EUROPEAN CENTRAL BANK

EUROSYSTEM

Climate-related financial disclosures of Eurosystem assets held for monetary policy purposes and of the ECB's foreign reserves

June 2026

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Foreword

The economic and financial impacts of climate change and nature degradation continue to pose risks for the Eurosystem's primary objective of price stability. Growing evidence, including research conducted by the central banks of the Eurosystem, indicates that adverse weather events and disruptions in ecosystem services can drive up inflation – not least through food prices.

At the same time, climate change and nature loss bring physical and transition risks for our own balance sheet. We are firmly committed to addressing these risks, chiefly by decarbonising our monetary policy corporate bond portfolios and incorporating a climate factor into our collateral framework. The latter will reduce the value that we assign to assets issued by companies with higher transition risks when they are pledged as collateral in our monetary policy operations.

This report is the fourth annual account of climate-related financial disclosures for the Eurosystem's monetary policy portfolios and the ECB's foreign exchange reserves.

We report on more than 99.9% of our monetary policy holdings, which amounted to almost €3.6 trillion at the end of 2025. We also report on our fixed-income foreign reserves, which comprise roughly one-third of our €117 billion foreign reserve holdings. The rest of our foreign reserves primarily consist of gold, cash and cash equivalents, for which climate reporting standards have not yet been developed.

In 2025 we remained on track to meet the interim emission reduction targets for the corporate investments in our monetary policy portfolios. These targets, based on Weighted Average Carbon Intensity (or WACI), are consistent with a path that supports the goals of the Paris Agreement and the EU's climate neutrality objectives.

This comes against the background of the run-off of our portfolios, which fell by 13% in nominal terms in 2025. Naturally, this means that the carbon emissions associated with these portfolios also decreased in absolute terms. However, the run-off of our portfolio means that our ability to further reduce the WACI through tilting the corporate bond portfolios towards issuers with better climate performance is limited.

The ECB is reporting, for the first time, a number of inflation-adjusted emissions metrics as a complement to the unadjusted metrics. This enhances transparency and responds to growing evidence that traditional emission metrics – unadjusted for inflation – can materially overstate the progress made in decarbonisation.

Beyond climate, it is vital that we continue to recognise the critical link between nature and the economy. The ways in which nature degradation affects economies, price stability and bank portfolios, as well as how it exacerbates the effects of climate change, are becoming increasingly apparent.

For example, recent ECB analysis shows that water-related stress can trigger cascading impacts across other ecosystems, with detrimental economic

consequences. Recognising these risks, the Eurosystem is committed – within its mandate – to factor in the implications of both climate change and nature degradation for monetary policy, as outlined in our 2025 monetary policy strategy statement.

Last year, we took a first step in our reporting by disclosing the exposure of our portfolios to sectors with material impacts and dependencies on nature, as identified by the Taskforce on Nature-related Financial Disclosures (TNFD). We continue to disclose this metrics this year and, as nature-related data improves, we are hopeful that we can expand our disclosures in the coming years.

This report is published against a backdrop of significant geopolitical turbulence – not least the war in the Middle East and the energy shock it triggered, driven by surging oil and gas prices – which should accelerate the green transition and reduce dependence on fossil fuels.

The risks posed by climate change and nature degradation sit at the heart of that transition. The Eurosystem remains focused on delivering on its mandate, and that includes taking these risks into account given their relevance for price stability.

Frankfurt am Main, June 2026
Christine Lagarde
President

1 Introduction

This is the fourth report on the climate-related financial disclosures of Eurosystem assets held for monetary policy purposes and of the foreign reserves held by the European Central Bank (ECB).[1] With this publication, we bring greater transparency to the climate risk exposure and carbon footprint of these portfolios and contribute to the availability of climate-related data.

The primary objective of the European System of Central Banks (ESCB) is to maintain price stability in the euro area, targeting an inflation rate of 2% over the medium term. Climate change and nature degradation pose risks to the euro area economy and the financial sector. These risks and low-carbon transition policies can affect the outlook for price stability given their impact on the economy. They also affect the value of the assets held on the Eurosystem's balance sheet, potentially leading to the build-up of undesirable financial risks.

In addition, and without prejudice to its primary objective of price stability, the ESCB supports the general economic policies in the European Union (EU) with the aim of contributing to the achievement of the EU's goals and objectives as laid down in Article 3 of the Treaty on European Union. To this end, the ECB Governing Council is committed, within its mandate, to ensuring that the Eurosystem fully takes into account the implications of climate change and nature degradation for monetary policy and central banking (see Figure 1 below).[2] The ECB will continue to intensify its work in three priority areas: (i) navigating the green transition, (ii) assessing and taking into account the increased physical impact of climate change, and (iii) advancing work on nature-related risks.[3]

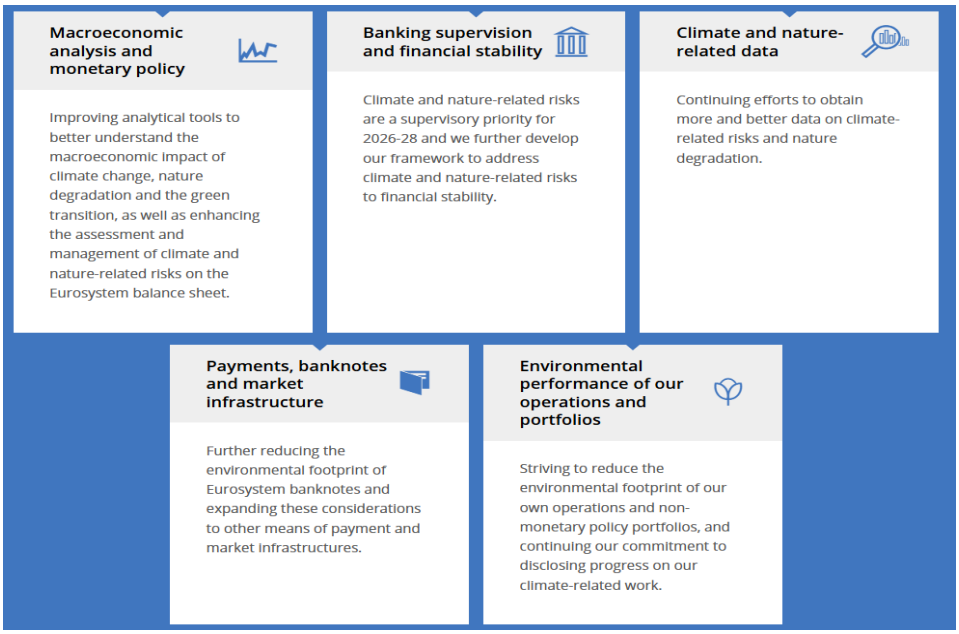
1 See the first, second and third Report on climate-related financial disclosures for Eurosystem assets held for monetary policy purposes and of the ECB's foreign reserves.

2 See "The ECB's monetary policy strategy statement (2025)".

3 See the article entitled "Climate change, nature degradation and the ECB" published on the ECB's website.

Figure 1

Summary of the climate and nature-related activities of the ECB



For its monetary policy operations, since the publication of its climate action plan in 2021 the ECB has refined its assessment of climate and nature-related risks and has further embedded those risks into its core work. Regarding its own balance sheet and that of the Eurosystem, it has improved its risk management framework, conducted two climate stress tests and decided to introduce a climate factor into its collateral framework.[4]

This report contains climate-related financial disclosures for (i) the Eurosystem's public sector, corporate and covered bond holdings under the asset purchase programme (APP) and the pandemic emergency purchase programme (PEPP), and (ii) the ECB's foreign reserves (Figure 2). It forms part of the ECB's environmental reporting activities and complements the Environmental Statement[5] and Annual Report[6] and the climate-related financial disclosures for its non-monetary policy portfolios (NMPPs).

The reporting on the APP and PEPP covers almost all of the financial assets held for monetary policy purposes, amounting to an aggregate nominal value of €3,567

4 The Governing Council decided to introduce a climate factor into its collateral framework – applicable from 15 June 2026 to marketable assets issued by non-financial corporations – to protect the Eurosystem more effectively against climate-related transition risks. See the press release entitled "ECB to adapt collateral framework to address climate-related transition risks" published on the ECB's website in July 2025.

5 See the "ECB Environmental Statement 2025".

6 The ECB's Annual Report 2024 provides an overview of the ECB's climate strategy and its implementation.

billion.[7] Reinvestments of maturing assets in these portfolios ended in late 2024, with both portfolios being moved to a full passive run-off.

The reporting shows that the emissions for the corporate sector bond holdings, for which the Eurosystem targets a path that supports the goals of the Paris Agreement and the EU's climate neutrality objectives, continued to fall in 2024 (the most recent year for which climate data are currently available). This reduction was driven by efforts at issuer level and by the Eurosystem's tilting of reinvestments initiated in October 2022, towards issuers with a better climate performance. That tilting ended in late 2024, when the monetary policy portfolios (MPPs) moved into full run-off. The Eurosystem has not set targets for the other asset classes in its holdings. Euro area public sector bond holdings have continued to gradually reduce their relative (or normalised) emissions, as confirmed by the most recent emissions data available (2023 for sovereigns and 2024 for other public sector assets). For sovereign MPP holdings, this followed efforts by euro area governments to decarbonise their economies in pursuit of the goals of the Paris Agreement and the European Climate Law.[8] Covered bond MPP climate metrics were the only exception and rebounded at the end of 2024 from a low-base, albeit within a long-term decarbonisation trend and for technical reasons.

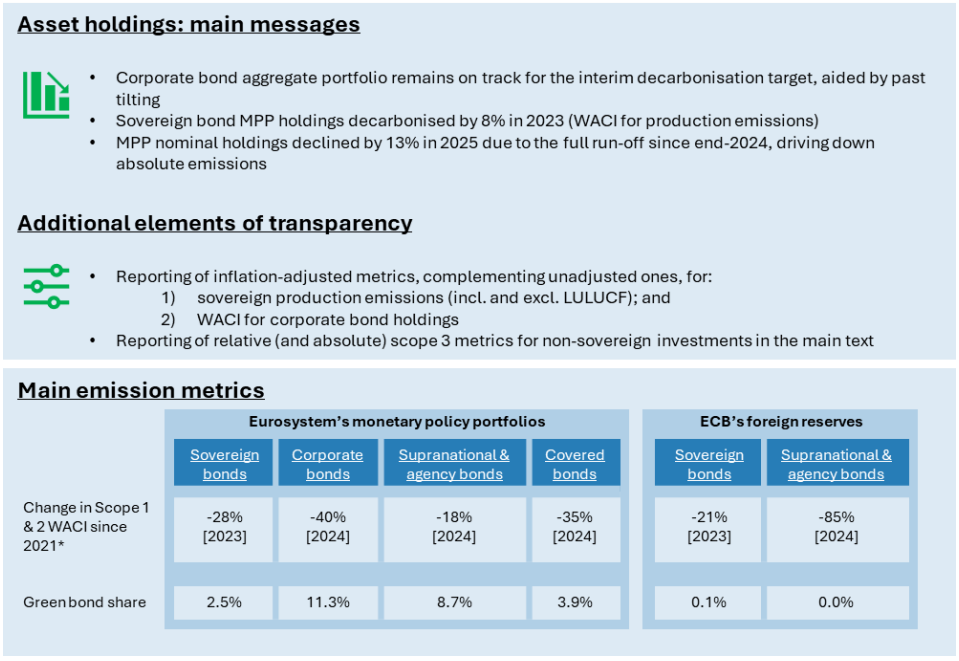
The reporting on the security investment portfolios in the ECB's foreign reserves covers roughly 34% of the ECB's total reserve assets (€40 billion out of roughly €117 billion). These portfolios are invested in the US dollar, Japanese yen and Chinese renminbi. The fixed-income holdings include sovereign bonds, as well as agency and supranational bonds, and are also on an emissions reduction path. The remaining foreign reserve assets (holdings of physical gold, special drawing rights (SDRs), and cash and cash equivalents), amounting to 66%, are not reported on owing to a lack of methodological guidance on how to assign climate emissions.

7 Holdings under the asset-backed securities purchase programme (ABSPP), which represent less than 0.1% of the combined APP and PEPP holdings, are included in this figure but excluded from the scope of this report owing to insufficient climate data availability.

8 Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law') (OJ L 243, 9.7.2021, p. 1).

Figure 2

Summary of key developments and expanded scope of the Eurosystem's climate-related financial reporting



Source: ECB.
Notes: *WACI stands for weighted average carbon intensity, MPP for monetary policy portfolios and LULUCF for land use, land-use change and forestry. The latest full year of data is indicated between square brackets.
For sovereign bond holdings, the scope refers to production-based emissions rather than scopes 1+2.

The disclosures initially followed the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) and its supplementary guidance for asset owners.[9] The TCFD was, however, disbanded in October 2023 and its recommendations were incorporated in 2024 into the standards established by the International Sustainability Standards Board, an independent standard-setting body within the International Financial Reporting Standards Foundation (IFRS), which is increasingly becoming the reference point for climate reporting. Disclosures in the "Metrics and targets" category adhere, on a best-effort basis, to the Eurosystem's common disclosure principles (see Annex 1). They also take into account the recommendations of the Partnership for Carbon Accounting Financials (PCAF) and the Network of central banks and supervisors for Greening the Financial System (NGFS).

The Eurosystem continues to refine its disclosures, reflecting improvements in climate-related data availability and quality, as well as in disclosure methodologies and practices, subject to the current data limitations and the available expertise on the handling of risks related to climate change and nature degradation.

9 See "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures", Task Force on Climate-related Financial Disclosures, October 2021, and "Guide on climate-related disclosure for banks", Network for Greening the Financial System, December 2021.

As an additional refinement, this year's report complements some of the core (unadjusted) carbon metrics with inflation-adjusted metrics to differentiate between actual decarbonisation trends and macroeconomic effects weighing on the holdings.

While this report deals with climate disclosures, it again publishes a nature-related metric[10] recommended by the Taskforce on Nature-related Financial Disclosures (TNFD) and that was included for the first time in the 2025 report.[11] The inclusion of this metric is aligned with is in keeping with the incorporation of nature degradation and biodiversity loss into the latest Monetary policy strategy review.

The Eurosystem closely monitors developments regarding the EU's Corporate Sustainability Reporting Directive (CSRD)[12] and the European Sustainability Reporting Standards. It considers the CSRD to be the natural reference point for sustainability reporting within the EU. The climate-related financial disclosures are not verified by an external party.

The report is structured as follows. Section 2 summarises the governance and decision-making responsibilities for the APP, the PEPP and the ECB's foreign reserves. Section 3 outlines the Eurosystem's strategy for incorporating climate change considerations into the portfolios. Section 4 explains how climate factors are integrated into the management of the risks related to the portfolios. Section 5 presents the climate-related metrics and targets.

10 The exposure of APP and PEPP corporate portfolios to sectors that are considered to have material nature-related dependencies or impacts.

11 This is consistent with the expansion of the ECB's work into the area of nature loss and degradation; see the article entitled "Climate and nature strategy" published on the ECB's website.

12 Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting (OJ L 322, 16.12.2022, p. 15).

2 Governance

This section summarises the governance aspects of the climate change considerations concerning Eurosystem MPP assets and the ECB's foreign reserves. It recalls the main aspects of the more detailed explanations set out in the June 2024 report.[13]

The ECB's Governing Council sets the monetary policy and the strategic direction for the euro area. It consists of the six members of the ECB's Executive Board and 21 national central bank (NCB) governors, one from each euro area country.

Monetary policy is implemented through various instruments, including outright purchases of financial assets. The assets bought under the APP and PEPP are part of the Eurosystem's MPPs. The ECB addresses climate-related risks to, and opportunities for, the MPP portfolios within its existing governance structures. The climate risk management of the ECB's foreign reserves (which are managed on a decentralised basis within the Eurosystem) is integrated into these governance structures. The ECB's Executive Board is competent solely for preparing the meetings of the Governing Council. This includes preparations for discussing the oversight of climate-related risks for monetary policy-related holdings and for the ECB's foreign reserves, as well as related decisions, with input from the relevant committees. The ECB's Annual Report 2025 provides an overview of the ECB's climate strategy and its implementation.

Additionally, ECB and NCB staff collaborate with external stakeholders, such as standard-setting bodies, international organisations and academic institutions, to exchange knowledge, share best practices and develop common frameworks for assessing and disclosing climate-related impacts associated with the portfolios and for addressing climate risks. One example of such collaboration is the involvement of ECB and NCB staff in the work of the NGFS. Through such collaborations and outreaches, the Eurosystem advocates for sufficient transparency for investors and for the availability of high-quality information for adequate financial risk management and financial stability purposes.[14]

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13 See the Governance section, including Figure 2, of Climate-related financial disclosures of Eurosystem assets held for monetary policy purposes and of the ECB's foreign reserves, ECB, June 2024.

14 See, for example, the ECB staff opinion on the revised European Sustainability Reporting Standards (ESRS), ECB, February 2026.

3 Strategy

This section gives an overview of the purpose of the Eurosystem's MPPs and the ECB's foreign reserves and summarises strategic aspects relating to climate change considerations.

The monitoring and analysis of climate risks is relevant for the MPPs and the ECB's foreign reserve holdings because these portfolios are exposed to these risks.[15] The Eurosystem therefore needs to manage as effectively as possible the climate-related financial risks to which it is exposed when implementing monetary policy in pursuit of its primary objective of maintaining price stability.[16]

Following the ECB's Monetary policy strategy review of 2020-21, the Governing Council adopted an action plan to incorporate climate change considerations into the Eurosystem's monetary policy framework. This strategic focus was confirmed in the June 2025 Monetary policy strategy assessment. Given the close link between climate change and nature degradation, the Monetary policy strategy statement confirmed that the Governing Council is committed to ensuring that the Eurosystem fully takes into account, in line with the EU's goals and objectives, the implications of climate change and nature degradation for monetary policy and central banking.

The Eurosystem currently only sets transition targets for its corporate bond holdings. This reflects its commitment to reducing this portfolio's exposure to climate-related transition risks and its environmental footprint, without prejudice to the ECB's monetary policy objectives. The Eurosystem does not have similar targets for its MPP public sector and covered bond holdings or for the ECB's foreign reserves. Sovereign bond holdings are expected to decarbonise in line with action taken by national governments to fulfil their emissions reduction pledges under the Paris Agreement and as required by the European Climate Law. The ECB calls on governments to deliver on these pledges. Supranational, agency and covered bond holdings will mirror the emissions reductions achieved by their respective issuers.

3.1 General aspects relating to the APP and PEPP

The composition of MPP holdings is driven by monetary policy considerations and takes due account of legal requirements and risk management considerations.

The APP was among the policy measures initiated in mid-2014 to support the monetary policy transmission mechanism and provide the amount of policy accommodation needed to ensure price stability. The APP, combined with other

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15 See "Climate change and monetary policy in the euro area", *Occasional Paper Series*, No 271, ECB, September 2021.

16 The adoption by the Eurosystem of measures designed to circumscribe the risk of financial losses, including climate-related financial losses, forms part of the definition and implementation of monetary policy, as also reflected in the Statute of the European System of Central Banks and of the European Central Bank.

monetary policy tools, helped the ECB meet its price stability objective at a time when room for further interest rate cuts had become limited.[17] It comprises the public sector purchase programme (PSPP), the corporate sector purchase programme (CSPP), the third covered bond purchase programme (CBPP3) and the asset-backed securities purchase programme (ABSPP).[18] The Governing Council decided to discontinue redemption reinvestments under the APP from July 2023. Since then, the stock of APP holdings has been gradually declining at the rate of principal redemptions of maturing debt instruments.

The PEPP was initiated in March 2020 to counter the serious risks to the monetary policy transmission mechanism and the outlook for the euro area posed by the coronavirus (COVID-19) outbreak[19]. It included all asset classes that are eligible under the APP. The Governing Council decided to discontinue net asset purchases under the PEPP from the end of March 2022. Maturing principal payments from securities purchased under the PEPP were reinvested in full until the end of June 2024. The PEPP portfolio was reduced by €7.5 billion per month, on average, over the second half of 2024 and reinvestments were fully discontinued at the end of 2024.

As a result, the aggregate combined nominal holdings of the APP and PEPP portfolios decreased in 2025 by €515 billion to €3,567 billion. Since the discontinuation of reinvestments at end-2024, the changes in the composition of the portfolios by country and asset class have primarily been driven by the timing and size of redemptions. The future decarbonisation trajectory of the portfolios mainly depends on issuers delivering on their individual emissions reduction pledges.

3.2 Strategic aspects relating to corporate holdings

This section outlines how the strategic aspects of the tilting framework for corporate holdings evolved in 2025 in the context of the current run-off of the APP and PEPP.

To mitigate climate-related risks on its balance sheet, in July 2022 the Governing Council decided to gradually reduce the emissions of its corporate bond holdings on a path that supports the goals of the Paris Agreement and the EU's climate neutrality objectives by tilting the reinvestment of redemptions towards issuers with a better climate performance.[20] This measure was also aimed at providing incentives for issuers to be more transparent and reduce their greenhouse gas (GHG)

[17] See the article entitled "Taking stock of the Eurosystem's asset purchase programme after the end of net asset purchases" published on the ECB's website.

[18] Asset-backed securities are excluded from the scope of this report as not enough data are available.

[19] See the article entitled "Pandemic Emergency Purchase programme" published on the ECB's website.

[20] See the press release entitled "ECB takes further steps to incorporate climate change into its monetary policy operations" published on the ECB website on 4 July 2022.

emissions.[21, 22] The strength of the tilting was increased following the decision in March 2023 to reduce APP reinvestments and this guided the reinvestments until their discontinuation at the end of 2024.

In May 2024, the Governing Council agreed that interim emissions reduction targets should be set for the aggregate corporate portfolios in the APP and PEPP. These interim targets are used to inform the Eurosystem as to whether the emissions reduction path of these portfolios supports the goals of the Paris Agreement and the EU's climate neutrality objectives. The interim targets take into account the weighted average emissions intensity of issuers within the portfolios from the end of 2021 onwards. If deviations from the desired average decarbonisation trajectory are identified for the aggregate corporate portfolios, remedial action, within the limits of the ECB's mandate, will be assessed on a case-by-case basis.

3.3 Strategic aspects relating to the ECB's foreign reserves

The ECB's foreign reserves have been in place since the introduction of the euro at the end of 1998.[23] The basic tasks to be carried out by the ECB in accordance with Article 127(2) of the Treaty on the Functioning of the European Union, include management of the foreign reserve assets. The main purpose of the ECB's foreign reserves is to ensure that the Eurosystem has sufficient and sufficiently liquid resources for foreign exchange operations whenever needed. The euro's external value is not a policy target for the ECB.

The ECB's foreign reserves are composed of gold, SDRs and highly liquid and creditworthy assets in US dollars, Japanese yen and Chinese renminbi. The currency composition of the ECB's reserves reflects policy considerations focused on the ability to conduct and fund effective interventions in euro against other major currencies. From this point of view, the US dollar and Japanese yen are the two most relevant intervention currencies. The Chinese renminbi was added in 2017, following its inclusion in the SDR basket in 2016 and given its increasing international role and the importance of China as one of the euro area's largest trading partners.

The objectives and the current composition of the foreign reserves portfolio leave limited leeway for a specific climate strategy. Climate risks are integrated into the general risk management framework for the portfolio (Section 4.3).

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21 This denotes the greenhouse gases defined in the Kyoto Protocol and generally referred to in this text simply as "emissions".

22 The tilting relied on an internally calculated climate score. This score was developed to assess eligible corporate sector issuers' climate performance based on their past emissions, the level of ambition in their reduction targets and the quality of their climate-related disclosures. In addition, the tilting framework contained maturity limits for issuers assessed as having a high level of climate risk (and thus a low climate score), established preferential treatment for green bonds that fulfilled stringent criteria and provided for a higher primary market bid for bonds from issuers with better climate performance. See the article entitled "FAQ on the integration of climate-related considerations into the CSPP" published on the ECB's website.

23 For more information on the ECB's foreign reserves, see "Trends in central banks' foreign currency reserves and the case of the ECB", *Economic Bulletin*, Issue 7, ECB, 2019.

4 Risk management

Assets held under the APP and PEPP, as well as the ECB's foreign reserves, are exposed to climate transition risks and physical risks. Transition risks are risks related to the transition to a low-carbon economy. For the purposes of this report, they are mainly proxied by GHG emissions, but theoretically include any financial consequences related to climate-driven changes in regulatory, technological or social patterns. Physical risks relate to the physical impacts of climate change; they are geolocated and reflect the likelihood and severity of the materialisation of climate hazards. The Eurosystem treats climate risks as amplifiers, or drivers, of traditional financial risks and takes a holistic approach to assessing and managing the potential impact of climate-related risks on its balance sheet. Climate risks are therefore integrated into the Eurosystem's financial risk management framework on an ongoing basis, combining general and portfolio-specific approaches.

This section summarises first how climate-related aspects are generally integrated into the Eurosystem risk management frameworks applying across portfolios. It then turns to the Eurosystem's asset holdings for monetary policy purposes in the APP and PEPP and to the ECB's foreign reserves, these being the portfolios falling within the scope of this report.

4.1 Integration of climate in general risk management

4.1.1 Integration of climate risks into the risk management cycle

Climate risks are integrated into the following four stages of the Eurosystem's risk management cycle:

Figure 3
Overview of the Eurosystem's risk management cycle

Source: ECB.

At the **risk identification and assessment** stage, climate risks are captured to the extent that they are already reflected in asset prices, asset price volatilities and credit risk indicators, such as ratings by external credit rating agencies. Qualitative and scenario analyses, such as climate stress tests, incorporate climate risks beyond those priced in by market indicators. Additionally, the Eurosystem continues to improve climate data through backward-looking metrics (based on historical emissions) and forward-looking metrics (i.e. scenario projections), as well as metrics for inward and outward risks.[24]

Risk strategies and policies are defined by the ECB's decision-making bodies. The Eurosystem's financial risk management frameworks aim to achieve the objectives of the monetary policy and foreign reserves portfolios with the lowest possible risk. In doing so, they also take into consideration the materiality of climate risks.

Risk mitigation for climate risk is conducted by the Eurosystem by applying eligibility criteria, credit risk assessments and purchase limits, and price checks. For some portfolios, this includes applying benchmarks, issuer (group) and counterparty limits, and/or carrying out due diligence checks. These measures can reduce transition risks in certain sectors through portfolio diversification and can mitigate the impact of acute, localised physical risks caused by over-exposure to geographically concentrated issuers. Additional climate risk-specific measures included the tilting of

[24] As defined in the NGFS December 2021 Guide on climate-related disclosures for central banks, inward risks are climate-related risks to central banks' balance sheets and internal operations, while outward risks arise because central banks indirectly finance greenhouse gas emissions when lending to, or investing in, countries or companies responsible for those emissions.

corporate asset purchases in the CSPP and PEPP portfolios from October 2022 until the start of the full run-off phase.

Monitoring and reporting of portfolios' exposure to climate risks is gradually being enhanced and expanded as the coverage and quality of data improve. In 2023, the Eurosystem published its first climate-related financial disclosures for the Eurosystem's MPP corporate sector holdings under the CSPP and PEPP.[25] This has continued in 2024, 2025 and 2026, with expanded portfolio coverage and further improvements.

4.1.2 Climate stress testing

The Eurosystem has developed a comprehensive climate stress testing framework designed to evaluate the impact of climate risks on its financial risk profile and performed its first climate stress test on its balance sheet in 2022.[26] The most recent climate stress test, conducted in 2024, incorporated credit claims alongside the assets previously assessed, i.e. credit operations and holdings of corporate bonds, covered bonds and asset-backed securities in the Eurosystem's MMPs. The 2024 climate stress test was aligned with the methodology and scope of the Fit-for-55 climate scenario analysis conducted on banks and other financial institutions. The 2024 climate stress test was led by the ECB in conjunction with the European Systemic Risk Board and the European Supervisory Authorities. It explored the impact of three mid-term scenarios centred on climate transition risk in order to assess the resilience of the EU financial sector in the face of climate-related shocks. The exercise assumed that the European Commission's plan to reduce carbon emissions by at least 55% by 2030 would be fully implemented and achieved. The Fit-for-55 climate scenarios were supplemented by an additional physical risk scenario of severe floods, which had also been included in the 2022 exercise.

The 2024 climate stress tests found that climate transition risk has a material impact on the risk profile of the Eurosystem exposures in scope. They identify outright holdings of corporate bonds as the exposure most impacted by a shock. The impact of transition risk on corporate assets is mainly concentrated in sectors characterised by high emissions intensity and high energy consumption. The risk for this asset class more than doubles in a scenario combining an abrupt climate transition and financial stress. By contrast, the contribution of losses stemming from the Eurosystem's credit operations to the total increase in risk is limited.

Climate risk stress tests of the Eurosystem balance sheet will continue to be performed in the future. The Eurosystem regards climate scenario analysis as a key tool in assessing the implications of climate change for financial risks. The analysis findings improve the Eurosystem's understanding of the sensitivity of the different asset classes to climate-related shocks.

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25 See Climate-related financial disclosures of the Eurosystem's corporate sector holdings for monetary policy purposes, ECB, March 2023.

26 For more information on the 2022 results, see "Results of the 2022 climate risk stress test of the Eurosystem balance sheet", *Economic Bulletin*, Issue 2, ECB, 2023.

4.1.3 Integrating climate considerations into the Eurosystem credit assessment framework

The Eurosystem credit assessment framework mitigates the credit risk of collateral used in monetary policy operations, together with appropriate valuation methods and risk control measures. In this regard, the Eurosystem seeks to ensure that climate considerations are integrated into the credit assessment systems which underpin asset credit risk assessments, as well as into the valuation methods and risk control measures that are applied to collateral[27] and purchases.

To assess the credit quality of eligible assets, the Eurosystem takes into account information from credit assessment systems from one of four sources: (i) external credit assessment institutions (ECAIs), i.e. credit rating agencies, (ii) national central banks' full in-house credit assessment systems (F-ICASs), (iii) national central banks' statistical in-house credit assessment systems (S-ICASs), and (iv) counterparties´ internal rating-based approaches (IRBs).[28] [29]

ECAIs are largely used to assess the creditworthiness of marketable assets for collateral and play an important role in the risk control framework for outright purchase programmes. The ECB investigated whether ECAIs are disclosing the necessary information about the integration of climate change risk into their credit ratings. Staff analysis and recommendations on this topic were included in an ECB Occasional Paper in September 2022.[30] In addition to the mandatory annual performance monitoring of eligible rating sources, the ECB continues its close dialogue with ECAIs and regularly monitors developments in their disclosures.

The Eurosystem also sets standards for incorporating climate change risks into the rating process of F-ICASs, and common minimum standards were implemented by all F-ICASs by the end of 2024.[31] Prioritising F-ICAS credit assessments against other rating sources in the assessment of debtors and guarantors of credit claims in June 2025 has contributed to a broader application of the minimum standards.[32] In addition, IRBs are included in the scope of initiatives undertaken by ECB Banking

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27 See the press release entitled "ECB to adapt collateral framework to address climate-related transition risks", published on the ECB's website in July 2025.

28 From 2026, a fifth source, statistical in-house credit assessment systems, has also been accepted. For details, see the box entitled "Introducing statistical in-house credit assessment systems (S-ICASs) as an additional source of credit assessments under the general collateral framework", *Economic Bulletin*, Issue 3, ECB, 2025.

29 The list of eligible rating sources can be found under the "Eurosystem credit assessment framework (ECAF)", published on the ECB's website on 1 April 2026.

30 See "Disclosure of climate change risk in credit ratings", *Occasional Paper Series*, No 303, ECB, September 2022.

31 The requirements are described in the box entitled "Common minimum standards for incorporating climate change risks into in-house credit assessment systems in the Eurosystem", *Economic Bulletin*, Issue 6, ECB, 2022.

32 See "ECB harmonises rules for Eurosystem collateral management", *press release*, ECB, 14 August 2024.

Supervision to assess the level of preparedness of supervised institutions for managing the climate risks.[33]

The review and evaluation of climate change-related risks in credit ratings will continue in 2026 and beyond as part of the Eurosystem's climate and nature plan.[34]

4.2 Risk management aspects related to the APP and PEPP

The risk management framework for the Eurosystem's monetary policy operations aims to achieve policy objectives with the lowest possible risk to the Eurosystem and the ECB.[35] The options for effectively managing and mitigating climate risks in the Eurosystem and ECB portfolios differ across asset classes. The Eurosystem does not actively manage the climate risks associated with purchases of public sector assets.

Euro area sovereign bonds held under the PSPP (as part of the APP) and PEPP account for a major part of those portfolios' exposure to climate risks. Their transition risks are linked, in particular, to the level of, and trend in, carbon emissions, which are related to countries' economic models. Their physical risks depend on the country's geography and its capacity for risk adaptation, which means adjusting to the current and future effects of climate change.

Supranational and agency bonds account for the remainder of public sector securities held under the PSPP and PEPP. Their exposure to transition risks depends on issuers' carbon emissions (and thus also on their financing activities). Their exposure to physical risks depends on the geographical location of their offices, as well as the location and diversification of their financing activities.

Corporate bonds are particularly exposed to climate-related financial risks that could affect their value and risk profile. The Eurosystem's climate action plan presented in 2021 therefore identified corporate sector assets held under the CSPP and PEPP as a priority for the management and reporting of climate risks. To this end, climate considerations were incorporated into the due diligence procedure, the application of maturity limits and a tilting framework guiding purchases and reinvestments from October 2022 to the end of 2024. These actions contributed to shaping the holdings of the CSPP and PEPP portfolios, thus helping to bring a significant shift towards improved climate performance. Since the start of the run-off phase, the portfolios' climate performance has been driven primarily by issuers' emissions reduction efforts and the maturity profile of the holdings. Interim targets for the corporate portfolios are being monitored. If deviations from the desired average

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33 In July 2022, ECB Banking Supervision conducted a climate risk stress test and in November 2022 assessed the banking sector's implementation of its Good practices for climate related and environmental risk management. For further details, see Section 1.8 of the ECB guide to internal models.

34 See "Credit Ratings: How the ECB strives to properly account for climate risks", *The ECB Blog*, November 2025.

35 See "The financial risk management of the Eurosystem's monetary policy operations", ECB, July 2015.

decarbonisation trajectory are identified for the aggregate corporate portfolios, remedial actions will be assessed, within our mandate, on a case-by-case basis.

Covered bonds are characterised by a double-recourse structure. This structure includes both the bond issuer and the cover pool, which serves as an additional layer of security in case an issuer defaults on its bond payments. The exposure of covered bonds to climate risks can therefore be analysed and managed from these two different angles. However, since available data for cover pools remains fragmented, evaluation of the climate risk exposure of covered bonds held under the CBPP3 and PEPP is currently based solely on issuer-specific carbon emissions data. The Eurosystem is working with regulators and data providers to improve the availability of emissions data at cover pool level.[36]

4.3 Risk management aspects related to the ECB's foreign reserves

The ECB's foreign reserves ensure that the ECB has sufficient liquidity to conduct foreign exchange operations if needed.[37] Management of the foreign reserves is therefore aimed at meeting three main requirements: liquidity, security and return, in that order. The ECB manages the investment of its foreign currency holdings by designing benchmark portfolios, approved by the ECB's decision-making bodies. The permitted deviation from these benchmarks in terms of risk is controlled by the ECB, making the benchmarks an important driver of the risk profile of the ECB's foreign reserves. The fixed-income assets in the foreign reserves portfolio consist mainly of sovereign bonds of the United States, Japan and China.

Transition risks depend on the carbon emissions and the emissions reduction path of these countries, as well as the transition policies that are, or will be, implemented by their respective governments and other national authorities. Physical risks, which depend on a country's geography and its capacity for risk adaptation, can affect the market value of bonds in the short run and can also be a driver of volatility.

The objectives of the foreign reserves portfolio leave limited leeway for specific climate risk management measures. Nevertheless, the financial risk framework for this portfolio, focused on ensuring liquidity, security and returns, allows for the efficient management of various risk factors, including climate change-related risks.

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36 In its response to the Commission's Call for advice to the European Banking Authority on the performance and review of the EU covered bond framework, the European Banking Authority (EBA) recognised the importance of Environmental, Social, and Governance (ESG) disclosure at the cover pool level for enhancing investor transparency regarding climate risks. To balance investor benefits and issuer reporting burdens, the EBA recommended limiting cover pool-level disclosure requirements at an annual frequency to climate risk (transition and physical) for immovable property for which climate risk metrics are available.

37 For more information on the objectives and related legal acts, see the paragraph on "Foreign reserves" in the article entitled "Foreign reserves and own funds" published on the ECB's website.

5 Metrics and targets

This section provides information on the climate risk exposure of the Eurosystem's MPPs and the ECB's foreign reserves by publishing, at portfolio level, a set of well-established and complementary GHG emissions metrics and trends. The key metrics reported are the weighted average carbon intensity (WACI), the carbon intensity, the total carbon emissions and the carbon footprint (see Annex 1 for the definitions of the metrics and formulae).[38] Box 1 of this year's report provides a set of inflation-adjusted metrics that complement the unadjusted figures. The inflation adjustments are applied to production emission metrics for sovereign investments and to the WACI for corporate investments. With this Box, the ECB aims to provide further transparency to its climate reporting and respond to growing evidence concluding that traditional emissions metrics non-trivially overstate decarbonisation progress. The box is a first approximation based on current standards and will be updated as consensus on the inflation adjustments emerges.

High levels of data availability and quality are essential for calculating reliable and relevant climate metrics. Where relevant, data availability has been indicated in percentage terms for each metric and asset class. An independent climate data provider, Institutional Shareholder Services, supplies the Eurosystem with climate data.

Sovereign bond financed emissions are reported in two ways: (i) as emissions within a country's physical borders (production emissions), and (ii) as emissions related to domestic consumption (consumption emissions). In line with the updated PCAF financial industry standard,[39] this year's report no longer includes central government emissions (direct emissions from e.g. buildings, vehicles and indirect emissions from e.g. energy consumption).[40] Production emissions are reported excluding and including the effects of land use, land-use change and forestry (LULUCF). Production emissions are self-reported by sovereigns, while sovereign consumption emissions are modelled by the aforementioned data provider. All sovereign emissions metrics are reported to ensure maximum transparency. The calculation methods are complementary, given that each provides a different angle on the emissions associated with sovereign issuers.

Metrics for supranational, agency and corporate issuers are based on issuers' scope 1 and scope 2 emissions. This year, scope 3 *relative* metrics for non-sovereign issuers are added to this report for the first time. Scope 3 metrics are reported separately from scope 1 and scope 2 metrics given that quality issues for scope 3

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38 Annex 2 provides additional information on the emissions allocation methods, normalisation factors, attribution factors and inflation-adjustment factors applied.

39 Global GHG Accounting and Reporting Standard for the Financial Industry, PCAF.

40 See "Financed emissions 3rd edition (2025)", which only defines two relevant emission methodologies for investors' disclosures for sovereign investments: production emissions (including or excluding LULUCF adjustment) and consumption emissions.

emissions data continue to limit their reliability and comparability over time.[41, 42] The aggregate metric encompassing all three scopes can be derived by a simple arithmetic sum.[43]

Emissions and financial data that match the reference year of the holdings are used whenever possible for calculating the metrics. However, reference years for different asset classes do not match for the most recent reporting periods, owing to the natural delay with which emissions data become available. For this reason, emissions data from 2024 have been applied to non-sovereign holdings for 2024 and 2025, while data from 2023 have been applied to sovereign holdings for 2023 to 2025. The use of past emissions data artificially stabilises the reported metrics for these years across the portfolios, given that only the impact of changes in portfolio composition is shown, while the impact of measures taken by issuers themselves to reduce or increase emissions is not reflected. For analytical purposes, given this limitation in the availability of emissions data, trends for sovereigns are only discussed up to 2023 and for non-sovereigns up to 2024. The cut-off date for the data is 20 March 2026.

In future reports, as the emissions data become available, the ECB will retrospectively update the metrics that were based on data with reference years that differ from those of the portfolio holdings. Following this logic, this report presents updated metrics for corporate sector assets for the years 2023 and 2024 and for sovereign assets for the years 2022 and 2023, which are different from the metrics presented for these years in the June 2025 report.

5.1 Eurosystem's APP and PEPP holdings

At the end of 2025, the Eurosystem's holdings of all assets under its APP and PEPP amounted to €3,567 billion in nominal value. Chart 1 shows a breakdown of the shares of the holdings by asset class, which is broadly unchanged from the previous year. Together, the reported asset classes in the rest of the report account for more than 99.9% of the total assets held for monetary policy purposes under the APP and PEPP.[44]

41 These quality issues include (i) intrinsic estimation uncertainty, (ii) diverging estimates between different data providers, and (iii) methodological refinements throughout time.

42 Definitions of scopes 1, 2 and 3 are provided in Annex 2.

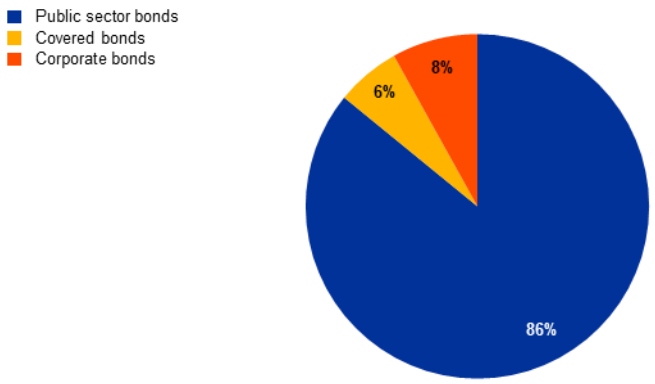
43 This feature owes to the additive power of the selected core climate metrics.

44 Asset-backed securities remain out of the reporting scope owing to a lack of reliable climate data. Given the relatively faster redemption of this asset class in the APP holdings, it now represents a marginal part of the portfolio (0.08%).

Chart 1

Eurosystem APP and PEPP holdings by asset class

(percentages)



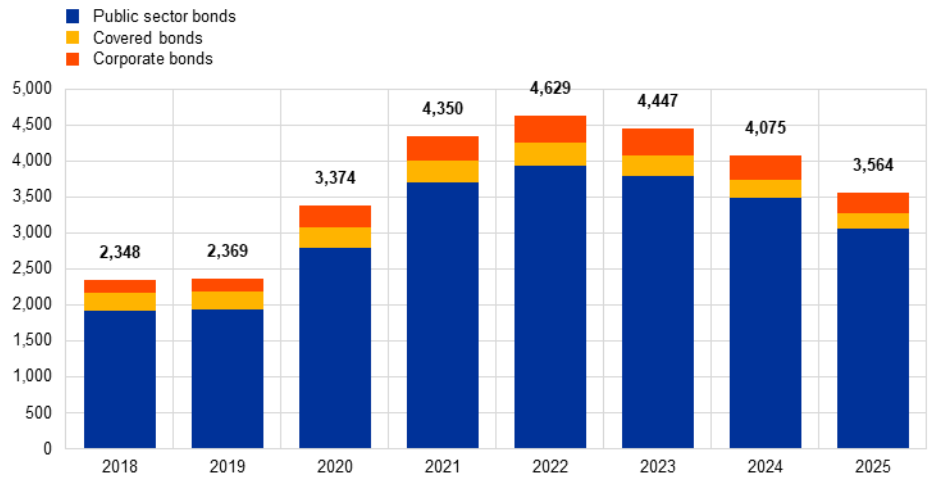
Source: ECB calculations.
Notes: The chart shows the allocation of Eurosystem holdings for monetary policy purposes under the asset purchase programme (APP) and pandemic emergency purchase programme (PEPP) across asset classes. The percentages refer to nominal amounts. The portfolio outside the scope of this report is the asset-backed securities purchase programme (ABSPP), which accounted for 0.1% of the APP and PEPP at the end of 2025.

Chart 2 shows the total value over time of the APP and PEPP holdings covered in this report. Holdings started to decline in mid-2023, following the Governing Council's decisions to reduce the pace of APP and PEPP reinvestments (from 1 March 2023 and 1 July 2024 respectively). Full discontinuation of reinvestments, from 1 July 2023 for the APP and from end-2024 for PEPP, has accelerated the decline in the portfolio holdings, which fell by 13% in 2025 (as compared with a fall of 8% in 2024).

Chart 2

Historical developments in the Eurosystem's APP and PEPP holdings by asset class

(EUR billions)



Source: ECB calculations.
Note: The chart shows the historical breakdown of Eurosystem holdings for monetary policy purposes under the asset purchase programme (APP) and pandemic emergency purchase programme (PEPP) across the asset classes covered in this report, expressed as a nominal value.

Tables 1 and 2 below show the key emissions metrics for the Eurosystem's holdings for monetary policy purposes at the end of 2025 based on scope 1 and 2 emissions. In addition, the analysis in the main text of the report for this year covers scope 3 carbon emissions metrics. Annex 3 provides historical metrics based on scope 1 and 2 emissions, while Annex 4 provides metrics based on scope 3 emissions.

The following sections analyse each asset class separately.

Table 1

Financial and climate-related metrics for sovereign issuers held in the Eurosystem's APP and PEPP portfolios at the end of 2025

		Sovereign and sub-sovereign bonds		
		Production		
		excl. LULUCF	incl. LULUCF	Consumption
Portfolio value	EUR billion nominal value	2,646.4		
Total carbon emissions	tCO_2e	296,344,602	283,773,577	370,000,916
WACI	tCO2e per EUR million PPP-adj. GDP, or per capita	112	107	8
Carbon footprint	tCO_2e per EUR million invested	112	107	140
Carbon intensity	tCO2e per EUR million PPP-adj. GDP, or per capita	112	107	8

Table 2

Financial and climate-related metrics for non-sovereign issuers held in the Eurosystem's APP and PEPP portfolios at the end of 2025

		Non-sovereign issuers				
		Total	Agency bonds	Supranational bonds	Covered bonds	Corporate bonds
Portfolio value	EUR billions nominal value	918.0	239.5	175.2	215.4	287.9
Total carbon emissions tCO_2e	Scopes 1+2 emissions	26,565,29	92,542	198	58,191	26,414,700
	Scope 3 emissions	386,006,011	39,900,593	7,659,778	105,082,612	233,363,027
WACI tCO_2e per EUR million revenue	Scopes 1+2 emissions	54.5	5.5	0.0	1.3	160.6
	Scope 3 emissions	2,052	3,750	843	2,567	1,179
Carbon footprint tCO_2e per EUR million invested	Scopes 1+2 emissions	31.3	0.44	0.00	0.32	93.96
	Scope 3 emissions	455.2	190.7	43.74	575.61	830.07
Carbon intensity tCO_2e per EUR million revenue	Scopes 1+2 emissions	111.4	6.6	0.03	1.41	148.84
	Scope 3 emissions	1,619.0	2,856.2	1,317.44	2,551.22	1,314.94

Sources: Institutional Shareholder Services, World Bank, United Nations Framework Convention on Climate Change and ECB calculations.
Notes: The metrics are calculated using bonds' nominal values.

5.1.1 Public sector bond metrics

Public sector bonds (including sovereign, sub-sovereign, agency and supranational bonds) accounted for 86% of total APP and PEPP holdings in nominal amounts at the end of 2025. The methodologies underlying the emissions' calculations for

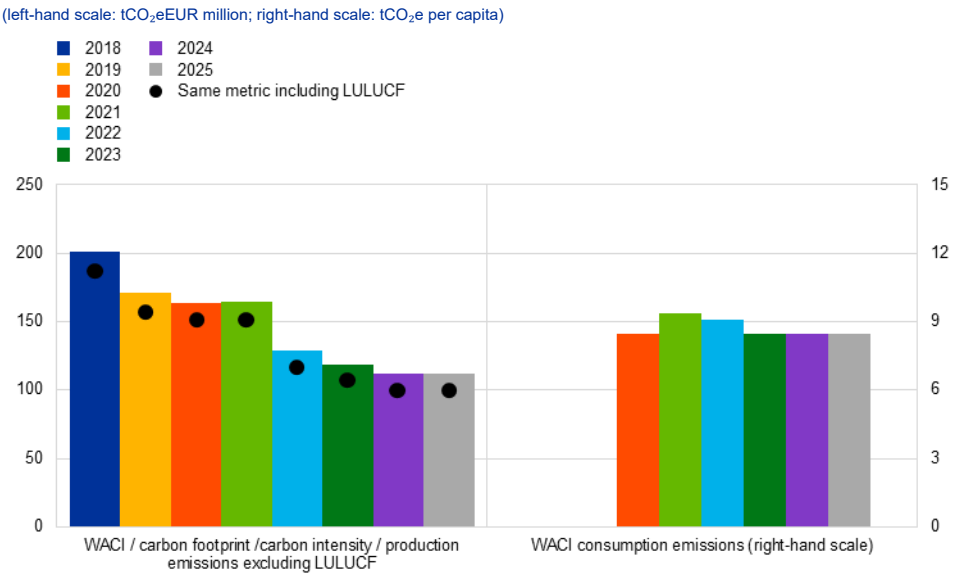
sovereign bonds (production and consumption) and non-sovereign bonds (scope 1 and 2, and scope 3 emissions) are not comparable.[45] Sovereign bond metrics should be interpreted separately from non-sovereign metrics. The data source used for the sovereign consumption emissions metrics changed in this year's report, and the metrics for past years have been recomputed in the Annexes for comparability.[46]

Sovereign and sub-sovereign bonds[47]

Sovereign (and sub-sovereign) bonds account for 86% of the Eurosystem's public sector bond holdings.[48] Sovereign bond holdings have decarbonised over the years, with a 13% year-on-year fall between 2022 and 2023, as shown by the decline in the WACI for production emissions – with and without LULUCF – between those years (Chart 3). By construction, calculations for carbon footprint and carbon intensity on production emissions result in the same figures, both having fallen by 8% in 2023 as compared with 2022.

Chart 3

Developments in the WACI for sovereign bond holdings in the PSPP and PEPP



Sources: Institutional Shareholder Services, World Bank, Bloomberg, United Nations Framework Convention on Climate Change and ECB calculations.
Notes: The weighted average carbon intensity (WACI) is shown for production and consumption emissions. Production emissions are reported excluding and including the effects of land use, land-use change and forestry (LULUCF). The WACI is denominated in tonnes of carbon dioxide equivalent (tCO_2e) per EUR million GDP (production emissions) and tCO_2e per capita (consumption emissions). The metrics are calculated using bonds in nominal value. The underlying holdings refer to year-end values.

45 See the PCAF Global GHG Accounting and Reporting Standard for the Financial Industry, third edition (2025) for an attempt to apply the scoping approach to sovereign emissions.

46 The newly computed metrics change the figures modestly (5-7 percentage points on average for the recomputed years 2020 to 2022). The change in the data source is due to the termination of the Eurosystem's contract with Carbon4 Finance, and sovereign consumption emissions metrics are now calculated based on data from Institutional Shareholder Services.

47 Data gaps remain for sub-sovereign issuers for which production and consumption emissions are unavailable. The lack of specific climate data for these issuers is overcome by assigning them the data from their associated sovereign.

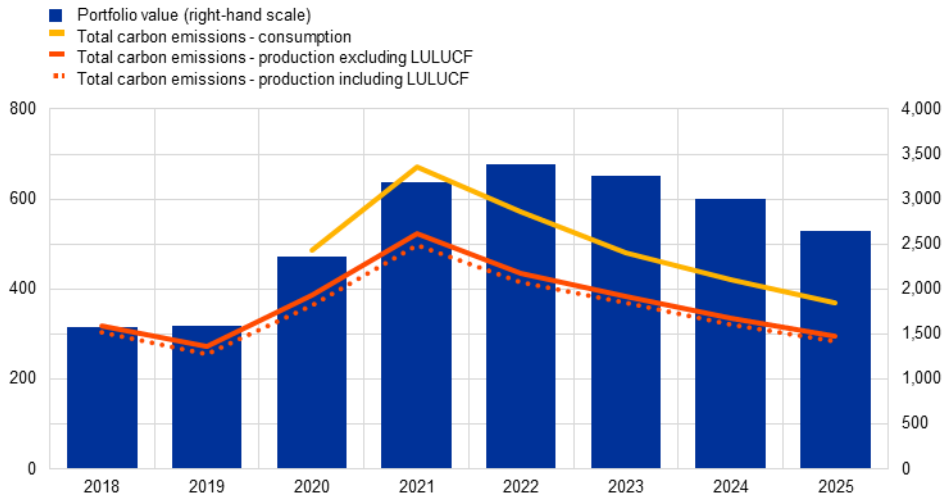
48 For the purposes of this report, bonds issued by the EU are classified as sovereign bonds, while European Financial Stability Facility (EFSF) and European Stability Mechanism (ESM) bonds are classified as supranational bonds. In the implementation and reporting of APP and PEPP purchases, the bonds issued by the EU were treated as supranational securities.

The total carbon emissions associated with the sovereign bond holdings peaked in 2021 and have declined steadily in recent years (Chart 4). This is primarily due to the portfolio size effect,[49] but other factors were also at play: GHG emissions reductions in investee (European) countries[50] and inflation.[51] Additionally, since the ECB applies a denominator in euro and GDP data are generally reported in US dollars, EUR/USD exchange rate effects also affect the metrics. Total production emissions dropped from 2022 to 2025, partly owing to the decline in Eurosystem's portfolio holdings from 2023 onwards, although the extent of this decline is overestimated because of the mismatch in the reference years. The financed consumption emissions exceeded production emissions including LULUCF by 28% on average over the period, indicating that the issuers of sovereign bonds held under the PSPP and PEPP are, on aggregate, net carbon importers. In addition, this gap has tended to widen (from 25% in 2020 to 31% in 2023).

Chart 4

Developments in total carbon emissions and portfolio value for sovereign bond holdings in the PSPP and PEPP

(left-hand scale: tCO_2e millions; right-hand scale: EUR billions nominal value)



Sources: Institutional Shareholder Services, World Bank, Bloomberg, United Nations Framework Convention on Climate Change and ECB calculations.
Notes: PSPP stands for public sector purchase programme, PEPP for pandemic emergency purchase programme and tCO_2e for tonnes of carbon dioxide equivalent. Production emissions (those produced domestically within a country's physical borders) and (domestic) consumption emissions are based on data provided by Institutional Shareholder Services. Production emissions are reported excluding and including the effects of land use, land-use change and forestry (LULUCF). The metrics are calculated using bonds' nominal values. The underlying holdings refer to year-end values.

Green bonds contribute to the transition to a low-carbon economy and provide targeted financing for projects with a positive environmental impact. Moreover, they can create a funding advantage for issuers compared with funding through

[49] The reduction in the size of the portfolio since April 2023 following the ending of APP reinvestments in 2023, alongside the switch to partial reinvestments and subsequent full run-off of PEPP at the end of 2024, led to a significant portfolio downsizing (-22% in total nominal value between year-end 2022 and year-end 2025).

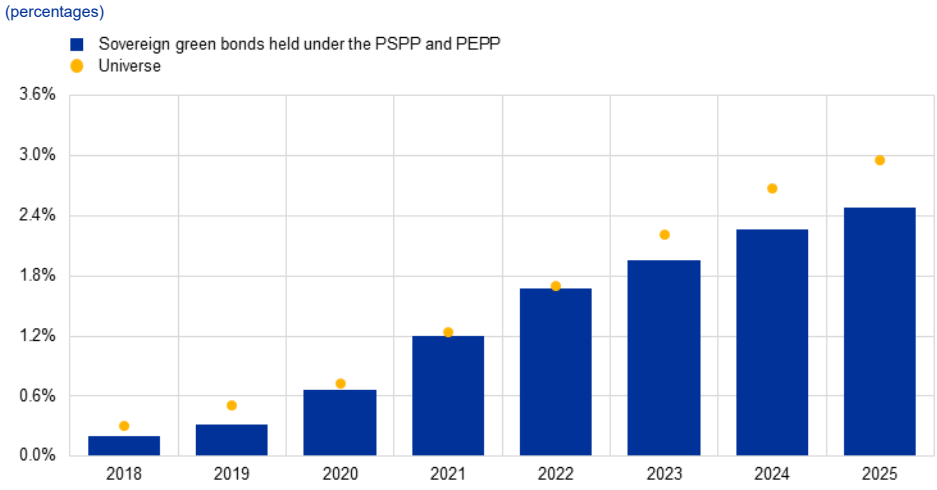
[50] The EU-wide carbon production emissions excluding LULUCF decreased by 11% between 2021 and 2023.

[51] The Harmonised Index of Consumer Prices (HICP) index reflects an increase in prices of 17% between end-2021 and end-2024 for the euro area. See Box 1 on the impact of inflation for more details on how to control for it.

conventional bonds (this advantage is known as the “greenium”). The share of green bonds in MPP sovereign bond holdings increased slightly to 2.5% in 2025. This is due to the comparatively longer average tenors of green bonds compared with conventional bonds, given that green bonds finance capital expenditure projects, such as renewable energy and infrastructure projects, with longer time horizons. Until the end of 2022 and during the active purchase phase, the share of green bonds in MPP sovereign bond holdings was close to the eligible universe (Chart 5). Since the end of that phase, the share of green bonds in the eligible universe has increased, reflecting faster growth in green issuance from EU sovereigns compared with their regular bonds. In the absence of MPP reinvestments, the gap with the portfolio’s green bond share widened accordingly.

Chart 5

Share of green bonds in the sovereign bond holdings under the PSPP and PEPP



Sources: International Capital Market Association (ICMA) and ECB calculations.
Notes: The chart shows the share of green bonds in the sovereign bond holdings under the public sector purchase programme (PSPP) and pandemic emergency purchase programme (PEPP) over time compared with their share in the eligible universe. To identify green bonds, the ECB relies on the labelling applied by the ICMA. The calculation is based on bonds’ nominal values. The underlying holdings refer to year-end values.

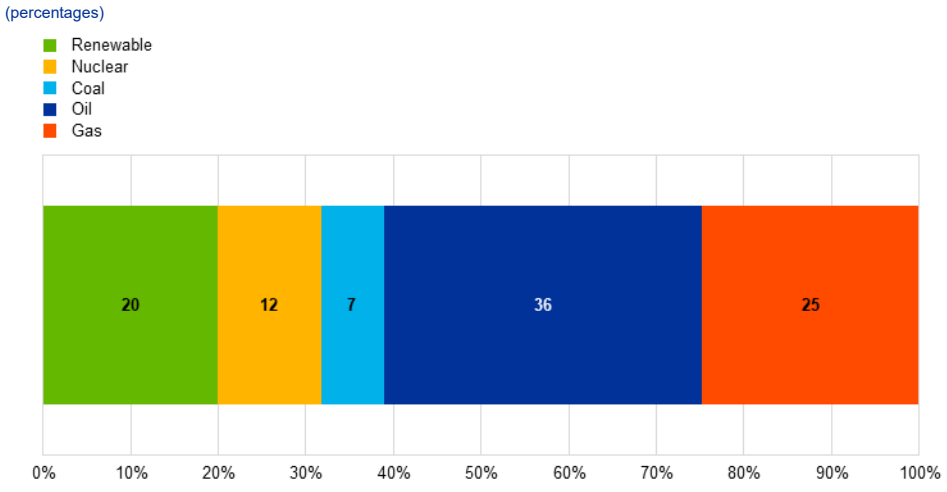
The Eurosystem also holds sovereign and sub-sovereign sustainability and social bonds. Social bonds raise funds for new and existing projects that address or mitigate social challenges and seek to achieve positive social outcomes (e.g. affordable housing and basic infrastructure), or to provide access to essential services (e.g. health, education and vocational training). Sustainability bonds combine social and green projects, with no strict minimum percentage requirements as to the allocation of proceeds between the two types of projects. In 2025, the nominal share of sustainability and social bonds aligned with the relevant International Capital Market Association (ICMA) principles and guidelines was broadly unchanged compared with 2024 and stood at 0.5% and 1.3%, respectively. The comparatively low shares reflect the fact that eligible issuers generally began issuing such bonds during the MPP reinvestment phase.

Chart 6 shows the weighted average total energy supply mix of the sovereign bond holdings in the APP and PEPP portfolios in 2025, which remained unchanged in comparison with 2024. Renewable energy and low-carbon nuclear energy together

account for around one-third of the issuers' total energy supply, while fossil fuels, including coal, oil and gas, account for the remaining two-thirds.

Chart 6

Total energy supply mix of sovereign bond issuers in the monetary portfolios in 2025



Sources: Institutional Shareholder Services and ECB calculations.
Notes: The chart shows the weighted average total energy supply mix of the sovereign bond issuers in the corporate portfolios. Weighting is done using bonds' nominal values. The total energy supply is the quantity of all energy necessary to satisfy inland consumption. It is defined as production + imports - exports - international marine bunkers - international aviation bunkers +/- stock changes.

Supranational and agency bonds

Supranational and agency bonds account for 14% of public sector bond holdings. Chart 7 shows changes in the key emissions metrics for these portfolios.

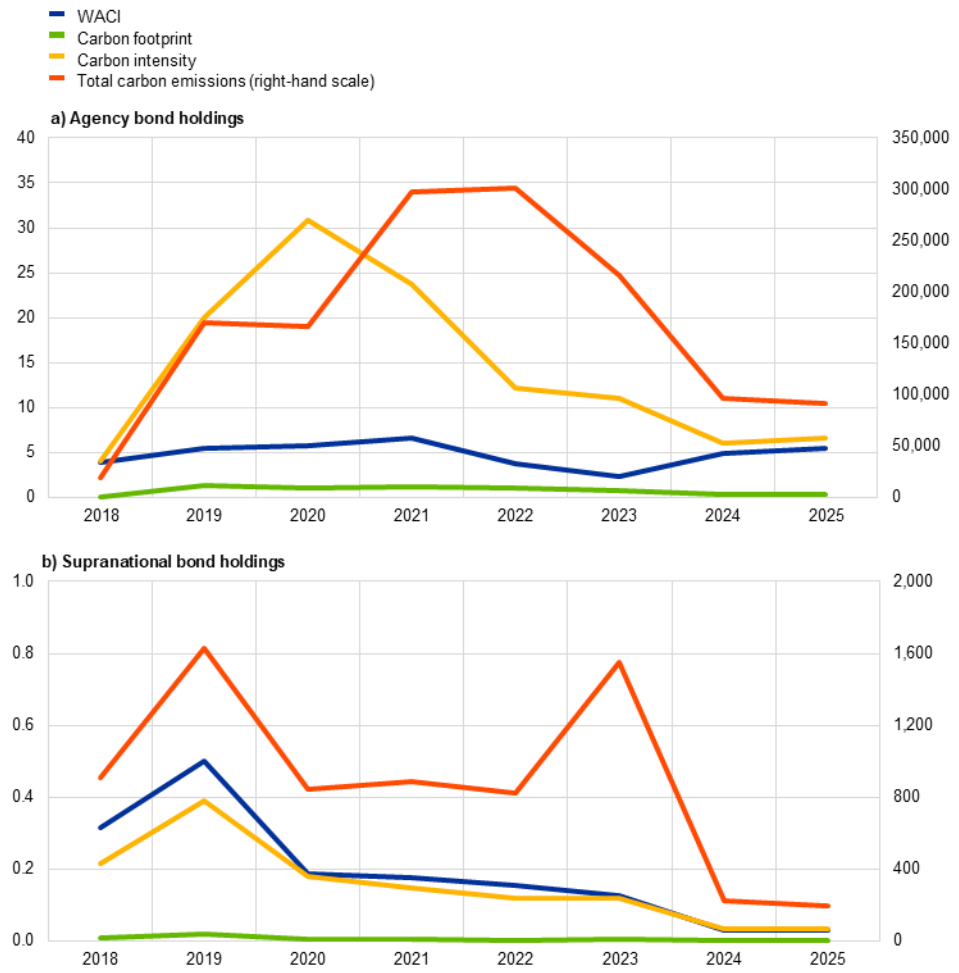
For agency bonds (Chart 7, panel a), the scope 1 and 2 total carbon emissions increased steadily until 2022, primarily in response to rising exposure to individual high-emitting issuers and to the growth in portfolio holdings. The trend has reversed since then, with a decline of over 68% from the peak in 2022. The portfolio only decreased by 15% in total nominal value over the period, a secondary driver to the overall trend. The increase in the WACI between 2023 and 2024 owes to one specific high emission intensity issuer whose emissions become available for 2024. The data coverage remained satisfactory, being over 90%.

For supranational bonds (Chart 7, panel b), the scope 1 and 2 total carbon emissions were subject to volatility in past years. The marked improvement in coverage since 2023 (100%, compared with 62% in 2021) largely explains the strong increase in reported total emissions in 2023. The drop in 2024 owes to two issuers, representing around half of the total sample, whose emissions have been reduced by 81% in comparison with 2023.

Total and relative scope 3 carbon emissions accounted for over 99% of the total carbon emissions for agencies and supranational issuers in 2025. This reflects the nature of these issuers' businesses, with low administrative costs (scope 1 and 2 emissions) but high scope 3 emissions resulting from financed projects.

Chart 7

Developments in key scope 1 and 2 metrics for supranational and agency bond holdings under the PSPP and PEPP



Sources: Institutional Shareholder Services, World Bank, Bloomberg and ECB calculations.
Notes: The chart shows historic values for the four key metrics used for supranational and agency bond holdings based on issuers' scope 1 and 2 emissions. The metrics are calculated using bonds' nominal values. Emissions normalisation in the WACI and carbon intensity metrics is based on revenue (in EUR millions), while emissions normalisation in the carbon footprint metric is based on the investment amount (in EUR millions). The underlying holdings refer to year-end values.

The share of green bonds in agency and supranational MPP bond holdings continued to gradually increase and reached 8.7% in 2025 (Chart 8), reflecting the longer relative maturity of green bonds compared with conventional ones owing to the types of activity financed. The gap as compared with the share of green bonds in the eligible universe kept widening, given that the share of green bonds in the eligible universe continued to increase at a faster pace than for conventional bonds.

Chart 8

Share of agency and supranational green MPP bond holdings and comparison with the eligible universe

(percentages)

Sources: International Capital Market Association (ICMA) and ECB calculations.
Notes: The chart shows the share of green bonds in the agency and supranational bond holdings under the public sector purchase programme (PSPP) and pandemic emergency purchase programme (PEPP) over time, compared with the share in the supranational and agency bonds' universe. To identify green bonds, the ECB relies on the labelling applied by the ICMA. The calculation is based on bonds' nominal values. The underlying holdings refer to year-end values. The share of green bonds in the universe is corrected for 2024 as compared with last year's report.

The share of sustainability bonds in the Eurosystem's supranational and agency bond portfolios, standing at 2% (unchanged compared with 2024), was broadly in line with the share of these bonds in the eligible universe. The share of social bonds in the portfolios was comparatively high, standing at 9%, although it was lower than the 11.6% share in the eligible universe. The more modest share of social bonds in the supranational and agency bond portfolios compared with the eligible universe reflects the strong increase in social issuance from these types of institution in response to the pandemic, when MPP purchases had already slowed down.

5.1.2 Corporate bond metrics

Corporate bonds accounted for 8% of the total APP and PEPP holdings at the end of 2025. Metrics in this section are based on issuers' self-reported data on scope 1 and 2 emissions, as defined in the Greenhouse Gas Protocol,[52] and are reported separately from scope 3 emissions data.[53] Scope 3 emissions are factored into separate metrics. The aggregate metric encompassing all three scopes can be derived by a simple arithmetic sum.[54]

Given that all reinvestments were discontinued at the end of 2024, the Eurosystem has not been actively steering the composition of its portfolios. It is therefore crucial

52 The Eurosystem uses market-based scope 2 emissions data if these are available and reliable. Location-based scope 2 emissions data may be used when market-based reporting is not available.

53 The ECB integrated data on scope 3 emissions at the sector level into the climate scoring tool used to tilt its purchases of corporate sector bonds until the end of 2024.

54 This feature owes to the additive power of the core climate metrics selected.

that issuers fulfil the forward-looking commitments they have announced if the Eurosystem is to deliver on its emissions reduction objectives.

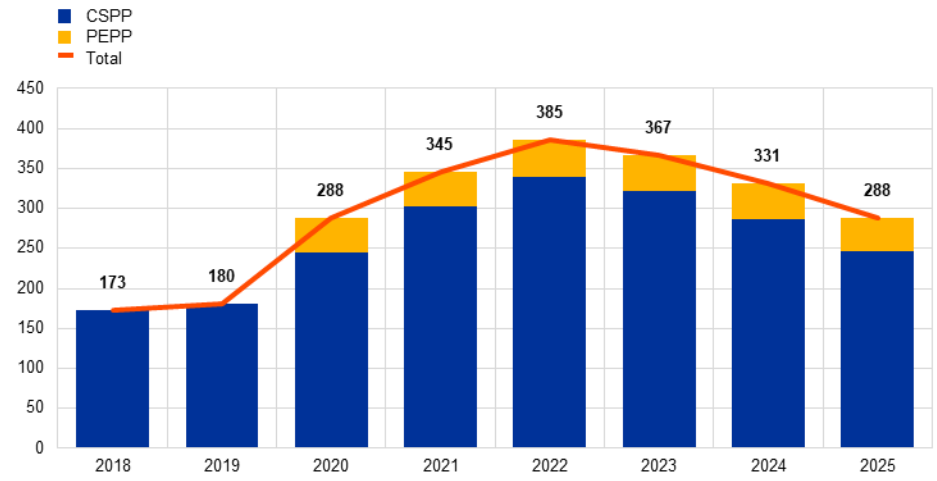
Developments in key climate metrics within the corporate sector portfolios

Since reaching a peak in 2022, the aggregate level of corporate bond holdings has decreased by 25% to EUR 288 billion (Chart 9).

Chart 9

Historical developments in the Eurosystem's corporate sector holdings and portfolio breakdown

(EUR billions, nominal amounts)



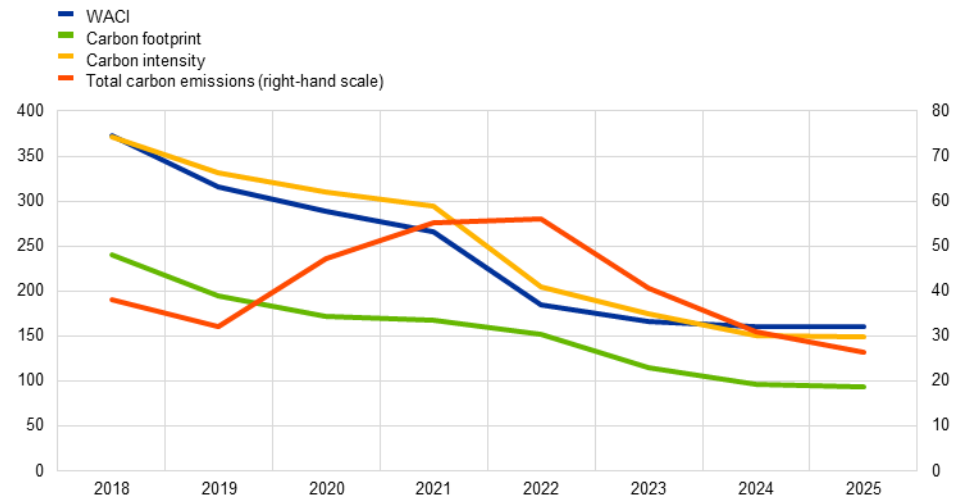
Source: ECB calculations.
Notes: The underlying holdings refer to year-end values.

Chart 10 shows developments in key climate and financial metrics for corporate sector holdings for scope 1 and 2 emissions. In 2024, all carbon metrics continued to show a downward trend. Total corporate carbon emissions declined after 2022, following the reduction in the size of the portfolio holdings that started around mid-2022. Scope 3 corporate carbon emissions accounted for 87% of the total carbon emissions in 2024. This is lower than for supranationals and agencies, whose more prominent scope 3 emissions primarily stem from their large investment portfolios.

Chart 10

Developments in key scope 1 and 2 metrics for the Eurosystem's corporate sector portfolios

(left-hand scale: tCO_2e/EUR million; right-hand scale: tCO_2e millions)



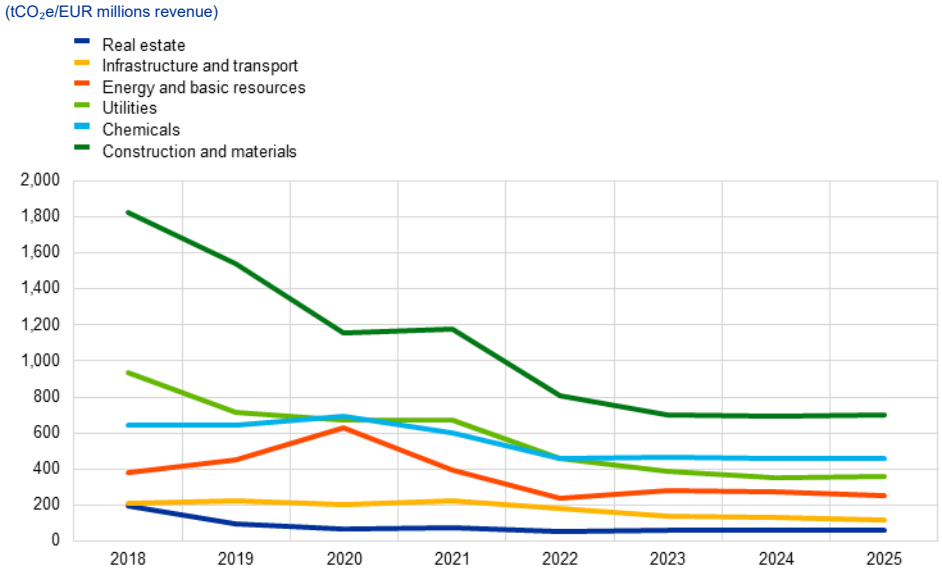
Sources: Institutional Shareholder Services, Bloomberg and ECB calculations.
Notes: tCO_2e stands for tonnes of carbon dioxide equivalent; the chart shows historic values for the four key metrics used for corporate sector holdings based on issuers' scope 1 and scope 2 emissions. The metrics are calculated using bonds' nominal values. Emissions normalisation in the WACI and carbon intensity metrics is based on revenue (in EUR millions), while emissions normalisation in the carbon footprint metric is based on the investment amount (in EUR millions). The underlying holdings refer to year-end values.

The normalised metrics based on scope 1 and 2 emissions further declined in 2024, albeit at a lower speed. The scope 1 and 2 WACI decreased by 4% between 2023 and 2024, less than half of the drop it experienced in the previous year. This is because the effects of inflation were smaller and there was a slowdown in the carbon efficiency gains from underlying issuers.

Chart 11 shows that the WACI for most of the underlying sectors (11 out of 13) continued to decrease in 2024, but at a much slower pace than in previous years. This was partly the result of reduced tilting from mid-2023 as reinvestments of redemptions were tapered. The companies grouped under the construction and materials, chemicals, and utilities sectors remain the most emission-intensive on average, when normalised on a revenue basis. More specifically, downward dynamics stalled significantly for the most carbon intensive sectors (construction and materials) in 2024, with a decline of only 1% in emission intensity as compared with a fall of 14% the previous year. The sectoral declines currently seen in the scope 1 and 2 WACI for 2025 are exclusively the result of capital reallocation effects.

Chart 11

Developments in the scope 1 and 2 WACI of the corporate portfolios for the most carbon intensive sectors



Sources: Institutional Shareholder Services, World Bank, Bloomberg and ECB calculations.
Note: The six sectors displayed are the most carbon intensive based on the weighted average carbon intensity (WACI) metric. They also represent the vast majority (92%) of total carbon emissions financed within the monetary policy's corporate bond portfolio. The other less intensive sectors within the portfolio comprise food; health care and life science; telecoms; automative and parts; technology; and insurance.

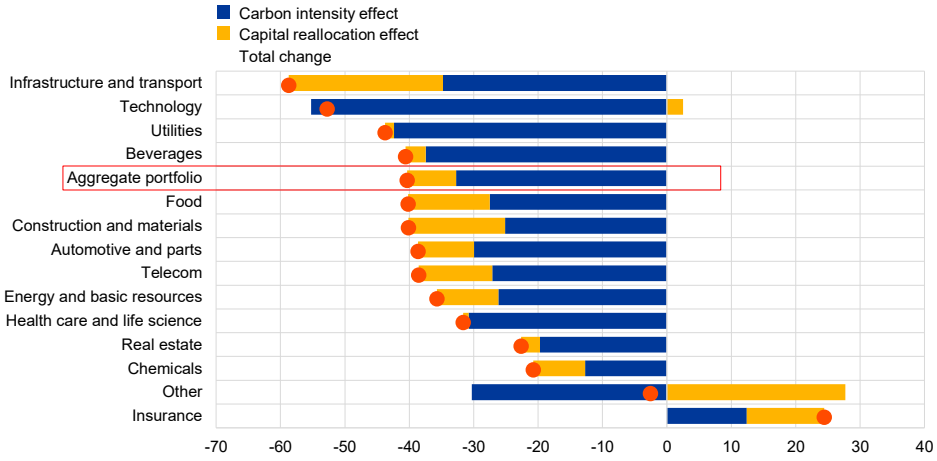
Two factors contribute to changes in the sectoral scope 1 and 2 WACI over time: (i) changes in issuers' carbon intensity (issuers' emissions normalised by revenue),[55] and (ii) capital reallocation to issuers with different emission profiles. Capital reallocation includes the impact of the Eurosystem's tilted purchases until end-2024 and the redemption of securities (which will be responsible for the entire capital reallocation effect from 2025 onwards). Chart 12 isolates the contribution of both factors to the realised sectoral emissions reduction between 2021 and 2025. The yellow bars show that the tilting of Eurosystem reinvestment purchases towards issuers with better climate scores contributed to improving the WACI in most sectors, and particularly in those responsible for a significant proportion of the emissions associated with the corporate portfolios.

[55] The specific impact of inflation on the scope 1 and 2 WACI through revenues is analysed in Box 1.

Chart 12

Attribution of the changes in sectoral consolidated scopes 1 and 2 WACI between 2021 and 2025 to the capital reallocation effect and the carbon intensity effect

(percentages)



Sources: Institutional Shareholder Services and ECB calculations.
Notes: WACI stands for weighted average carbon intensity. To isolate the capital reallocation and the capital intensity effect, a Marshall-Edgeworth-type decomposition was applied which uses the simple average of the previous and present period values. For 2025, the attribution analysis only considers capital reallocation effects, given that the latest available climate data are from 2024.

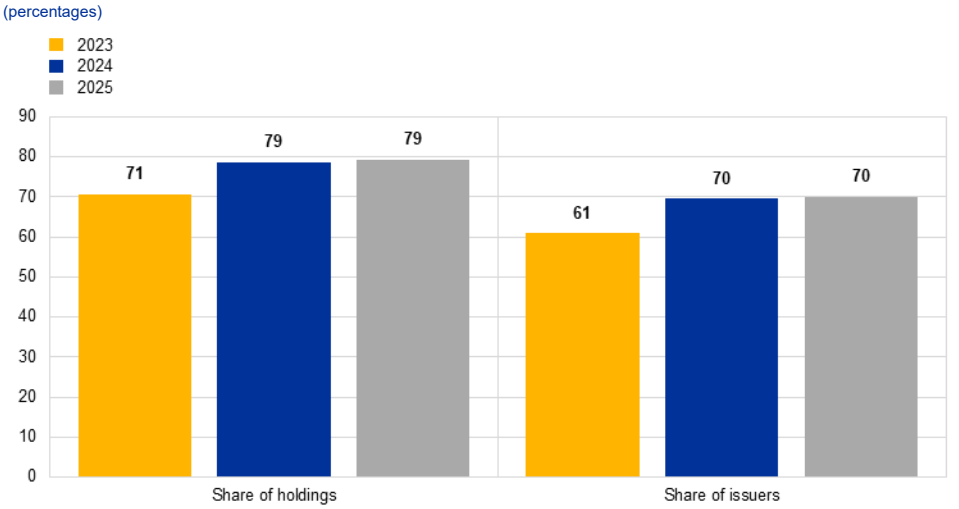
Overall, the improvement in average issuer emissions intensity was responsible for 81% of the decline in scope 1 and scope 2 carbon intensity associated with the portfolios between 2021 and 2025 (see the framed aggregate portfolio), with inflation leading to an overstatement of this effect (see Box 1). In addition, capital reallocation effects were responsible for about 19% of the emissions reduction observed between 2021 and 2025. With the ending of reinvestments and hence of the active tilting at end-2024, the capital reallocation effect is expected to lessen over time. If maturing bonds are issued by lower-intensity issuers, capital reallocation could even push the portfolio's scope 1 and 2 WACI upward.

The corporate portfolios' share of assets associated with certified science-based forward-looking emissions reduction targets increased to 79% in 2025 (Chart 13).[56] This increase was primarily driven by (i) the maturity profile of holdings certified by the Science Based Targets initiative (SBTi), and (ii) the growing number of issuers setting such targets.

[56] Science-based targets provide a clearly defined pathway for companies and financial institutions to reduce greenhouse gas emissions. Targets are considered "science-based" if they are in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement, i.e. limiting global warming to 1.5°C above pre-industrial levels. The Science-Based Targets initiative is a partnership between the Carbon Disclosure Project (CDP), the United Nations Global Compact, the World Resources Institute and the World Wide Fund for Nature.

Chart 13

Share of holdings and issuers in the corporate sector portfolios with science-based carbon reduction targets



Sources: Institutional Shareholder Services, Science-Based Targets initiative, issuers' annual reports and climate reports, and ECB calculations.

The share of green bonds in the corporate sector portfolios remained stable in 2025 at 11% compared with 2024. The share of green bonds in the eligible corporate bond universe increased further to 17% by the end of 2025 (Chart 14). This is due to the leading role played by euro area corporates in the global green bond market.

The aggregate nominal share of sustainability-linked bonds, sustainability bonds and social bonds aligned with the ICMA principles rose slightly in 2025 to 3.8% (compared with 2.9% in 2024). This was slightly below their aggregate share in the eligible universe, which rose to 4.6%.

Chart 14

Share of green bonds in the corporate bond holdings under the CSPP and PEPP

Sources: International Capital Market Association (ICMA) and ECB calculations.Notes: The chart shows the share of green bonds in corporate bond holdings under the corporate sector purchase programme (CSPP) and pandemic emergency purchase programme (PEPP) over time compared with the universe. To identify green bonds, the ECB relies on the labelling applied by the ICMA. The calculation is based on bonds' nominal values. The underlying holdings refer to year-end values.

Corporate exposure to nature-related priority sectors

This report again examines the exposure of the Eurosystem's corporate portfolios to sectors with material dependencies or impacts on nature, based on the priority sectors outlined in the TNFD classification framework.[57] This indicator was introduced last year. At the end of 2025, the three priority sectors to which the Eurosystem's corporate holdings are primarily exposed were: (i) utilities, commercial and professional services (16%), (ii) food and beverage (8%), and (iii) automobile and components (6%). The sectors most materially exposed to nature-related priorities were unchanged except for automobile and components, which replaced real estate in the 2024 report. On aggregate, 30% of the Eurosystem's CSPP holdings were exposed to the three top sectors deemed to have material nature-related dependencies or impacts.

5.1.3 Covered bond metrics

Covered bonds accounted for 6% of the total APP and PEPP holdings at the end of 2025. Since cover pool-specific emissions data remain fragmented, emissions financed by the issuing banks through their investments and loans are not included in the analysis. Self-reported data from covered bond issuers on climate metrics for cover pools would provide investors with the necessary information to properly assess climate-related risks. Cover pool-related emissions will be included in the analysis as soon as data availability and quality allow.

Chart 15 shows a falling trend in scope 1 and 2 emissions for covered bond holdings across all metrics, with a decline of over 54% in total carbon emissions between 2018 and 2024, while the coverage has steadily hovered around 85-90%. These declines have been driven by scope 1 and 2 emissions reduction trends at issuer level, which offset the effects of an increase in portfolio size. Covered bond holdings underwent a sizeable rebound in emission metrics (e.g. an increase of 52% in the scope 1 and 2 of WACI between 2023 and 2024), but this volatility is largely due to a single outlier and it is expected to be reversed by next year's report.[58]

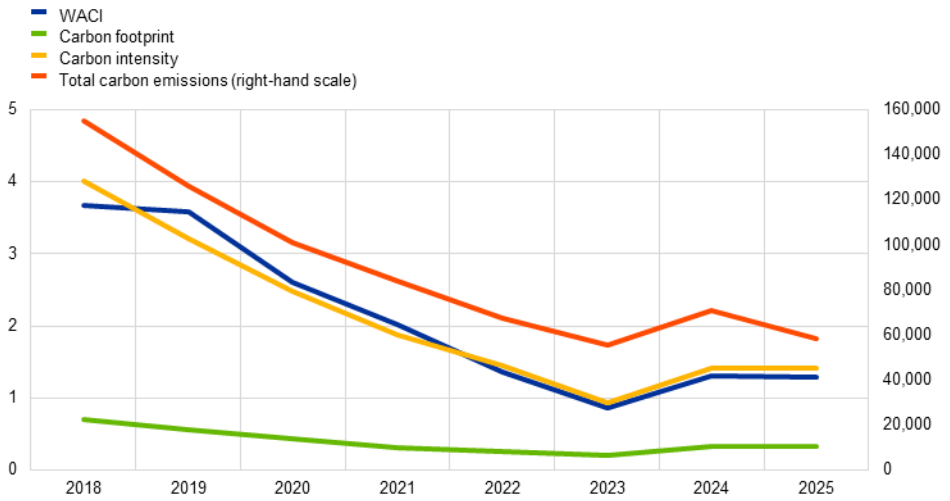
[57] The metric disclosed is the TNFD "Financial institution core disclosure metric (FI.C0.0) – Exposure to sectors". The metrics are calculated applying the NACE Rev. 2.0 standard statistical classification of economic activities.

[58] The issuer of these bonds, who had reported a significant increase in 2024 scope 1 emissions, has subsequently reclassified some of the increase as scope 3 GHG emissions in its 2025 report, which was, however, not reflected by the climate data provider for methodological reasons.

Chart 15

Developments in key scope 1 and 2 metrics for covered bond holdings under the CBPP3 and PEPP

(left-hand scale: tCO_2e/EUR millions; right-hand scale: tCO_2e thousands)



Sources: Institutional Shareholder Services, World Bank, Bloomberg and ECB calculations.
Notes: tCO_2e stands for tonnes of carbon dioxide equivalent. The chart shows the historic values of the key metrics for the covered bond holdings under the third covered bond purchase programme (CBPP3) and pandemic emergency purchase programme (PEPP), based on issuers' scope 1 and scope 2 emissions. The metrics are calculated using bonds' nominal values. Emissions normalisation in the WACI and carbon intensity metrics is based on revenue in EUR millions, while emissions normalisation in the carbon footprint metric is based on the investment amount in EUR millions. The underlying holdings refer to year-end values.

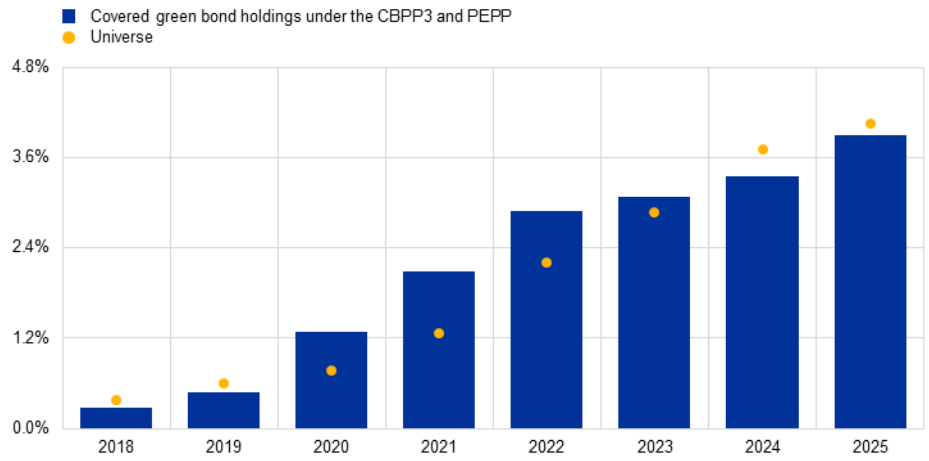
The share of green bonds in the covered bond holdings continued to increase gradually in 2025 (rising to 3.9%), albeit at a slightly slower pace than the share of green bonds in the eligible universe owing to the full run-off of the CBPP3 (Chart 16). The share of green covered bonds in the eligible universe expanded further to 4.1% in 2025.

The aggregate share of sustainability and social covered bonds aligned with the ICMA principles and guidelines stood at around 1.5% of CBPP3 and PEPP nominal covered bond holdings and was broadly in line with the share of these bonds in the eligible universe.

Chart 16

Share of green bonds in covered bond holdings under the CBPP3 and PEPP

(percentages)



Sources: International Capital Market Association (ICMA) and ECB calculations.
Notes: The chart shows the share of green bonds in covered bond holdings under the third covered bond purchase programme (CBPP3) and pandemic emergency purchase programme (PEPP) over time compared with the universe. To identify green bonds, the ECB relies on the labelling applied by the ICMA. The calculation is based on bonds' nominal values. The underlying holdings refer to year-end values.

5.1.4 Targets

The Eurosystem does not define targets for its public sector and covered bond holdings under the APP and PEPP. Sovereign bond holdings are expected to decarbonise in line with action by national governments to deliver on their emissions reduction pledges under the Paris Agreement and as required by the European Climate Law. Supranational, agency and covered bond holdings will mirror the emissions reductions achieved by their respective issuers.

Meanwhile, targets continue to fulfil an essential forward-looking role for Eurosystem corporate bond holdings. Targets reflect the Eurosystem's commitment to reducing the portfolios' exposure to climate-related risks, as well as their environmental footprint. Importantly, climate-related targets for the corporate bond holdings can only be pursued without prejudice to the ECB's price stability objective and are therefore conditional on, and thus constrained by, monetary policy considerations.

By reducing the emissions associated with its corporate bond holdings, the Eurosystem aims to address the financial risks related to climate change in its monetary policy operations and to place the holdings on a path that supports the goals of the Paris Agreement and the European Climate Law. In doing so, the Eurosystem is targeting a decarbonisation trajectory consistent with achieving carbon neutrality for its corporate bond portfolios by 2050,[59] in line with the Paris Agreement objective of limiting global warming to well below 2° Celsius (while pursuing efforts to limit it to 1.5° Celsius).

[59] The corporate portfolios are expected to mature by 2051 at the latest.

To support this long-term trajectory, the Eurosystem has set itself an interim target for reducing the weighted average emissions intensity[60] associated with its corporate bond portfolios of an average of at least 7% per year from the end of 2021.[61] The Eurosystem will monitor progress towards this target and will also consider the impact of inflation on the portfolios' emissions intensity trajectory. If deviations from the desired average decarbonisation trajectory are identified for the aggregate corporate portfolios, remedial action will be assessed, within the limits of the Eurosystem's mandate, on a case-by-case basis.

The decarbonisation path for the corporate bond holdings depends on several developments that are beyond the Eurosystem's control, most notably during the full run-off phase that started at the end of 2024. These include issuers' effectiveness in decarbonising their operations as indicated in their plans, the changing composition of the portfolio holdings during the run-off and corporate actions (which may lead, for instance, to early redemptions). However, it is worth noting that remedial action would not be considered in response to deviations by individual issuers but only if the average decarbonisation rate for the aggregate portfolios fell short of the desired trajectory.

While certain assumptions are important for the expected emissions reduction trajectory to materialise, the annual review of the effective rate of emissions reduction in the corporate portfolios will allow the Governing Council to assess and decide on potential measures if meaningful deviations are observed at the aggregate level. In addition, the annual publication of the portfolios' climate-related financial disclosures will continue to ensure a high level of transparency and accountability towards the public.

In 2024 (the most recent year for which climate data are available), the CSPP portfolio remained on track to achieve its interim target. With respect to reference year 2021, the weighted average emission intensity was within the decarbonisation target of 7% on a geometric annual average basis.

60 Based on issuers' self-reported scope 1 and 2 emissions data as defined in the Greenhouse Gas Protocol.

61 See Decision (EU) 2025/2056 of the ECB of 1 October 2025 amending Decision (EU) 2016/948 on the implementation of the corporate sector purchase programme (ECB/2016/16) (ECB/2025/30) (OJ L, 2025/2056, 10.10.2025). 2021 was chosen as the baseline year for the portfolios' decarbonisation given that it marked the end of the fiscal year preceding the Eurosystem's decision, taken in the second half of 2022, to set a long-term decarbonisation goal for the corporate portfolios and to tilt purchases to integrate climate risk considerations.

Box 1
The inflation impact on climate metrics

There is a growing consensus in academic literature that attribution and normalisation factors should be adjusted for inflationary effects to preserve their integrity.[62] Some empirical analyses suggest that traditional emission metrics non-trivially overstate decarbonisation progress. The ECB reiterates its commitment to transparent climate reporting and is publishing, for the first time, a set of inflation-adjusted metrics, complementing the unadjusted figures. The inflation adjustments are applied to production emission metrics for sovereign investments and to the production WACI for corporate investments. This is a first approximation based on current standards. It will be updated with new standards and will include carbon footprint metrics if consensus on the adjustments emerge.

For sovereign production emissions metrics, the adjustment is based on purchasing power parity-adjusted (PPP-adjusted) real GDP at constant 2021 prices based on World Bank data. For corporate holdings, WACI is adjusted using the reference inflation index of the relevant monetary area with a baseline year of 2021.[63] The baseline year of 2021 is consistent with the adjustment of sovereign production emissions and with monitoring progress towards the interim reduction target for the CSPP holdings, which will also consider the impact of inflation.

APP and PEPP holdings

Table A shows the inflation-adjusted sovereign production emissions metrics for the Eurosystem's APP and PEPP portfolios in 2023, the year for which the latest available sovereign emissions data align with both the holdings and financial data. Inflation-adjusted metrics are 9.8% higher than the non-adjusted figures presented in Table A, reflecting the accumulated effect of inflation since 2021.

Table A
Inflation-adjusted production emission metrics for sovereign issuers in the Eurosystem's APP and PEPP portfolios in 2023

		Sovereign production emissions	
		Inflation-adjusted	*% difference*
Total carbon emissions	excl. LULUCF	422,716,697	*9.8*
	incl. LULUCF	404,619,745	*9.8*
WACI	excl. LULUCF	130	*9.8*
	incl. LULUCF	124	*9.8*

Source: Institutional Shareholder Services, World Bank, Bloomberg, United Nations Framework Convention on Climate Change and ECB calculations.
Notes: APP stands for asset purchase programme, PEPP for pandemic emergency purchase programme and LULUCF for land use, land-use change and forestry. Total carbon emissions are expressed as tonnes of carbon dioxide equivalent (tCO_2e). The weighted average carbon intensity (WACI) is expressed as tCO_2e per 2021 constant EUR millions GDP, adjusted for purchasing power parity (PPP). Production emissions are those produced domestically within a country's physical borders. Given the specifications for the three emissions metrics, the WACI, carbon footprint and carbon intensity for sovereigns yield the same figure for both the adjusted and unadjusted metrics. Consequently, only one is reported in the comparison table. The percentage difference column shows the effect of accumulated inflation since the baseline year.

62 See, among others, Statistics Committee Expert Group on Climate Change and Statistics and Working Group on Securities Statistics, "Climate change-related statistical Indicators", *Statistics Paper Series*, No 48, ECB, 2024; Cajic, M., How inflation and exchange rates impact carbon accounting — and how to fix it, Avarni, Sydney, 6 March 2025; Jenssen, A., Botzen, W., Dijk, J. and Duijm, P., "Overcoming misleading carbon footprints in the financial sector", *Climate Policy*, Vol. 22, Issue 6, Taylor and Francis Group, Abingdon-on-Thames, 13 June 2022; Nagy, Z., Giese, G. and Wang, X., "A Framework for Attributing Changes in Portfolio Carbon Footprint", *Research paper*, MSCI, New York, 3 May 2023.

63 The mathematical formulae for computing the adjusted metrics can be found in Annex 1.

Table B shows the inflation-adjusted WACI for corporate holdings in the Eurosystem's APP and PEPP portfolios in 2024. The inflation-adjusted figures are 15.1% higher than the unadjusted metrics presented in Table 2, owing to the effect of three years of accumulated inflation on the underlying revenue figures.

Table B

Inflation-adjusted WACI metrics for corporate holdings in the Eurosystem's APP and PEPP portfolios in 2024

			Non-sovereign issuers	
			Inflation-adjusted	*% difference*
WACI	Corporate bonds	Scope 1+2 emissions	185	*15.1*
		Scope 3 emissions	1,374	*15.1*

Source: Institutional Shareholder Services, World Bank and ECB calculations.
Notes: APP stands for asset purchase programme and PEPP for pandemic emergency purchase programme. The weighted average carbon intensity (WACI) is expressed as tonnes of carbon dioxide equivalent (tCO_2e) per 2021 constant EUR million revenue. The percentage difference column shows the effect of accumulated inflation since the baseline year.

ECB's foreign reserves holdings

The inflation-adjusted sovereign production emission metrics for the ECB's 2023 foreign reserves holdings (Table C) are 10.7% higher than the corresponding unadjusted figures (Table 3), reflecting the accumulated inflation affecting the underlying holdings.

Table C

Inflation-adjusted production emission metrics for sovereign issuers in the ECB's foreign reserves in 2023

		Sovereign production emissions	
		Inflation-adjusted	*% difference*
Total carbon emissions	excl. LULUCF	9,527,487	*10.7*
	incl. LULUCF	8,357,854	*10.7*
WACI	excl. LULUCF	267	*10.7*
	incl. LULUCF	234	*10.7*

Source: Institutional Shareholder Services, World Bank, Bloomberg, United Nations Framework Convention on Climate Change and ECB calculations.
Notes: LULUCF stands for or land use, land-use change and forestry. Total carbon emissions are expressed as tonnes of carbon dioxide equivalent (tCO_2e). The weighted average carbon intensity (WACI) is expressed as tCO_2e per 2021 constant EUR millions GDP, adjusted for purchasing power parity (PPP). Production emissions are those produced domestically within a country's physical borders. Given the specification for the three production emission metrics, the WACI, carbon footprint and carbon intensity for sovereigns yield the same figure for both the adjusted and unadjusted metrics. Consequently, only one is reported in the comparison table. The percentage difference column shows the effect of accumulated inflation since the baseline year.

5.2 The ECB's foreign reserves

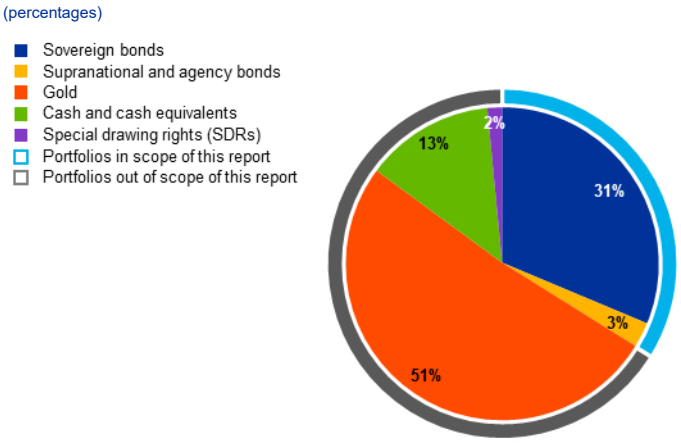
At the end of 2025, the ECB's foreign reserves had a total euro equivalent market value of €116.8 billion held in foreign currency portfolios, physical gold and SDRs (Chart 17).[64] The market value of the foreign reserves increased by 13.3% compared with 2024, mostly led by the strong appreciation of gold. The three currencies included in the reserves are the US dollar, the Japanese yen and the

[64] Special drawing rights (SDRs) are an international reserve asset created by the International Monetary Fund (IMF) to supplement the official reserves of its member countries. It is a potential claim on the freely usable currencies of IMF members. A basket of currencies defines the SDRs. The currencies are the US dollar, the euro, the Chinese renminbi, the Japanese yen and the British pound.

Chinese renminbi. These portfolios can be further broken down into sovereign bonds, supranational and agency bonds, and cash and cash equivalents.

Chart 17

The ECB's foreign reserves by asset class

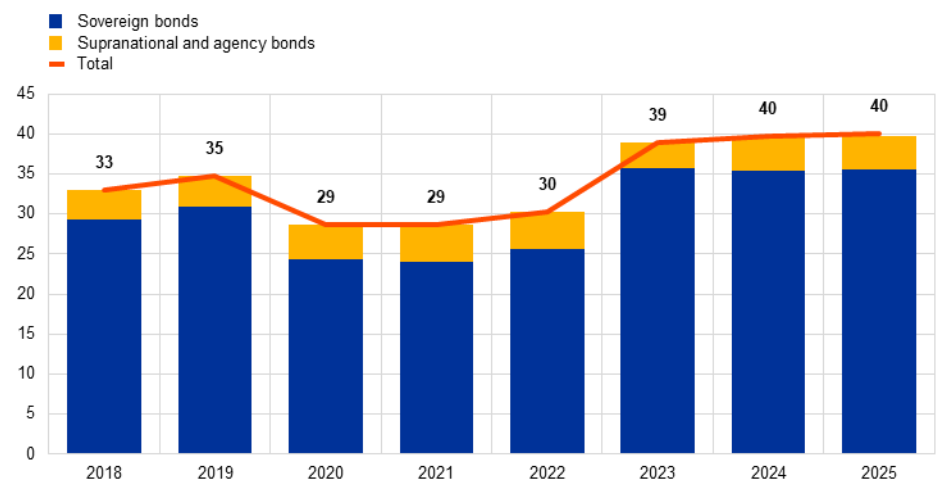


Source: ECB calculations. Note: The chart shows the allocation of the ECB's foreign reserves across asset classes, measured in market values. (Please note that nominal amounts are used in the rest of the report and in the emissions metrics.)

The nominal bond holdings in all three currencies amounted to a total of €40 billion nominal value equivalent at the end of 2025, of which 92% was attributable to sovereign bonds, 6% to supranational bonds and 2% to agency bonds (Chart 18). Physical gold, SDRs, and cash and cash equivalents (i.e. 66% of the holdings) are excluded from the climate-related reporting owing to a lack of guidance on their methodological treatment. After a sizeable increase in 2023, driven by cash investments in the ECB foreign reserves portfolio, the nominal amounts in bond holdings remained little changed in 2024 and 2025.

Chart 18

Historical developments in the ECB's foreign reserves



Source: ECB calculations. Notes: The chart shows the historical breakdown of the ECB's foreign reserves across the asset classes covered in this report, expressed in terms of nominal value. The underlying holdings refer to year-end values.

Tables 6 and 7 show the key metrics for the ECB's foreign reserves at the end of 2025, while Annex 5 contains a comprehensive overview of historical key metrics for the ECB's foreign reserves based on scope 1 and 2 emissions and Annex 6 an overview of the same historical key metrics for scope 3 emissions.

Table 3

Key climate-related production and consumption metrics for sovereign issuers held in the ECB's foreign reserves portfolios at the end of 2025

		Sovereign and sub-sovereign bonds		
		Production		
		excl. LULUCF	incl. LULUCF	Consumption
Portfolio value	EUR billions nominal value	36.8		
Total carbon emissions	tCO_2e	8,374,325	7,386,898	9,082,833
WACI	tCO2e per EUR million PPP-adj. GDP, or per capita	227	201	18
Carbon footprint	tCO_2e per EUR million invested	227	201	247
Carbon intensity	tCO2e per EUR million PPP-adj. GDP, or per capita	227	201	17

Table 4

Financial and climate-related metrics for non-sovereign issuers held in the ECB's foreign reserves portfolios at the end of 2025

		Non-sovereign issuers		
		Total	Agency bonds	Supranational bonds
Portfolio value	EUR billions nominal value	3.2	0.8	2.4
Total carbon emissions tCO_2e	Scope 1+2 emissions	93	8	85
	Scope 3 emissions	374,358	216,400	157,959
WACI	Scope 1+2 emissions	0.6	0.2	0.8
tCO_2e per EUR millions revenue	Scope 3 emissions	2,136	3,895	1,424
Carbon footprint	Scope 1+2 emissions	0.0	0.0	0.0
tCO_2e per EUR millions invested	Scope 3 emissions	152	306	90
Carbon intensity	Scope 1+2 emissions	0.6	0.2	0.8
tCO_2e per EUR millions revenue	Scope 3 emissions	2,283	4,271	1,394

Sources: Institutional Shareholder Services, World Bank, United Nations Framework Convention on Climate Change and ECB calculations.
Notes: The metrics are calculated using bonds' nominal values.

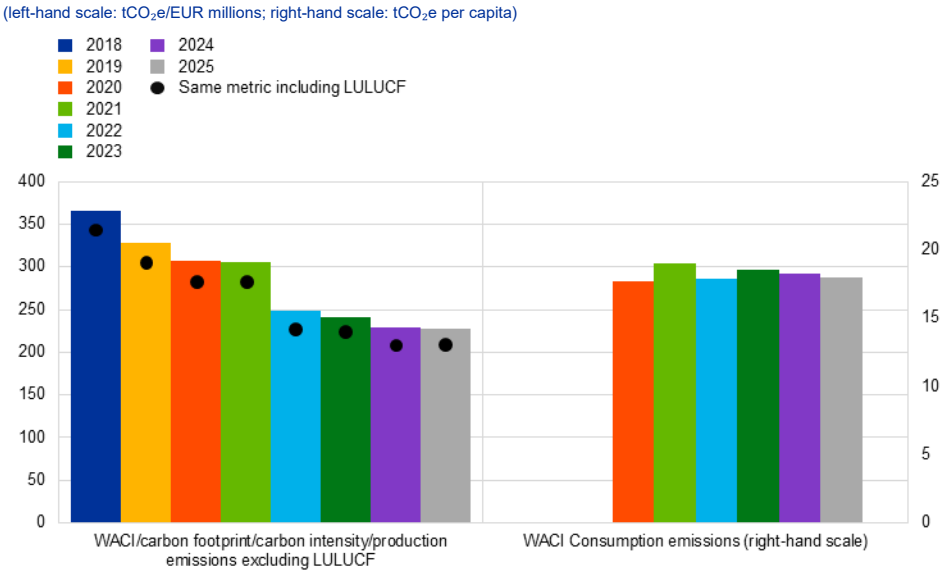
5.2.1 Sovereign bond metrics

Chart 19 shows the WACI for the sovereign bond holdings in the ECB's foreign reserves. The WACI for production-based emissions has continued to decline from 2018 to 2023 (the most recent year of climate data for all the countries covered, with

the exception of the United States, which is updated until 2022[65]). Based on 2023 emissions, the production-based WACI including the effects of LULUCF activities was lower by 12% on average compared with the metric excluding these effects. This indicates that direct human-induced LULUCF activities in the United States, Japan and China had a net carbon-absorbing effect on a portfolio aggregate basis. Consumption-based sovereign emissions hovered around 18 tonnes of carbon dioxide equivalent (tCO2e) per capita between 2020 and 2023.[66]

Chart 19

Developments in the production and consumption WACIs for sovereign bond holdings in the ECB's foreign reserves



Sources: Institutional Shareholder Services, World Bank, Bloomberg, United Nations Framework Convention on Climate Change and ECB calculations.
Notes: A weighted average carbon intensity (WACI) is provided for both production emissions (those produced domestically within a country's physical borders) and consumption emissions (those related to domestic consumption). Production and consumption emissions are based on data provided by Institutional Shareholder Services. Production emissions are reported excluding and including the effects of land use, land-use change and forestry (LULUCF). The WACIs are denominated in tonnes of carbon dioxide equivalent (tCO_2e) per EUR millions GDP (production emissions) and tCO_2e per capita (consumption emissions). The metrics are calculated using bonds' nominal values. The underlying holdings refer to year-end values.

Chart 20 shows an increase in sovereign carbon production emissions in 2023 (up 35%), which reflects the growth in the size of the ECB's portfolio (an increase of 39%, or €10 billion, in the nominal amount of sovereign bonds).[67] The level of consumption emissions exceeds that of production emissions by 8% excluding LULUCF and by 23% including LULUCF, reflecting the fact that the three countries represented in the ECB's foreign reserves are net carbon importers.

65 For 2023, the sovereign holdings in the United States are reported with 2022 United Nations Framework Convention on Climate Change (UNFCCC) data given that the Eurosystem data provider has not yet updated this country's climate data for 2023.

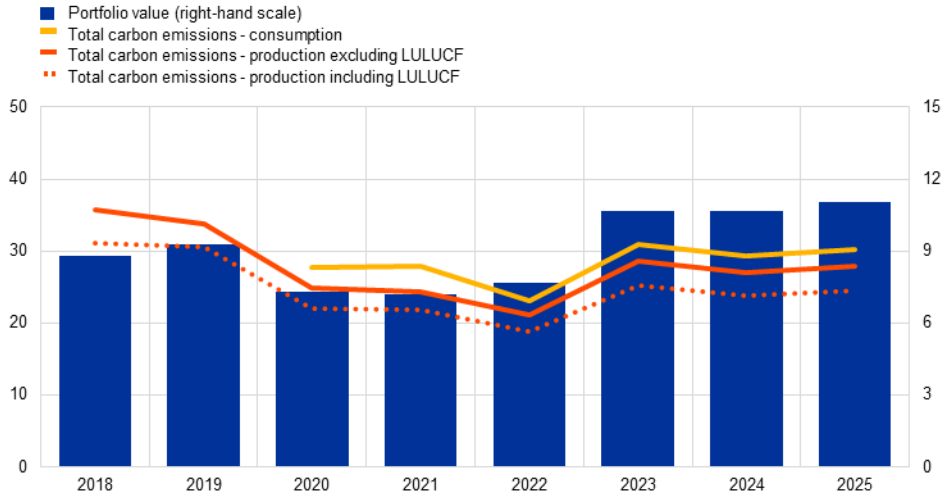
66 Institutional Shareholder Services implemented a methodological upgrade for reference years 2021 onwards by expanding the scope of gases taken into account for estimating GHG emissions. A stable consumption metric may hide a relative improvement in a country's climate performance.

67 Material for the metrics is the decision by the United States to withdraw from the UNFCCC Agreement with effect from 2027 (See the UN Secretary-General's communication). This decision has been front-run by the absence of participation in the 2025 UNFCCC campaign for collecting 2023 country emissions. As a result, the latest US emissions data date back 2022.

Chart 20

Developments in total carbon emissions and portfolio value for sovereign bond holdings in the ECB's foreign reserves

(left-hand scale: tCO_2e millions; right-hand scale: EUR billions nominal value)

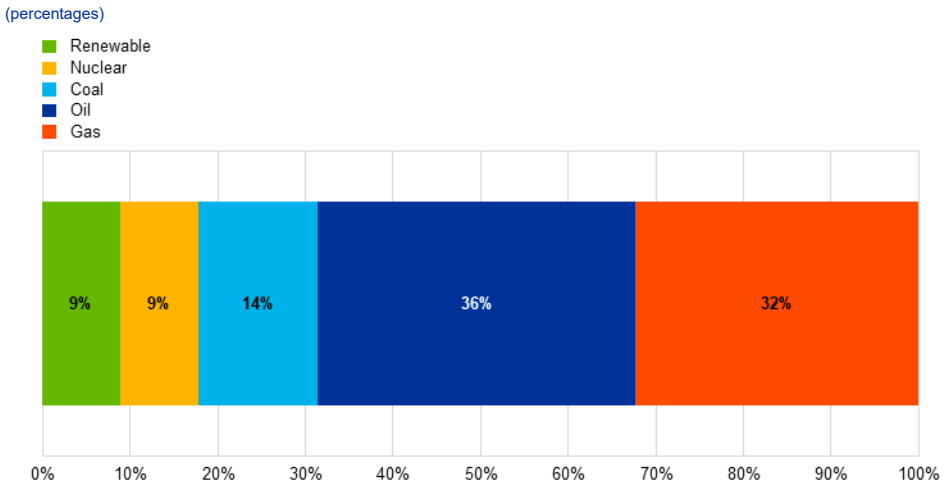


Sources: Institutional Shareholder Services, World Bank, Bloomberg, United Nations Framework Convention on Climate Change and ECB calculations.
Notes: Consumption emissions are those related to domestic consumption. Production emissions (those produced domestically within a country's physical borders) are based on data provided by Institutional Shareholder Services. Production emissions are reported excluding and including the effects of land use, land-use change and forestry (LULUCF). The metrics are calculated using bonds' nominal values. The underlying holdings refer to year-end values.

Monitoring countries' energy mix can provide insights into the progress made with their low-carbon energy transition. Chart 21 shows the weighted average energy supply mix of the sovereign bond issuers in the ECB's foreign reserves in 2025. Like last year, renewable energy and low-carbon nuclear energy together account for less than one-fifth of total energy supply, while fossil fuels (including coal, oil and gas) account for over 80% of the total energy supply.

Chart 21

Total energy supply mix of sovereign bond issuers in the ECB's foreign reserves in 2025



Sources: Institutional Shareholder Services and ECB calculations.
Notes: The chart shows the weighted average total energy supply mix of the sovereign bond issuers in the ECB's foreign reserves. Weighting is conducted using bonds' nominal values. Total energy supply represents the quantity of all energy necessary to satisfy inland consumption. It is defined as production plus imports minus exports minus international marine bunkers minus international aviation bunkers plus/minus stock changes.

5.2.2 Supranational and agency bond metrics

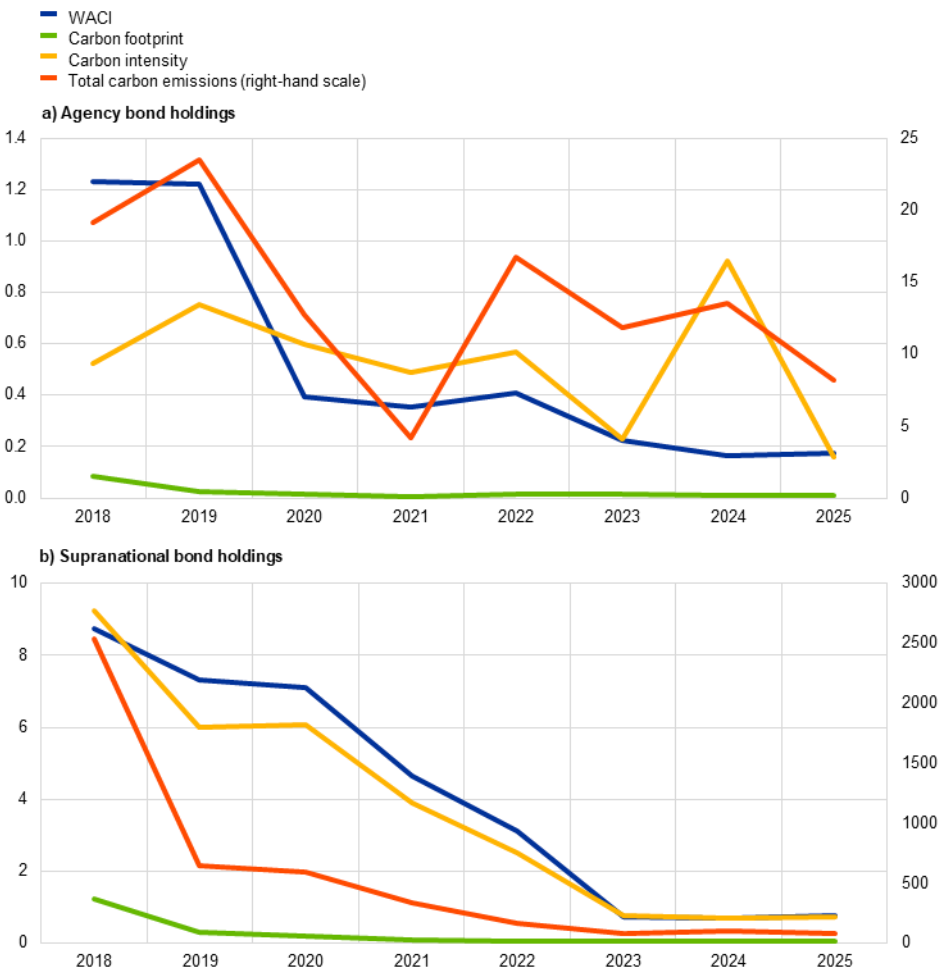
Emissions associated with supranational and agency bond holdings account for only a minor part of the ECB's foreign reserves. The availability of climate data for supranational and agency issuers fluctuates over time and complicates interpretation of the metrics over time. For supranational entities, 2024 coverage is higher than the previous two years, but lower than in 2021.

Panel a) of Chart 22 shows a declining trend in the scope 1 and 2 carbon footprint and WACI metrics for agency bond holdings. Total scope 1 and 2 carbon emissions have been volatile since 2022. This is due to the shifts in portfolio holdings and changes in the data coverage of financial metrics for a single issuer, as well as an increase in reported emissions for another. Panel b) shows a declining trend in all four key metrics for supranational bond holdings over the reporting period, partly owing to a slight reduction in the allocation to those bonds. Scope 3 carbon emissions stood at 374 million tCO2e in 2025 and accounted for the vast majority of the reported emissions for those bonds (more than 99.5%). This reflects the nature of the businesses pursued by the issuers, which are often financing institutions with large associated scope 3 emissions from financed projects.

Chart 22

Developments in key scope 1 and 2 metrics for supranational and agency bond holdings in the ECB's foreign reserves

(left-hand scale: tCO_2e/EUR millions; right-hand scale: tCO_2e)



Sources: Institutional Shareholder Services, World Bank, Bloomberg and ECB calculations.
Notes: Panels a) and b) show the historical values of the key metrics for the agency and supranational bond holdings in the ECB's foreign reserves, based on issuers' scope 1 and 2 emissions. The metrics are calculated using bonds' nominal values. Emissions normalisation in the scope 1 and 2 weighted average carbon intensity (WACI) and carbon intensity metrics is based on revenue in EUR millions, while emissions normalisation in the carbon footprint metric is based on the investment amount in EUR millions. The underlying holdings refer to year-end values.

The ECB's foreign reserves are also invested in green, social and sustainability bonds issued by agencies and supranational institutions, with the proceeds providing funding for low-carbon transition projects and for social projects. In 2025, sustainability bonds aligned with the relevant ICMA principles and guidelines. They represented 33% of the aggregate nominal holdings of supranational and agency bonds, while green and social bonds accounted for only very small shares.

5.2.3 Targets

The ECB does not define emissions reduction targets for its foreign reserves. Sovereign bond holdings from Japan and China are expected to decarbonise in line

with national governments delivering on their commitments under the Paris Agreement. On 27 February 2026, the United States formally communicated that it would leave the United Nations Framework Convention on Climate Change (UNFCCC) in February 2027.[68] This followed its announcement on 20 January 2025 that it was withdrawing from the Paris Agreement and would not be implementing its nationally determined contribution. Supranational and agency bond holdings will mirror the emissions reduction paths of their respective issuers.

[68] See the UN Secretary-General's communication.

Annexes

Annex 1

Eurosystem common disclosure principles for the “Metrics and targets” category

Element	Details
Weighted average carbon intensity (WACI)	$= \sum_{i=1}^{n} \left(\frac{\text{current value of investment}_i}{\text{current portfolio value}} \right) \text{x} \left(\frac{\text{issuer's carbon emissions}_i}{\text{issuer's revenue, PPP adj. GDP or population,}_i} \right)$
Total carbon emissions	$= \sum_{i=1}^{n} \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP adj. GDP}_i} \text{x issuer's carbon emissions}_i \right)$
Carbon footprint	$= \frac{\sum_{i=1}^{n} \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP adj. GDP}_i} \right) \text{x issuer's carbon emissions}_i}{\text{current portfolio value}}$
Green bond share	Share of fixed-income portfolios, based on the ICMA's Green Bond Principles.
Aggregate share of sustainability, sustainability-linked and social bonds	Share of fixed-income portfolios based on the ICMA's Sustainability Bond Guidelines, Sustainability-linked Bond Principles and Social Bond Principles.
Portfolio size	Expressed in EUR billions.
Asset classes	All asset classes of the portfolio, with metrics to be shown per asset class.
Data availability	Indicated in brackets as a percentage for each metric and asset class.
Emissions scope	Scope 1 and 2 emissions metrics, together with scope 3 (reported separately) subject to possible exemptions for some asset classes (covered bonds, supranational bonds and agencies).
Scope 3 emissions metrics' specifications	Most recent data on all non-sovereign asset classes included, starting with the 2026 report. Additionally, the historical record in the charts and text of the main report are limited to trends since 2023.
Data sources	Such as the names of the (climate) data providers.
Target	All Eurosystem members strive to ensure that the non-monetary policy portfolios under their management are on a path that supports the goals of the Paris Agreement and the EU's climate neutrality objectives as set out in the European Climate Law. Concretely, this consists in setting at least one broadly defined long-term target covering all non-monetary policy portfolios investments under the management control of the respective central bank, which is aligned with the goals of the Paris Agreement and the EU's climate neutrality objectives. Targets can be set at the portfolio level, the central bank level, or a combination of both. Targets should ideally be quantitative, and long-term targets should ideally be enriched by interim targets.

Notes: The formulae of the Task Force on Climate-related Financial Disclosures are provided here. For the Eurosystem disclosure framework, they have been adjusted, where necessary, to reflect the latest guidance from the Partnership for Carbon Accounting Financials and to cover additional asset classes.

In addition to the elements of the Eurosystem common disclosure principles, the ECB publishes the metrics for carbon intensity and for corporate exposure to nature-related priority sectors, which are defined as follows:

Carbon intensity

$$= \frac{\sum_{i=1}^{n} \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP adj. GDP}_i} \right) \text{x issuer's carbon emissions}_i}{\sum_{i=1}^{n} \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP adj. GDP}_i} \text{x} \frac{\text{issuer's revenue, PPP adj. GDP}}{\text{or population}}_i \right)}$$

Corporate exposure to nature-related priority sectors

$$= \frac{\sum_{i=1}^{n} \text{current value of investment}_i \text{ x issuer's sector TNFD priority}_i}{\text{current portfolio value}}$$

where issuer's sector Taskforce on Nature-related Financial Disclosures (TNFD) priority$_i$ equals 1 if the sector is listed in the TNFD priority sectors, and 0 if it is not listed.

Inflation-adjusted metrics

The inflation adjusted sovereign production emissions metrics are calculated as follows:

$$WACI \begin{pmatrix} or\ carbon\ footprint \\ or\ carbon\ intensity \end{pmatrix} = \sum_{i=1}^{n} \left(\frac{\text{current value of investment}_i}{\text{current portfolio value}} \right) \text{x} \left(\frac{\text{issuer's carbon emissions}_i}{\text{PPP adj. real GDP}_i} \right)$$

$$TCE = \sum_{i=1}^{n} \left(\frac{\text{current value of investment}_i}{\text{PPP adj. real GDP}_i} \text{x issuer's carbon emissions}_i \right)$$

The inflation adjusted WACI for corporate holdings is calculated as follows:

$$WACI_t = \sum_{i=1}^{n} \left(\frac{\text{current value of investment}_i}{\text{current portfolio value}} \right) \text{x} \left(\frac{\text{issuer's carbon emissions}_i}{issuer's\ revenue_{i,t} * \frac{Ref\ index_{2021}}{Ref\ index_t}} \right)$$

Annex 2

Carbon emissions allocation methods, normalisation factors and attribution factors

Allocation

Issuer type	Factor	Remarks	Unit
Corporate, supranational and agency	Scopes 1, 2 and 3 emissions	Scope 1 comprises direct carbon emissions that occur from sources that are controlled or owned by an organisation (e.g. emissions associated with fuel combustion in boilers, furnaces, vehicles). Scope 2 comprises indirect carbon emissions associated with the purchase of electricity, steam, heat, or cooling. Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. Scope 2 emissions do not differentiate between market-based and location-based emissions, and the data providers used for the report prioritise market-based emissions when both are available.	tCO_2e
Sovereign	Production emissions	Emissions produced domestically within a country's physical borders, including domestic consumption and exports. This definition follows the territorial emissions approach adopted by the United Nations Framework Convention on Climate Change for annual national inventories. Production emissions are reported excluding and including the effects of land use, land-use change and forestry (LULUCF).	tCO_2e
	Consumption emissions	Emissions related to domestic demand, accounting for trade effects. This metric provides a broader view of a sovereign's emissions and tackles the issue of carbon leakage that arises owing to production shifts from countries where goods are later consumed.	tCO_2e

Normalisation

Issuer type	Factor	Remarks	Unit
Corporate, supranational and agency	Revenue	The total amount of income generated by the sale of goods and services related to the primary operations of the business. Commercial revenue may also be referred to as sales or as turnover.	EUR millions
Sovereign	Production: PPP-adjusted GDP	GDP is the sum of gross value added by all resident producers plus any product taxes and minus any subsidies not included in the value of the products. The purchasing power parity (PPP) conversion factor is a spatial price deflator and currency converter that eliminates effects of differences in countries' price levels.	EUR millions
	Consumption: Population	Total population of a country.	People

Attribution

Asset class	Factor	Remarks	Unit
Sovereign bonds	PPP-adjusted GDP	See the description of the "PPP-adjusted GDP" factor under "Normalisation".	EUR
Supranational and agency bonds **Corporate bonds** **Covered bonds**	EVIC	The sum of the market capitalisation of ordinary shares at fiscal year-end, the market capitalisation of preferred shares at fiscal year-end, and the book values of total debt and minorities' interests.	EUR

Fluctuation adjustments

Asset class	Factor	Remarks	Unit
Sovereign bonds	Production: PPP-adj. real GDP	GDP is the sum of gross value added by all resident producers plus any product taxes and minus any subsidies not included in the value of the products. The purchasing power parity (PPP) conversion factor is a spatial price deflator and currency converter that eliminates the effects of differences in countries' price levels. PPP-adj. real GDP is expressed in constant prices, meaning that the series has been adjusted to account for price changes over time. The reference year for this adjustment is 2021.	EUR million
Corporate	Revenue adjustment factor	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.	Units

Annex 3

Climate-related metrics of the Eurosystem's APP and PEPP portfolios – consolidated scopes 1 and 2

Portfolio value (EUR billion nominal value)

APP and PEPP	Sovereign issuers			Other issuers				
	Sovereign and sub-sovereign bonds							
	Production							
	excl. LULUCF	incl. LULUCF	Consumption	Total	Agency bonds	Supranational bonds	Covered bonds	Corporate bonds
2025		2,646.4		918.0	239.5	175.1	215.4	287.9
2024		3,006.6		1,068.6	274.7	203.9	258.6	331.4
2023		3,259.8		1,187.1	298.1	231.2	290.8	367.0
2022		3,386.3		1,242.9	298.0	254.0	305.6	385.2
2021		3,189.4		1,160.9	262.1	254.0	299.3	345.5
2020		2,355.4		1,018.3	201.0	244.8	285.1	287.5
2019		1,586.9		782.3	148.1	195.7	258.3	180.3
2018		1,583.9		763.8	140.7	193.8	256.1	173.1

WACI (tCO2e per EUR million PPP-adj. GDP, or per capita, or per EUR million revenue)

2025	112	107	8.4	55	5.5	0.0	1.3	161
	100%	100%	100%	93%	89%	100%	87%	98%
2024	112	107	8.4	54	4.9	0.0	1.3	161
	100%	100%	100%	93%	89%	100%	87%	98%
2023	118	113	8.5	53	2.3	0.1	0.9	167
	100%	100%	100%	95%	92%	100%	93%	96%
2022	129	123	9.1	58	3.8	0.2	1.4	184
	100%	100%	100%	96%	96%	100%	94%	96%
2021	165	157	9.4	89	6.6	0.2	2.0	266
	100%	100%	100%	88%	98%	62%	92%	96%
2020	164	154	8.5	97	5.8	0.2	2.6	289
	100%	100%	100%	82%	83%	61%	86%	96%
2019	171	162		87	5.5	0.5	3.6	316
	100%	100%		79%	90%	43%	91%	92%
2018	202	191		105	3.9	0.3	3.7	372
	100%	100%		75%	80%	42%	87%	91%

Total carbon emissions (in tCO2e)

2025	296,344,602	283,773,577	370,000,916	26,565,631	92,542	198	58,191	26,414,700
	100%	100%	100%	92%	87%	100%	85%	98%
2024	336,350,856	322,077,007	420,430,630	31,219,060	97,108	228	70,981	31,050,743
	100%	100%	100%	93%	88%	100%	85%	98%
2023	384,992,319	368,621,450	481,223,640	40,911,825	215,991	1,548	55,578	40,638,708
	100%	100%	100%	94%	91%	100%	90%	96%
2022	435,225,409	415,888,142	535,683,621	56,391,041	301,439	826	67,344	56,021,433
	100%	100%	100%	94%	94%	100%	89%	96%
2021	524,975,843	499,298,722	642,667,980	55,585,135	296,964	888	83,946	55,203,337
	100%	100%	100%	85%	89%	62%	88%	95%
2020	385,707,626	362,793,333	451,990,779	47,583,955	166,559	845	100,945	47,315,607
	100%	100%	100%	77%	79%	46%	83%	96%
2019	271,742,701	257,189,543		32,434,532	170,901	1,630	125,825	32,136,176
	100%	100%		76%	84%	43%	87%	92%
2018	319,185,784	302,998,259		38,256,411	20,010	909	155,334	38,080,158
	100%	100%		75%	79%	42%	87%	91%

Carbon footprint (tCO2e per EUR million invested)

2025	112	107	140	31	0.4	0.0	0.3	94
	100%	100%	100%	92%	87%	100%	85%	98%
2024	112	107	140	32	0.4	0.0	0.3	96
	100%	100%	100%	93%	88%	100%	85%	98%
2023	118	113	148	37	0.8	0.0	0.2	116
	100%	100%	100%	94%	91%	100%	90%	96%
2022	129	123	158	48	1.1	0.0	0.2	152
	100%	100%	100%	94%	94%	100%	89%	96%
2021	165	157	201	56	1.3	0.0	0.3	168
	100%	100%	100%	85%	89%	62%	88%	95%
2020	164	154	192	61	1.0	0.0	0.4	172
	100%	100%	100%	77%	79%	46%	83%	96%
2019	171	162		54	1.4	0.0	0.6	195
	100%	100%		76%	84%	43%	87%	92%
2018	202	191		67	0.2	0.0	0.7	241
	100%	100%		75%	79%	42%	87%	91%

Carbon Intensity (tCO2e per EUR million PPP-adj. GDP, or per capita, or per EUR million revenue)

2025	112	107	8	111	7	0.0	1.4	149
	100%	100%	100%	92%	87%	100%	85%	98%
2024	112	107	8	112	6	0.0	1.4	151
	100%	100%	100%	93%	88%	100%	85%	98%
2023	118	113	8	126	11	0.1	0.9	175
	100%	100%	100%	94%	91%	100%	90%	96%
2022	129	123	9	160	12	0.1	1.5	204
	100%	100%	100%	94%	94%	100%	89%	96%
2021	165	157	9	222	24	0.1	1.9	295
	100%	100%	100%	85%	89%	62%	88%	95%
2020	164	154	8.2	234	31	0.2	2.5	311
	100%	100%	100%	77%	79%	46%	83%	96%
2019	171	162		218	20	0.4	3.2	332
	100%	100%		76%	84%	43%	87%	92%
2018	202	191		255	4.1	0.2	4.0	372
	100%	100%		75%	79%	42%	87%	91%

Sources: Institutional Shareholder Services, World Bank, Bloomberg, United Nations Framework Convention on Climate Change and ECB calculations.
Notes: Percentages below each metric indicate data availability, calculated as the percentage of holdings for which all required data (i.e. emissions data and financial data) are available. One supranational issuer has been excluded from the calculation of metrics in 2021 owing to a data error. Scope 2 emissions do not differentiate between market-based and location-based emissions, and the data providers used for the report prioritise market-based emissions when both are available. Sovereign consumption emissions metrics have been recomputed for 2020 until 2025 in this report using data from Institutional Shareholder Services, whereas there are no available metrics for the years 2018 and 2019.

Annex 4

Climate-related metrics of the Eurosystem's APP and PEPP portfolios – scope 3

WACI (scope 3 in tCO2e per EUR million revenue)

	Total	Agency bonds	Supranational bonds	Covered bonds	Corporate bonds
2025	2,052	3,750	843	2,567	1,179
	93%	89%	100%	87%	98%
2024	2,090	3,880	835	2,565	1,194
	93%	89%	100%	87%	98%
2023	1,263	1,173	862	1,780	1,201
	95%	92%	100%	93%	97%
2022	1,192	1,216	888	1,587	1,077
	97%	96%	100%	94%	97%
2021	790	330	325	797	1,344
	89%	98%	62%	92%	99%
2020	734	351	344	454	1,414
	83%	83%	61%	86%	98%

Total carbon emissions (scope 3 in tCO2e)

2025	386,006,011	39,900,593	7,659,778	105,082,612	233,363,027
	92%	87%	100%	85%	98%
2024	457,334,613	47,399,628	8,801,502	128,453,149	272,680,334
	93%	88%	100%	85%	98%
2023	436,291,283	17,894,058	11,754,909	107,381,871	299,260,445
	94%	91%	100%	90%	96%
2022	424,710,140	13,006,238	7,056,772	68,673,302	335,973,828
	94%	94%	100%	89%	96%
2021	333,155,861	4,190,967	1,967,203	32,768,967	294,228,723
	85%	89%	62%	88%	95%
2020	287,534,117	1,816,219	1,668,724	13,970,791	270,078,383
	77%	79%	46%	83%	96%

Carbon intensity (scope 3 in tCO2e per EUR million revenue)

2025	1,619	2,856	1,317	2,551	1,315
	92%	87%	100%	85%	98%
2024	1,639	2,997	1,315	2,549	1,323
	93%	88%	100%	85%	98%
2023	1,348	922	917	1,794	1,292
	94%	91%	100%	90%	96%
2022	1,205	527	1,013	1,479	1,225
	94%	94%	100%	89%	96%
2021	1,332	335	331	734	1,573
	85%	89%	62%	88%	95%
2020	1,416	336	355	344	1,774
	77%	79%	46%	83%	96%

Carbon footprint (scope 3 in tCO2e per EUR million invested)

2025	455	191	44	576	830
	92%	87%	100%	85%	98%
2024	462	196	43	582	844
	93%	88%	100%	85%	98%
2023	391	66	51	409	853
	94%	91%	100%	90%	96%
2022	362	46	28	254	912
	94%	94%	100%	89%	96%
2021	338	18	13	124	894
	85%	89%	62%	88%	95%
2020	367	11	15	59	980
	77%	79%	46%	83%	96%

Sources: Institutional Shareholder Services and ECB calculations.
Notes: Percentages below each metric indicate data availability, calculated as the percentage of holdings for which all required data (i.e. emissions data and financial data) are available. The time series does not start until 2020 (while reporting on scope 1 and 2-based metrics starts in 2018) owing to a significant methodological change, which prevents pre-2020 metrics from being compared with those after 2020. One supranational issuer has been excluded from the calculation of metrics in 2021 owing to a data error.
Disclaimer: Scope 3 emissions are reported on a best-effort basis to aid transparency. Scope 3 emissions data remain subject to considerable quality issues which limit the reliability of the metrics. Substantial revisions to the disclosures are therefore possible in the future.

Annex 5

Climate-related metrics of the ECB's foreign reserves portfolios – scopes 1 and 2

Portfolio value (EUR billion nominal value)

FX Reserves	Sovereign issuers			Other issuers		
	Sovereign and sub-sovereign bonds					
	Production		Consumption	Total	Agency bonds	Supranational bonds
	excl. LULUCF	incl. LULUCF				
2025	36.8			3.2	0.8	2.4
2024	35.4			4.3	1.4	2.9
2023	36.6			3.3	0.9	2.4
2022	25.6			4.7	1.3	3.4
2021	24.0			4.7	1.2	3.5
2020	24.3			4.4	1.0	3.4
2019	30.9			3.9	1.3	2.5
2018	29.3			3.7	1.2	2.5

WACI (tCO2e per EUR million PPP-adj. GDP, or per capita, or per EUR million revenue)

2025	227	201	18	0.6	0.17	0.77
	100%	100%	100%	76%	85%	73%
2024	229	201	18	0.5	0.16	0.69
	100%	100%	100%	79%	88%	74%
2023	241	212	19	0.6	0.2	0.8
	100%	100%	100%	68%	92%	59%
2022	248	220	18	2.1	0.4	3.1
	100%	100%	100%	72%	92%	65%
2021	305	274	19	3.5	0.4	4.6
	100%	100%	100%	87%	89%	86%
2020	307	273	18	5.7	0.4	7.1
	100%	100%	100%	95%	88%	97%
2019	328	296		5.5	1.2	7.3
	100%	100%		79%	68%	84%
2018	365	323		8.0	1.2	8.7
	100%	98%		61%	18%	82%

Total carbon emissions (in tCO2e)

2025	8,374,325	7,386,898	9,082,833	93	8.2	85.2
	100%	100%	100%	76%	85%	73%
2024	8,123,575	7,142,293	8,794,027	114	13.5	100.4
	100%	100%	100%	79%	88%	74%
2023	8,602,933	7,548,194	9,296,976	98	12	86
	100%	100%	100%	68%	92%	59%
2022	6,359,466	5,631,916	6,922,255	182	17	165
	100%	100%	100%	72%	92%	65%
2021	7,309,668	6,566,327	8,356,131	340	4	336
	100%	100%	100%	82%	72%	86%
2020	7,443,158	6,621,136	8,343,019	606	13	593
	100%	100%	100%	80%	80%	80%
2019	10,126,285	9,152,224		667	24	644
	100%	100%		79%	68%	84%
2018	10,722,559	9,325,777		2,556	19	2,537
	100%	98%		61%	18%	82%

Carbon footprint (tCO2e per EUR million invested)

2025	227	201	247	0.0	0.0	0.0
	100%	100%	100%	76%	85%	73%
2024	229	201	248	0.0	0.0	0.0
	100%	100%	100%	79%	88%	74%
2023	241	212	261	0.0	0.0	0.1
	100%	100%	100%	68%	92%	59%
2022	248	220	270	0.1	0.0	0.1
	100%	100%	100%	72%	92%	65%
2021	305	274	349	0.1	0.0	0.1
	100%	100%	100%	82%	72%	86%
2020	307	273	344	0.2	0.0	0.2
	100%	100%	100%	80%	80%	80%
2019	328	296		0.2	0.0	0.3
	100%	100%		79%	68%	84%
2018	365	323		1.136	0.1	1.3
	100%	98%		61%	18%	82%

Carbon Intensity (tCO2e per EUR million PPP-adj. GDP, or per capita, or per EUR million revenue)

2025	227	201	17	0.6	0.2	0.8
	100%	100%	100%	76%	85%	73%
2024	229	201	17	0.5	0.2	0.7
	100%	100%	100%	79%	88%	74%
2023	241	212	18	0.6	0.3	0.8
	100%	100%	100%	68%	92%	59%
2022	248	220	17	1.9	0.6	2.5
	100%	100%	100%	72%	92%	65%
2021	305	274	18	3.6	0.5	3.9
	100%	100%	100%	82%	72%	86%
2020	307	273	17	5.1	0.6	6.1
	100%	100%	100%	80%	80%	80%
2019	328	296		4.8	0.8	6.0
	100%	100%		79%	68%	84%
2018	365	318		8.2	0.5	9.3
	100%	98%		61%	18%	82%

Sources: Institutional Shareholder Services, World Bank, Bloomberg, United Nations Framework Convention on Climate Change and ECB calculations.
Note: Percentages below each metric indicate data availability, calculated as the percentage of holdings for which all required data (i.e. emissions data and financial data) are available. Sovereign consumption emissions metrics have been recomputed for 2020 until 2025 in this report using data from Institutional Shareholder Services, whereas there are no available metrics for the years 2018 and 2019.

Annex 6

Climate-related metrics of the ECB's foreign reserves portfolios – scope 3

WACI (scope 3 in tCO2e per EUR million revenue)

	Total	Agency bonds	Supranational bonds
2025	2,136	3,895	1,424
	76%	85%	73%
2024	2,417	4,127	1,421
	79%	88%	74%
2023	1,753	2,370	1,383
	68%	92%	59%
2022	1,333	1,178	1,421
	72%	92%	65%
2021	324	329	323
	87%	89%	86%
2020	349	341	352
	95%	88%	97%

Total carbon emissions (Scope 3 in tCO2e)

2025	374,358	216,400	157,959
	76%	85%	73%
2024	603,871	399,685	204,186
	79%	88%	74%
2023	283,625	138,129	145,496
	68%	92%	59%
2022	101,028	23,929	77,099
	72%	92%	65%
2021	29,822	2,873	26,949
	82%	72%	86%
2020	38,737	6,199	32,539
	80%	80%	80%

Carbon intensity (scope 3 tCO2e per EUR million revenue)

2025	2,283	4,271	1,394
	76%	85%	73%
2024	2,579	4,543	1,397
	79%	88%	74%
2023	1,834	3,064	1,328
	68%	92%	59%
2022	1,060	814	1,171
	72%	92%	65%
2021	315	336	313
	82%	72%	86%
2020	326	292	333
	80%	80%	80%

Carbon footprint (scope 3 tCO2e per EUR million invested)

2025	152	306	90
	76%	85%	73%
2024	180	323	96
	79%	88%	74%
2023	125	162	102
	68%	92%	59%
2022	30	19	35
	72%	92%	65%
2021	7.7	3.3	9.0
	82%	72%	86%
2020	11	7.8	12
	80%	80%	80%

Sources: Institutional Shareholder Services and ECB calculations.
Notes: Percentages below each metric indicate data availability, calculated as the percentage of holdings for which all required data (i.e. emissions data and financial data) are available. The time series does not start until 2020 (while reporting on scope 1 and 2-based metrics starts in 2018). This is due to a significant methodological change, which prevents pre-2020 metrics from being compared with those after 2020.
Disclaimer: Scope 3 emissions are reported on a best-effort basis aid transparency. Scope 3 emissions data remain subject to considerable quality issues which limit the reliability of the metrics. Substantial revisions to the disclosures are therefore possible in the future.

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For specific terminology please refer to the ECB glossary (available in English only).

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