document on scaling up blended finance, presented at COP28 (NGFS, 2023a).

Finally, the Banca d'Italia has supported the National Sustainable Finance Platform, a system-wide initiative aimed at aligning incentives and goals of the overall financial system towards sustainable finance. The programme is led by the public sector, but also engages with companies, academia and NGOs.

To further improve the Banca d'Italia's score, more high impact policies need to be implemented, either at the EU or national level, as highlighted above for the Banque de France. The category with the most room for improvement remains monetary policy: the implementation of green lending schemes such as through dual interest rates, asset screening, and coordination with governments to deliver green investment should all be considered. We encourage the Banca d'Italia to continue advocating for progress at the EU-level, especially towards high impact monetary policies.

Brazil

The Banco Central do Brasil requires banks to disclose qualitative information on strategies, policies and management of social, environmental and climate risks. Public consultation is underway on improvements to the disclosure requirements, so that they include quantitative information on sector-specific exposures and transition plans.

Also of note is 'Eco Invest Brasil', an initiative of the Brazilian Government designed to attract necessary external private investments for the ecological transformation of the country, and to develop the liquidity and efficiency of the long-term foreign currency hedge market for sustainable projects (Ministério da Fazenda, 2024). In combination with other reforms aimed at improving macroeconomic stability, this action constitutes monetary support for a green public finance programme, and falls in line with one of the scorecard's key recommendations for greening central banking (see recommendation 8 in section 5). However, due to the volume required per transaction, there is a risk that the use of the mechanism will only benefit large companies who can already access foreign investors and capital markets, and will exclude small and medium projects, including those related to nature-based solutions.

Other highlights from Brazil's policies include: a ban on financing for sugarcane crop expansion in the Amazon, Pantanal and other zones; a condition on rural credit in the Amazon whereby borrowers must show proof of environmental compliance, including no deforestation; Pillar 2 capital requirements for banks with poor management of climate/nature risks; and ongoing research on biodiversity loss and the financial system. Finally, Brazil is also notable for being the highest scoring non-EU country.

People's Bank of China

In 2021, the People's Bank of China (PBoC) launched the Carbon Emission Reduction Facility (CERF), which required banks to offer reduced interest rates for green loans, including for pollution control facilities, environmental protection and infrastructure, and renewable energy. Disclosures from 21 major banks in China, in mid-2023, indicate that the CERF had enabled the distribution of over 880 billion yuan (USD \$123 billion) to carbon reduction projects since it was launched in 2021, estimated to have reduced CO₂ emissions by 215 million tonnes (Lee, 2024c).

The policy was excluded from the 2022 edition of the scorecard, however, due to the PBoC also implementing the "special central bank lending facility to support the clean and efficient use of coal" (The People's Bank of China, 2022), which directed investment towards coal production in parallel to the CERF. This undermined the positive impact the policy would otherwise have had. The special coal lending facility was wound down at the end of 2023, but the CERF remains in operation, and continues to direct funds into green projects. The PBoC has recently announced the CERF programme has been extended, and will continue to operate until at least 2027, to accelerate China's decarbonisation. However, the points that would have been awarded for the CERF remain suspended in the

2024 edition due to the CERF and the special facility for coal lending previously operating in parallel: the mixed incentives have guided large amounts of funds towards green investments but also towards coal investments (Nedopil Wang and Ziyang, 2023).

Despite the continuing suspension of points from the CERF, the implementation of other impactful policies has notably improved China's score since the first edition, building towards the current grade of C+. In 2022, the China Banking and Insurance Regulatory Commission (CBIRC) issued green finance guidelines for the banking and insurance sector (CBIRC, 2022), requiring banks and insurance institutions to gradually reduce the carbon intensity of asset portfolios in an orderly manner, and finally realise the carbon neutrality of asset portfolios. Climate risk disclosures for large firms have been made mandatory, and include requirements for the disclosures to take a double materiality approach (Lee, 2024b). Finally, China is experimenting with "green finance pilot zones", with the objective of exploring different approaches to green finance in regions that reflect different economic and developmental situations, with the potential of scaling up the successful approaches. Taken together, these actions constitute strong progress in the Financial Policy category.

3.2 Not a level playing field

Across all the institutions we assessed, we saw little to no public acknowledgement of the greater responsibility of central banks in countries with the largest historical contributions to climate change to urgently implement high impact green policies, and to support countries that are most exposed to climate risks and in need of green investment to finance their own sustainable transitions (Dafermos, 2023). This greater responsibility for climate breakdown is intimately connected to the development of countries—largely in the Global North—predicated on colonialism and fossil fuel energy (Evans and Viisainen, 2023).

Analysis by CarbonBrief (Evans, 2021) provides a useful overview of different countries' historical contributions to climate breakdown. The three G20 countries with largest cumulative emissions of CO₂ from fossil fuel and cement use are the United States (420 billion tonnes), China (248.1 billion tonnes), and Russia (117.3 billion tonnes). These countries are followed by Germany, the United Kingdom, Japan and India (93.1, 74.9, 66.7 and 57.1 billion tonnes respectively). All other G20 countries' cumulative fossil and cement emissions are relatively low in comparison (below 40 billion tonnes). Emissions from land use and forestry are also worth considering: the three countries with the highest emissions of this type are Brazil (96.9 billion tonnes), the United States (89.1), and Indonesia (87.9). These are followed by Russia (55.2 billion tonnes) and China (42.6), with all other G20 countries relatively low (below 35 billion tonnes).

However, the differing populations of G20 countries must also be taken into account, not just total cumulative emissions by region. Cumulative per-capita emissions indicate the much higher consumption of some G20 countries over others: as of 2021, Canada, the United States, Australia, the United Kingdom and Germany are all among the top 20 countries globally for cumulative emissions between 1850–2021 weighted by population, whereas China, India, Brazil and Indonesia, are notably absent from this list.

The low scores of institutions in high-income countries with large historical emissions are especially concerning: the greatest responsibility for implementing high impact green policies rests with central banks and supervisors in these countries. Strikingly, the United States appears as the highest emitting country globally in terms of fossil fuels

and cement use, the second highest globally by land use and forestry, and second highest globally by cumulative emissions per population. At the same time, it has only achieved a D- grade in the 2024 scorecard results, and is ranked 17th among the G20 (provided in section 2.1). As such, it stands out as the G20 country with the greatest responsibility to take substantive action in 2024.

A further consideration is the global structural imbalances in economic and monetary power between G20 countries, and how these empower or constrain the central banks and supervisors from taking action. While it is encouraging to see the European Union countries and the Bank of England achieving high rankings in this edition, it must be recognised that they are in a much stronger position to make progress on the scorecard's recommendations than some other G20 countries we have assessed, due their relatively dominant positions in global economic and monetary hierarchies (Svartzman and Althouse, 2022), brought about through legacies of colonialism, uneven development, and fossil fuel extraction (Perry, 2020; Moore, 2015). Brazil's new rating of B- is especially notable for being comparable with the EU and its member countries, despite the disadvantages the country faces due to global imbalances.

Different central banks have different levels of international influence, and the actions of certain central banks have the power to both support and constrain the actions and opportunities of other central banks. One example is the Federal Reserve extending dollar swap lines to some of the G20 countries (Federal Reserve, 2023), but not to others (Cassetta, 2022). Swap lines are agreements between the central banks of two countries to exchange currencies, ensuring liquidity during difficult market circumstances⁶. As the US dollar is the international reserve currency, and widely used for international trade and finance, access to US dollar swap lines supports monetary and financial stability, allowing greater flexibility for monetary and financial policy-making in periods of financial disruption.

India is among the countries not granted a dollar swap line through 2007–2024, a period encompassing the 2008 Global Financial Crisis and the COVID-19 global pandemic. Additionally, India faces escalating costs from extreme weather events, such as Cyclone Amphan, a super cyclone that moved through West Bengal, Odisha and Bangladesh in May 2020 and caused damages estimated at USD 131 million (CARE International, 2021). Lower-income countries rely heavily on dollar financing and other hard currencies for key imports and access to international finance, and to repay (or roll over) their international debts.

During periods of financial instability, swap lines provide a backstop to these countries that ensures easier access to dollars (and other globally significant currencies), helping them to avoid depleting their own foreign currency reserves, which in turn can create further macroeconomic instability and risk a currency crisis. Swap lines also help stabilise these countries' domestic banking and financial markets, as their central banks can provide access to foreign currencies and avoid 'spillover' impacts on the real economy. Global imbalances like this constrain the policy space available to the Reserve Bank of India, while high-income countries with dollar swap line access have a greater degree of freedom to progress towards green central banking. This is particularly pressing because many lower-income countries are those most exposed to climate-related physical risks (Bharadwaj et al, 2022; Rentschler et al, 2022): India stands out as the only country in the G20 with a lower-middle-income level (World

⁶ https://www.ecb.europa.eu/ecb-and-you/explainers/tell-me-more/html/currency_swap_lines.en.html

Bank, 2023).

Central banks and supervisory institutions of countries with high historical emissions must support the fulfilment of their respective governments' formal commitments to deliver greater financing to climate vulnerable countries⁷. Further, central banks should offer broader support for access to finance on fairer terms, such as grants, concessional loans, debt restructuring and cancellation, in order to scale up international finance for lower-income countries to take climate action⁸. For example, central banks can influence greater international monetary coordination to ensure increased allocation of Special Drawing Rights (SDRs) to support climate-vulnerable countries (Ghosh, 2023; Persaud, 2022). While delivering climate justice goes far beyond the field of green central banking, and is a matter for governments to lead on, it is nevertheless important for every institution to play their part.

⁷ For example, Global North governments have so far failed to deliver \$100 billion per year in climate finance to developing nations set in 2009 and due to expire in 2025 (Kozul-Wright, 2023).

⁸ Further assessment of the extent to which G20 central banks have engaged with their respective governments to make progress towards these objectives is warranted, but beyond the scope of this report.

4. Where next for green central banking?

In this section, we discuss what we see as some of the most significant obstacles to further progress in green central banking, beginning by highlighting central banks' under-appreciation of the 'climateflation' phenomenon, which has been a focus of Positive Money's research since the previous edition of the Green Central Banking Scorecard.

4.1 Climateflation needs to be understood by central banks

While the scorecard reflects the acknowledgement of climate and ecological crisis by central banks, there are still limitations to the way that central banks are conceiving of their relationship to the crisis. Central banks must integrate into their operations a deeper recognition of climate and ecological degradation, and global energy markets, as major drivers of inflation, whose effects will only escalate in the coming years (Barnes and Schröder Bosch, 2024). This requires central banks to adapt their policymaking in order to play a stronger role in bringing about a rapid and just green transition, which is essential to avoiding severe macroeconomic instability, and the worsening inequality this generates.

The orthodox tool of increasing interest rates is not capable of tackling the root causes of inflation driven by climate and ecological degradation, and fossil fuel prices, as these are typically supply shocks, unrelated to demand. Raising interest rates also reduces governments' fiscal space to take action on climate and ecological breakdown. If the climate and ecological crisis is to be meaningfully addressed, central banks will need to be key agents, integrating ecological considerations more deeply into monetary policy, coordinating more concertedly with fiscal policy within their own countries, and developing new international monetary arrangements that are fit to address the global nature of the crisis and just transition required.

Inflation driven by fossil fuel prices, or 'fossilflation', poses an enduring threat due to the lack of progress in the transition towards renewable energy sources. Fossilflation was prominent in Europe after Russia's invasion of Ukraine, with half of inflation in the eurozone in 2022 driven by energy prices (Barnes and Dikau, 2024). A more novel—and rapidly escalating—source of inflationary pressures are rising temperatures and the increase in frequency of extreme weather events, caused primarily by the historic and continued burning of fossil fuels, which is subjecting economies to supply side shocks (Kotz et al 2024; Beirne et al, 2024). This process, which can be referred to as 'climateflation', is set to worsen as climate and ecological breakdown escalates.

One sector particularly vulnerable to rising temperatures and extreme weather is agriculture. Increasing shocks to agriculture are resulting in reduced yields and increased food prices, and cross-country research suggests this will continue to contribute to increased headline inflation. For example, Kotz et al (2023) find that rising temperatures will lead to yearly global price increases of 0.92–3.23 percentage points in food prices, and 0.32–1.18 percentage points in headline inflation, by 2035. Having said this, individual extreme weather events can have variegated impacts on headline inflation, depending on the specific nature of the event, the characteristics of the country affected, and the length of time that has passed since the event.

Prices can rise due to negative supply shocks, but these rises can also be outweighed by negative demand shocks, which can lead to falling prices and a recessionary environment. This turbulence makes climateflation a crucial consideration for central banks, who must be prepared for escalating shocks to macroeconomic conditions and price stability as climate and ecological breakdown continue to unfold in a non-linear fashion. This nonlinearity heightens the need for precautionary action from governments and central banks⁹ working in tandem to reduce the risk of devastating climate impacts, as studies of existing data can only offer limited insight into the climate we can expect to see in the coming years and decades.

A further crucial dynamic of climateflation which central banks need to be alert to is how it exacerbates inequalities, both within and between countries. For example, those on lower incomes generally spend a greater proportion of their incomes on food (Charalampakis et al, 2022). This means that climateflation in the form of food price rises disproportionately impacts low-income households, who are less able to absorb such price rises and maintain their wider quality of living. Added to this, the standard monetary policy response to inflation of raising interest rates only adds to this unequal effect, as a reduction in economic activity leaves low-income households disproportionately vulnerable to unemployment and loss of income (Pereira da Silva et al, 2022).

In addition, climateflation will continue to have a disproportionate negative impact on low-income countries, who hold less responsibility for climate breakdown. The ECB's own analysis finds that South America and Africa will be the worst affected by higher prices due to further global temperature rises by 2035 (Kotz et al, 2023). This overall effect is even more pronounced in the realm of food price rises specifically. Reasons for the disproportionate impact of climateflation on low-income countries include the increased proportion of GDP comprised by agriculture, the greater reliance on domestic production, and the greater proportion of household incomes spent on food. The raising of interest rates in response to inflation also exacerbates inequality between countries, by disproportionately increasing borrowing costs for low-income countries, thus reducing their fiscal space to take social and climate action.

In summary, the global economy's continued reliance on fossil fuels inflicts a dual negative effect on price stability, due to both the supply-side shocks delivered by volatile fossil fuel prices (fossilflation), and by locking in more severe global temperature rises, which means further price shocks as a result of the major damage caused by extreme weather to key sectors of the economy, such as agriculture (climateflation). Bringing about a just transition to a renewables-powered economy is therefore imperative for price stability, and requires central banks to thoroughly integrate environmental considerations into their inflation forecasting, macroeconomic modelling, and monetary policy tools (see section 5).

⁹ Some central banks have responded to the 'climateflation' argument with warnings of 'greenflation': the supposed inflationary impacts of implementing green transition/technologies. However, models have indicated that greenflation may be – at worst – modest, if transition is well managed (e.g. Brand et al, 2023; Olovsson and Vestin, 2023).

4.2 Barriers to progress

The 2024 Green Central Banking Scorecard indicates some notable improvements amongst central banks in integrating environmental considerations into their operations, with the average score achieved being higher than in previous editions of the scorecard. A handful of countries (and the EU) at the top of the scorecard have made particularly significant progress in relation to the scoring framework.

However, progress is not spread evenly across the different categories of action analysed, and scores drop off dramatically after the handful of top performers. Notably, while a large number of countries max out the available points for Research and Advocacy, scores for Monetary Policy are lagging behind, with even the top four performers only receiving around half the available points. Scores for Financial Policy are slightly better, particularly amongst the top few performers, while for the Leading by Example category, even the central banks ranked 2nd–5th only score half the available marks.

In the previous edition of the scorecard, we found that no institutions were taking enough concrete action to disincentivise or restrict financial flows to environmentally harmful activities. This remains the case for many central banks and supervisors in 2024: we have seen an increasing number of high impact financial policies that encourage green investment, but scarce few policies that restrict harmful activity have been implemented or committed to since the last report.

A key finding of this report is that much of the valuable exploratory work being done by central banks on environmental issues is not translating into action through their policies. This is a significant step that central banks need to take if they are to make further progress in the scorecard in future years, and work with their respective national governments to collectively address climate and ecological breakdown.

Narrow interpretations of central bank remits

A major barrier which is standing in the way of central banks implementing more impactful policies in relation to climate and ecological crisis is the continued dominance of a narrow and isolated monetary and financial interpretation of central bank remits. Central banks continue to approach climate and ecological breakdown primarily in terms of the risks it poses to financial institutions and their assets, and how ‘exposure’ to this risk can be reduced, rather than viewing it as a systemic threat to economies (including price stability) and societies more broadly, that they must act to mitigate.

The concept of ‘double materiality’ articulates the reality that central banks are themselves key actors holding influence over the trajectory of climate and ecological breakdown, rather than simply recipients of an external risk it poses (Dafermos, 2024). Boissinot et al (2022) outline three different applications of a double materiality framework: an ‘idiosyncratic perspective’, where a financial institution is interested in its contribution to ecological breakdown because of the potential negative impacts this entails for the institution itself; a ‘systemic risk perspective’, where institutions are interested in how they might be contributing to risks threatening the wider financial system; and a ‘transformative perspective’ through which institutions seek to use their position to reshape both financial and wider economic structures so that they align with a green transition in the interests of society more broadly.

Supported by leadership from governments, central banks must shift from playing a solely prudential role towards this more transformative approach, which actively seeks to align monetary policy, financial regulation and credit allocation with overarching green fiscal policy and industrial strategy, while ensuring that private finance does not disrupt this alignment around green transition (Kedward et al, 2024; 2022).

Centering of market-neutrality

In terms of monetary policy—the category with the proportionally lowest scores in this year’s assessment—tools that central banks need to make much greater use of include: excluding fossil fuels from collateral frameworks and asset purchase programmes, limiting lending to fossil fuels, lowering interest rates for green lending, and providing monetary support for green fiscal spending (see also the recommendations section of this report). These tools could themselves be aided by the development of rigorous sustainable (and unsustainable) taxonomies, which are not compromised by the lobbying of certain industrial sectors (see also section 5.4).

A further barrier preventing a deeper and more effective use of such monetary policy tools is the privileging of notions of market-neutrality within central banking, which generates a tendency to perpetuate the existing industrial composition of economies, rather than accelerating green transition. Market-neutrality as a concept falls down in a situation where particular industries, such as fossil fuels, pose an extreme threat to both macroeconomic stability and planetary habitability. Despite this, central banks and regulators have not yet taken positions which seek to exclude the allocation of resources towards ecologically-damaging assets and sectors, instead preferring to ‘tilt’ investment within sectors (Kedward et al, 2024; 2022).

As described above, the increasing impact of climateflation only reinforces the urgent need for central banks to adopt a much broader and more robust set of tools in order to meet their existing mandates of maintaining price stability, requiring coordination across different spheres of policymaking, rather than relying on the imprecise and inequitable tool of interest rates.

Understating climate and ecological risk

In relation to financial policy, further barriers to green central banking include the deficiencies of current climate and ecological risk modelling being utilised by financial institutions. The orthodox view amongst central banks and financial supervisors has generally been that promoting scenario modelling in order to approximate the financial cost of climate and ecological breakdown to institutional portfolios will lead to an appropriate shift towards green investment, as these risks are internalised into market prices (Chenet et al, 2021).

However, models employed by financial institutions commonly produce conservative estimates of the likely damage to their holdings (NGFS, 2023b), when compared with the warnings of international scientific bodies such as the Intergovernmental Panel on Climate Change (itself often considered conservative), which include catastrophic implications for nature loss, wildlife extinction, human mortality and economic disruption if the current trajectory of temperature increases continues (IPCC, 2023). One reason for these conservative estimates of possible financial damage resulting from ecological breakdown is that central banks and other financial institutions often do not account sufficiently for the existence and potential impact of ‘tipping points’ within their models (Marsden et al, 2024).

Climate and ecological breakdown is non-linear and characterised by fundamental or ‘radical uncertainty’, whereby the complex and unprecedented nature of a risk means it cannot be accurately quantified (Chenet et al, 2021). The lack of historical precedent for the possible destabilisation of human society through runaway climate and ecological breakdown, means that models can only provide limited confidence as to the damages which could be triggered, and particularly what the more extreme end of the spectrum could look like.

Since the last edition of the Green Central Banking Scorecard in 2022, there is some encouraging evidence of perspective shifts amongst central banks when it comes to risk modelling. Within the 12 months prior to this report, representatives from the Bank of England and the European Central Bank, as well as the NGFS, have made public statements recognising that non-linearity and tipping points associated with climate breakdown create a tendency towards underestimation of impacts within climate scenario analysis (Holden et al, 2024; NGFS, 2024e; Helm 2023). It is important that this evolution in approaches to climate risk modelling continues to develop, and spreads to other central banks.

The only prudent course of action amidst incredibly high stakes is to adopt a precautionary approach to climate and ecological breakdown, utilising strong financial regulation (and monetary policy tools) to ensure the worst possible outcomes are not afforded the opportunity to materialise.

Hierarchical international monetary arrangements

Finally, it must be restated that some countries face barriers to integrating environmental considerations into central banking that go beyond a need for political leadership and perspective changes, and are instead the result of structural inequalities. As detailed in section 3.2, countries of the Global North largely occupy more advantageous positions in the global economic system and monetary hierarchies, which meanwhile force Global South countries into foreign denominated debt (primarily in US dollars) and exporting their natural resources in order to finance public investment (Moyo, 2024; Samba Sylla, 2024; Svartzman and Althouse, 2022). Paying back this debt plus exorbitant interest rates creates a debt trap where ever more loans have to be taken. The largest share of Global South debt repayments up until 2029 will be to private financial institutions such as asset managers and banks, primarily based in the Global North, whose profits from these debts directly result in increasing hardship for ordinary people in debtor countries (Debt Justice, 2024).

All this means that Global North countries hold more monetary and fiscal capacity to implement green central banking policies, and invest in green transition more broadly (see also section 3.2). Combating climate and ecological breakdown, and building a sustainable future, in a way which is also just and equitable across all peoples and countries will therefore require a fundamental transformation of international monetary arrangements which dismantles inbuilt hierarchical relationships. This must involve debt cancellation, financial transfers from North to South, and removing restrictions on Southern countries’ monetary and fiscal autonomy to invest in green transition (Samba Sylla, 2024).

5. Recommendations

In this section, we put forward 14 recommendations that central banks and supervisors should follow to overcome barriers to progress and move towards greener central banking. The recommendations are arranged by scoring category. Within the recommendations, we highlight specific policy proposals that institutions should consider taking forward.

We have added three new recommendations for this year's scorecard (5, 8 and 12), while ten remain from the 2022 edition, and one (7) is a composite of two recommendations from 2022. This reflects the fact that central banks and supervisors have a long way to go in responding effectively to climate and ecological crisis, and that our previous recommendations remain relevant and pressing in 2024. We encourage readers to also revisit the 2022 scorecard, for further detail on the recommendations we have carried into this edition (Eames and Barmes, 2022).

5.1 Research and Advocacy

Recommendation 1. Act on environmental risks beyond climate: *explore and address risks related to biodiversity loss, water scarcity, and other ecological threats, as well as risks related to climate change.*

In the previous edition of the scorecard, we highlighted that central banks are likely to neglect nature-related risks in their analyses, and focus primarily on climate risks. We accordingly emphasised the importance of central banks taking a more holistic approach to environmental issues, as climate and nature risks are deeply and complexly interrelated, and so cannot be addressed meaningfully in isolation.

In July 2024, The Network for Greening the Financial System (NGFS) published two complementary reports that offer guidance for central banks and financial supervisors on how to assess financial risks related to nature, including deforestation, biodiversity loss, ocean degradation and plastic pollution, with case studies of the associated litigation risks (NGFS, 2024a). Central banks should make use of this framework and take a broader perspective in their environmental risk analysis, which recognises the interdependencies of the multiple planetary boundaries which are currently being transgressed (Richardson et al, 2023).

Recommendation 2. Adopt and advocate for a precautionary approach to addressing climate and ecological crisis: *recognise that environmental risks are characterised by radical uncertainty.*

The approach central banks have taken thus far to addressing climate and ecological risks has focused on avoiding short-term financial instability by increasing the available information about climate and ecological risk within financial markets (see also section 4.2). This is evident through the greater progress in the 2024 scorecard that central banks have made in the financial policy category compared with monetary policy, and especially the progress towards mandatory climate risk disclosure. However, this strategy for tackling risk has a fundamental flaw: climate and ecological breakdown makes it impossible to assign a proportionate 'price' to the level of risk facing economies, as the forecasting which central banks rely on loses its efficacy in a world of radical uncertainty (De Grauwe and Ji, 2024). Central banks should act in line with the precautionary principle, recognising that rigorous preventative action is required to guard against unpredictable and severe impacts of climate and ecological breakdown. Risk analysis across central banks' policymaking frameworks must take a longer-term and

more systemic outlook. In addition, due to the fundamental uncertainty associated with current methodologies used to estimate future climate costs, institutions should act on the basis of the higher end of their climate cost estimations.

Recommendation 3. Adopt a double materiality framework: *assess how the negative environmental impacts of financial institutions further increase the financial system's vulnerability to environmental risk. Refer to data collection and modelling processes that account for these feedback loops in policy discussions and decisions.*

Central banks continue to interact with climate and ecological breakdown primarily as an external risk threatening financial institutions and the value of their assets, with responses to this threat being framed largely in terms of reducing 'exposure' to climate and ecological risk.

By promoting this view, central banks downplay their own power as major financial institutions who themselves exert significant influence on the state of the climate and environment through their monetary policy frameworks and how they regulate the wider financial sector. Combining analysis of financial risk resulting from climate and ecological breakdown with analysis of how finance contributes to exacerbating and/or mitigating climate and ecological breakdown, constitutes what is known as a 'double materiality' framework.

Gourdel et al's (2024) modelling of the double materiality of climate risks in the euro area economy and banking sector leads them to argue that a double materiality approach must be integrated into central banks' climate stress testing, and used to inform the development of suitable macroprudential policy.

Recommendation 4. Recognise historical responsibility for climate change: *central banks in countries with the largest historic contribution to climate change bear the most responsibility for taking decisive action in the near term.*

States of the Global North have been found to have contributed 92% of the atmospheric carbon emissions which exceed the globally sustainable level, when accounting for population sizes (Hickel, 2020). Yet, it is predominantly countries of the Global South – bearing far less historical responsibility – which face the gravest impacts of climate breakdown.

The central root of this divergence in historic emissions is Global North countries' carbon-intensive industrial development, beginning in the 18th and 19th centuries, which was underpinned by their colonial exploitation and plundering of people and natural resources in the Global South. For example, it is estimated that Britain's extraction of wealth from India during its colonial rule totaled \$45 trillion in value (Hickel, 2018). Central banks played a key role in supporting colonising nations' extraction of wealth and resources, and enslavement of peoples from other countries. Countries of the Global North accordingly hold a climate and ecological 'debt' to the Global South, as well as a wider social and economic debt.

The 2022 UN Climate Change Conference (COP27) established a 'loss and damage' fund whereby high-emitting countries will compensate countries facing the worst impacts of climate breakdown (Wyns, 2023). Central banks need to take heed of this precedent and integrate historical responsibility into their own operations: while all G20 banks and supervisors must take action now to green their operations, the countries most responsible for climate breakdown should bear the greatest cost of accelerating a global green transition, and must support those worst affected to take decisive action on climate in parallel.

5.2 Monetary Policy

Recommendation 5. Recognise that achieving inflation targets requires taking action against ‘climateflation’: *account for climate and nature risks within inflation forecasting, and adopt tools to mitigate these risks.*

As set out in section 4.1, price rises due to environmental shocks are set to be an enduring and increasing feature of the global economy in the coming years. In order to keep price inflation in line with targets, climate and nature risks, such as food supply shortages induced by extreme weather events and collapsing ecosystems, must be factored into inflation forecasting as well as monetary and financial policy decisions (Barnes and Schröder Bosch, 2024).

Inflation cannot be viewed as a solely monetary phenomenon, and climate and ecological breakdown needs to be treated as a key driver of price instability (as well as humanitarian suffering). This recommendation therefore entails an expansion and shift in the analytic frameworks through which central banks view environmental crises, which gives rise to a corresponding expansion of monetary and financial policy toolkits in order to proactively mitigate climateflation.

A number of important tools to address climateflation are outlined in the other recommendations in this section. They are all aimed at guiding finance away from fossil fuels and into green investment, such as through preferential lending schemes (recommendations 6 and 10), asset purchase programmes, and collateral frameworks (recommendation 7). Ultimately, recognising climateflation also requires central banks to recognise the limits of their capacities when acting in isolation, and thus the need to work more closely in collaboration with governments in order to harmonise monetary and fiscal policy around green transition (recommendation 8).

Recommendation 6. Create green lending schemes: *offer a green discount rate to incentivise and increase lending to sustainable activities.*

Central banks can incentivise and increase lending to sustainable activities by introducing green lending schemes. Targeting lower interest rates for loans that fund environmentally friendly projects or ‘green’ activities renders green investments more attractive and financially viable for investors. Green interest rates — if the discount is sufficient to create a strong incentive — could increase overall levels of green investment and significantly reduce the levelised cost of renewable electricity, for example (Altaghlibi et al, 2024).

This approach, evidenced by many emerging market and developing country economies (Ryan–Collins and Dikau, 2017), stimulates a shift in capital flows towards renewable energy sectors. Highlighted in discussions around green dual interest rates (Costa, 2024b), these schemes can help address market failures whereby environmentally-damaging activities are often not captured or severely underpriced, leading to underinvestment in low-carbon and nature-positive activities.

By lowering the cost of capital for green projects, central banks can accelerate the transition to a low-carbon economy and reduce financial risks associated with climate change. Green lending schemes should be implemented in coordination with fiscal and industrial strategy (in line with recommendation 8).

Recommendation 7. Strengthen green asset purchase programmes and collateral frameworks: positively screen for green assets while negatively screening environmentally harmful assets.

Central banks are increasingly recognising the need to “green” their asset purchase programmes in response to criticism and pressure from civil society. This involves favouring green assets by offering better financing conditions, such as lower interest rates or reduced haircuts. Conversely, stricter terms should be applied to carbon-intensive assets, thereby reducing market demand and yields. By applying sustainability criteria with the use of taxonomies, central banks can help shift capital flows toward more sustainable investments (NGFS, 2021b; Vestergaard, 2024).

At the same time, there is a need to align collateral frameworks with these green objectives. By also applying sustainability criteria to collateral frameworks, central banks can adjust haircuts and ensure capital is directed away from carbon-intensive and environmentally harmful activities. This strategy can reinforce the greening of asset purchase programmes and encourage a market-wide transition towards greener activities.

However, the preferential treatment of green assets has environmental justice implications. For example, extending these policies to public bonds or corporations in the Global South could restrict access to capital in regions already vulnerable to climate impacts, potentially exacerbating global inequalities (Dafermos, 2023).

To mitigate these risks, central banks should design exclusion criteria that promote global sustainability without unfairly penalising developing countries. This requires a balanced approach that recognises diverse pathways for a just transition to a low-carbon economy and improves both sustainable and unsustainable taxonomies (see recommendation 12).

By aligning both asset purchase programmes and collateral frameworks with the goals of the Paris Agreement and prioritising the exclusion of assets linked to fossil fuels and deforestation, central banks can help finance a more sustainable and equitable future.

Recommendation 8. Coordinate with governments to increase fiscal space for green public investment: implement policies that support the mobilisation of public funds towards green projects at scales appropriate for tackling the climate crisis.

Central banks’ targets, mechanisms and mandates can no longer be divorced from the urgency of meeting the environmental and social goals of the present (Jackson et al, 2022). Given the growing impact of the climate crisis on financial stability, central banks must assume a coordinating role to ensure their mandates are fulfilled (Svartzman et al, 2021).

There are several ways in which central banks may facilitate the fiscal space for green public investment: purchasing green sovereign bonds, or providing equity capital to green public banks, are two means of directly supporting government spending on green transition.

Central banks can also adopt more general mechanisms to expand fiscal space indirectly. For instance, tiered reserve systems can require banks to hold different levels of reserves depending on the type of assets they invest in, setting lower reserve requirements for green assets. Adjustments to quantitative tightening—such as maintaining

or selectively reinvesting in green bonds even while reducing other holdings—could help ensure continued support for green finance. Additionally, maximising seigniorage from central bank digital currencies (CBDCs)—the profit central banks earn from issuing currency—could provide new revenue streams that could be allocated to green public investment. These tools would create additional funding for green projects without necessarily increasing government debt. The most appropriate combination of tools will vary across contexts, depending on the economic characteristics and institutional make-up of the country in question.

The central banks of China and Japan have both exhibited policies that facilitate fiscal space for green investments (Nedopil Wang and Ziyang, 2023; Bank of Japan, 2024), and the Banco Central do Brazil has also made commitments along these lines (Ministério da Fazenda, 2024).

5.3 Financial Policy

Recommendation 9. Adapt capital requirements: *increase risk weights for new and existing fossil fuel exposures and introduce environmental systemic risk buffers.*

Introducing indirect price-based policies, such as climate-adjusted capital requirements (CACRs), would penalise activities involved in new and existing fossil fuel schemes.

The ‘one-for-one’ rule proposes new fossil fuel projects receive a 1250% risk weight which would require such projects to be exclusively funded by shareholder equity (Philipponat, 2020). The application of higher capital requirements would have the dual effect of building sufficient capital buffers to deal with idiosyncratic exposures to climate-related transition risk, while preventing the further build-up of systemic physical risk by disincentivising the accumulation of fossil fuel assets on financial institutions’ balance sheets (Symon, 2021).

To complement higher risk weights, systemic risk buffers can also be adapted to account for environmental risks (Monnin, 2021). Useful research and development in this area since the last scorecard includes an ECB paper exploring the possible design of a macroprudential capital buffer specifically for climate-related risks (Bartsch et al, 2024). Supplemental leverage ratios on institutions particularly at risk of failure as a result of climate change have also previously been proposed (Gelzinis, 2021).

As broader environmental risks become more widely studied and understood, both risk weights and systemic risk buffers should be calibrated according to exposures to wider ecological risks, rather than climate risks alone. Institutions should also take into account the location-specificity of nature-related risks, to ensure the accurate sectoral calibration of systemic risk buffers.

Recommendation 10. Consider limits on dirty lending: *consider imposing limits on lending to the most environmentally destructive projects and companies.*

After reviewing all actions of G20 countries for the 2024 scorecard, our data shows that no G20 central bank has enforced limits on lending towards environmentally destructive sectors, even among the highest performing central banks on the scorecard. We have also yet to see a formal commitment to do so, or even any substantial public discussion of implementing such a policy. Placing limits on lending to sectors and activities which are key drivers

of climate and ecological breakdown, such as the production of new fossil fuel reserves, would be one of the most immediate and high impact actions central banks could take (Kedward et al, 2022). Such measures must be implemented with care to ensure any negative short term effects on financial stability are appropriately mitigated and do not harm wider social wellbeing, especially in countries with relatively high economic dependency on fossil fuel extraction.

Recommendation 11: Require all financial institutions to disclose evidence-based transition plans: make transition plans based on scientific evidence mandatory, supervise to what extent financial institutions are achieving their targets, and apply appropriate enforcement mechanisms to ensure targets are met.

Transition plans should clearly outline how institutions intend to align their operations and investment portfolios with the goals of the Paris Agreement and other climate-related objectives. For example, the EU's Corporate Sustainability Reporting Directive (CSRD) mandates that companies disclose detailed transition plans aimed at climate change mitigation, setting a strong regulatory precedent. This aligns with the recommendations from the NGFS, which emphasises the need for robust, science-based transition plans that include clear timelines, measurable targets, and alignment with net-zero pathways (NGFS, 2024b).

Disclosures, and the reporting of transition plans, are no alternative to concrete actions. However, by enforcing compliance and conducting regular assessments, regulators can hold financial institutions accountable to their commitments, fostering a financial system that plays a critical role in achieving global climate goals.

5.4 Leading by Example

Recommendation 12: Support the development of unsustainable taxonomies. Classify economic activities and financial assets according to their degree of environmental harm, and seek convergence between unsustainable taxonomies in different jurisdictions.

Central banks, regulators and public officials should coordinate around unsustainable taxonomies and standards to identify the most environmentally harmful assets and investments. These should be informed by public consultations and expert input, especially from outside the for-profit financial sector (and not shaped by lobbying from vested interests). Such taxonomies and standards can guide the greening of monetary and financial policies, including central banks' own portfolios, ensuring consistent and effective implementation. Developing taxonomies at the national level can also build towards closer international alignment on what constitutes sustainable and unsustainable activity.

A robust sustainable taxonomy establishes a common definition of economic activities that are considered environmentally sustainable. This helps channel funding toward genuinely green economic activity, provided that the taxonomy is science-based, and greenwashing of assets is prevented. However, central banks and supervisors cannot rely on scaling up green investment while also allowing investment in the most environmentally harmful activities to continue unchecked. Achieving green central banking requires accurately classifying unsustainable activities and implementing policies that reduce flows of funds towards those activities.

Recommendation 13: Align all non-monetary portfolios with the Paris Agreement and environmental goals: *exclude assets linked to the development of new fossil fuel projects and other environmentally harmful activities.*

Central banks should incorporate environmental considerations into the management of non-monetary portfolios. While the mandates of central banks may vary, and the specific routes to greening non-monetary portfolios must also reflect national priorities, the overarching direction of progress should be the alignment of portfolios with the Paris Agreement (NGFS, 2024d). Risks to both climate and nature should be addressed, in line with recommendation 1, and, as the latest draft document from the UN task force on global carbon markets explains, companies cannot rely on carbon credits or offsets to reach climate targets (Bryan, 2024). Implementing a sustainable investment policy that excludes fossil fuel assets from all non-monetary portfolios is the primary way to achieve maximum points in the Leading by Example category, a benchmark so far not achieved by any G20 central bank.

Recommendation 14: Empower citizens and civil society to understand and engage with central banking: *as public institutions, G20 central banks and financial regulators should engage with a wide cross section of society, especially through participatory events.*

As major institutions whose decisions hold significant influence over the lives of populations, central banks and financial regulators should seek to enhance their accountability, transparency, and democratic legitimacy through strengthening engagement with citizens and civil society organisations. This is also important as a counterweight to the influence of the private financial sector, who hold a more privileged position to affect central bank thinking and policy, due to their proximity, relationships, and economic power. By involving citizens, central banks can better understand the real-world impacts of their policies, improve public understanding of their actions, and incorporate diverse perspectives, particularly on environmental issues and the green transition. One such example is the Bank of England's Citizens' Forum, whereby people can share their views at discussion panels alongside BoE staff in various local areas around the country, join Q&A sessions with key decision makers at the BoE, and complete surveys to increase the BoE's knowledge of the impact of their policies on peoples' lives (Bank of England, 2024).

Conclusion

The argument for the detachment of central banks from environmental issues is no longer tenable: the climate crisis increasingly intersects with economic, financial, and price stability, and the former mainstream consensus that central banks can leave tackling the climate crisis to politicians has been successfully challenged.

Many leading G20 central banks have accepted the urgent need to achieve greener central banking. However, while good progress has been made in the financial policy category by the highest ranking countries in this scorecard series, we have yet to see any institutions achieve the implementation of enough high impact monetary policies to achieve an A grade overall. Increasingly excluding environmentally harmful assets from central bank operations is required, as is adopting a supervisory approach that guides the wider financial system in the same direction. The progression from mere recognition of risks and harms to the implementation of high impact monetary and financial policies is critical for achieving a green central banking framework that can effectively support the global climate agenda.

The gap between the highest achieving and worst performing central banks is growing. There is an urgent need for laggard institutions to accelerate their efforts and align with the broader movement towards green central banking. The Federal Reserve's inaction is especially concerning, given its influential international position. Other central banks must call on the Fed directly to play its part in addressing the climate crisis, to an extent proportional to the historical responsibility of the US in causing environmental harms.

A crucial aspect of this transition is the need to address "climateflation". Traditional monetary policy tools are insufficient in addressing these new forms of price instability, which are likely to become more prevalent. Central banks must expand their analytical frameworks to incorporate climate and ecological risks into inflation forecasting, and develop innovative tools to mitigate these impacts. By doing so, they can better fulfil their mandates of maintaining price stability.

Collaboration between central banks and governments is also essential in this context. The scale of the climate crisis demands coordinated action that goes beyond the capabilities of any single institution. Harmonising monetary and fiscal policies to support green investment is imperative. Such collaboration can create the fiscal space necessary for large-scale green projects, driving the transition to a low-carbon economy and reducing the risks that climate change and environmental degradation pose to both financial and price stability.

Green central banking has never been defined merely by the scope of research an institution produces on climate risks to the financial system. While the understanding of climate risks is a step in the right direction, now is the time for growing research and knowledge to translate into bold policies and actions. Only through decisive, rapid action, and global cooperation, will it be possible to align economic policies with the environmental imperatives of our time, ensuring a just and sustainable future for all.

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Appendix 1. Updates to the scorecard project methodology

The Green Central Banking Scorecard has aimed to influence central bank policy at the global level. Building on the success of the first and second editions, this report provides updated rankings for G20 central banks and supervisory institutions (with the exception of the African Union—see subsection 1.4 in the introduction).

A1.1 Objectives of the methodology review

In order to continue to effectively advocate for central banks and supervisors to green their policies and operations, it is important to critically reflect on the strengths and weaknesses of the scorecard methodology, and continuously make adjustments and improvements with each successive edition. With this need in mind, Positive Money conducted a Methodology Review (Speer and Yadav, 2024) for the Scorecard in January 2024 to:

- Improve the consistency and rigour of the scorecard
- Preserve the flexibility of the scoring system
- Ensure alignment with evolving sustainability standards and new developments in green central banking

A1.2 Recommendations from stakeholders provided in the methodology review

The methodology review found that the scorecard's core strength is the depth and flexibility of the scoring system. By enabling multiple routes to scoring maximum points, it can overcome the challenge of making a quantitative assessment of how green a given central bank is, despite the differences between the country-specific contexts that central banks and financial institutions operate within. The four scoring categories, and the lists of actions within them, remain appropriate for assessing central banks.

The review found some areas for improvement, with stakeholders making various recommendations for changes:

- Provide clearer transparency of the scoring system and methodology.
- Recalibrate the Research and Advocacy category to ensure it remains relevant moving forward, given that many institutions have already achieved maximum points in this category.
- More effectively account for the ecological impacts of institutions' actions.
- Specify more stringent requirements for institutions' net-zero transition plans.
- Place a greater emphasis on the phase out of coal specifically, over and above other fossil fuels.
- Consider how to further develop the scorecard's analysis to reflect the fact that different countries in the G20 have vastly different levels of historical carbon emissions.

A1.3 Methodology updates implemented for the new edition

Expiration time for reports and speeches

In light of the review, a recalibration of the Research and Advocacy category has been enacted. While many institutions have already achieved maximum points in Research and Advocacy, many of the actions taken in this category are not ongoing commitments, but instead one-time actions such as publishing papers and hosting

conferences. With this in mind, some actions in the Research and Advocacy category are now subject to an expiration time of two years: reports are no longer awarded points two years after their date of publication, and speeches and conferences are no longer awarded points two years after the date they occurred. Applying this time limit ensures that a small number of publications and events do not permanently sustain institutions' scores.

NGFS membership awards

NGFS membership has been split into two different actions: medium points are awarded for a leading role in the NGFS, and low impact points for being a member of the NGFS. This rewards active leadership over and above membership of the network.

The countries awarded 5 points for membership of the NGFS Steering committee in 2024 are China, European Union (ECB and EBA), France, Germany, Mexico, United Kingdom, Italy, Brazil and South Africa.

Countries are also awarded 5 points for chairing NGFS work streams or task forces. Australia is not on the steering committee, but does co-chair the "Adaptation" taskforce, and is therefore awarded 5 points.

The central banks awarded 1 point for NGFS membership, but who do not have a leadership role in the NGFS are India, Japan, Indonesia, Canada, South Korea, Russia, the United States, Turkey, Argentina and Saudi Arabia.

Double materiality

Taking a double materiality approach requires the central bank to include itself and its operations within the research. For example, if a central bank excludes itself and its decisions from stress tests or scenario analyses, it is not using a double materiality approach. This can be considered a key distinction between robust and not-so-robust stress tests and scenario analyses: central banks taking a double materiality approach are awarded 5 points in Research and Advocacy, providing an alternative route to achieving maximum points in this category outside of institutions' NGFS participation.

Refined policy data collection

The following points are not direct changes to the scoring, but elements that have been further scrutinised when collecting data:

- Examining whether the definitions of 'green' provided by central banks are robust.
- Recognising the greater impact of policies that have clear implementation timelines and 'science-based' targets.
- Engaging in deeper critical analysis of which central banks bear the greatest responsibility and urgency for action (see section 3.2).
- Considering whether institutions have broadened their assessment of environmental risks to include nature and biodiversity.

A1.4 **Changes not implemented from the methodology review**

Some of the recommendations made by stakeholders were not taken forward and implemented in the third edition.

Coal-phase out has not been emphasised

There was not enough justification to change the scoring system to focus on the phase out of coal use specifically. While coal use causes relatively high emissions in comparison to other fossil fuels, the overall scale of fossil fuel use is a much more significant factor for environmental impact than the type of fossil fuel being consumed. Placing extra weight on the scoring for coal use is problematic because it fails to capture the historical responsibility of past financiers, particularly in countries like the UK and the US.

Furthermore, such an approach does not consider the disparities in where coal is consumed and who bears the consequences. For example, communities and workers in China are directly exposed to the environmental and health impacts of coal power used for industrial production. Yet, much of this production is driven by international supply chains that ultimately benefit higher-income countries. By disproportionately targeting current coal use, we risk penalising those who are still developing economically while ignoring the global nature of supply chains and historical emissions.

Lastly, the scorecard already contains a method of counterbalancing for coal assets where appropriate: in the 2022 edition of the scorecard, some of the points that would have been awarded to the People's Bank of China for its green lending scheme were withheld due to the continuation of financing coal production.

A1.5 **Approach to scoring the EU and EU member states**

The scorecard methodology ranks the ECB and the EBA together as a representation of the European Union as a whole, in addition to the individual EU member nation states that are in the G20 (France, Germany and Italy). In order to account for the individual EU member states' delegation of responsibilities to the supranational level, all actions taken by the ECB and EBA in monetary and financial policy categories are also awarded to individual EU member states, as well being counted for the European Union. In contrast, actions taken by the ECB and EBA that fall under the categories 'Research and Advocacy' and 'Leading by Example' are not added to the scores of individual EU member states. For these two categories, only national level policies are eligible. Correspondingly, only supranational policies are counted for the EU collectively in the Research and Advocacy and Leading by Example categories.

This approach addresses the complication of delegating policy to supranational level and enables the ranking of the individual European Union countries that are members of the G20 on an individual basis as well as ranking the European Union as whole, and has therefore been carried through to the 2024 edition without any methodological changes.



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