EUROPEAN CENTRAL BANK

EUROSYSTEM

Climate-related financial disclosures of the ECB's non-monetary policy portfolios

June 2025

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Foreword

The devastating effects of climate change are increasingly being felt, with extreme weather events having become more frequent, bringing serious human suffering and rising economic costs. Stress tests have shown that the longer action is delayed – whether on climate change or environmental degradation – the higher these costs will climb. European policymakers have made it clear that, beyond its effect on our planet, moving quickly towards a green economy can give Europe a strategic advantage and strengthen its autonomy and competitiveness. As a European institution, the ECB has a responsibility to raise awareness of the risks related to climate change and environmental degradation, and to contribute to solutions within the limits of its mandate. One important component of this is transparency about our own footprint.

This report provides climate-related insights into the ECB's staff pension fund and own funds portfolios. It illustrates our efforts to reduce carbon emissions, supporting the green transition. The carbon footprint of the corporate investments in our staff pension fund has been reduced by 20% over the past year. This keeps us on track to meet the interim targets we have set ourselves on the path towards the goals of the Paris Agreement and the EU's climate neutrality objectives. In our own funds portfolio, the share of green bonds increased by 8 percentage points during 2024 and now stands at 28%, raising our funding for the green transition to over €6.4 billion. We aim to increase this share to 32% by the end of 2025. Since most of this portfolio is invested in sovereign bonds, the reduction of its emissions relies largely on governments delivering on their decarbonisation plans. In 2024, however, we took an important step by starting to invest a small share of the portfolio in equity exchange-traded funds that track Paris-aligned benchmarks, opening up new ways to reduce our financed emissions through our own investment decisions in the future.

For the first time, this year's disclosures also include information about the ECB's exposure to risks from nature loss and degradation. The results show that the share of investments exposed to sectors with material nature-related risks or impacts varies across the asset classes in which we invest, ranging from 0% in our covered bond investments to 40% in equity exchange-traded funds. We will continue our work to better understand nature-related risks as well as their impacts and financial consequences for our balance sheet. A new indicator on social, sustainability and sustainability-linked bonds in this year's report has also enhanced the transparency of our investments, expanding the overview to include wider sustainability aspects beyond green bonds.

Despite the progress we have made, challenges remain. In particular, inconsistent data on scope 3 emissions are continuing to make it difficult to compare performance across issuers or to track changes over time. This is why we report scope 3 emissions but do not yet include them in our analysis of trends. Data coverage is also lacking for certain asset classes, such as covered bonds, underlining the need for clearer and more harmonised reporting standards to better manage risks and to

provide reliable information on investment opportunities. Looking ahead, the quality of climate disclosures and risk management will depend heavily on the roll-out of sufficient, consistent and comparable information – something which the EU's Corporate Sustainability Reporting Directive could deliver. As the European sustainability reporting framework evolves, it is important to preserve data that are essential for proper risk management, while strengthening efforts to reduce complexity and cut unnecessary red tape.

We remain committed both to improving the scope and quality of our disclosures and to staying transparent and accountable.

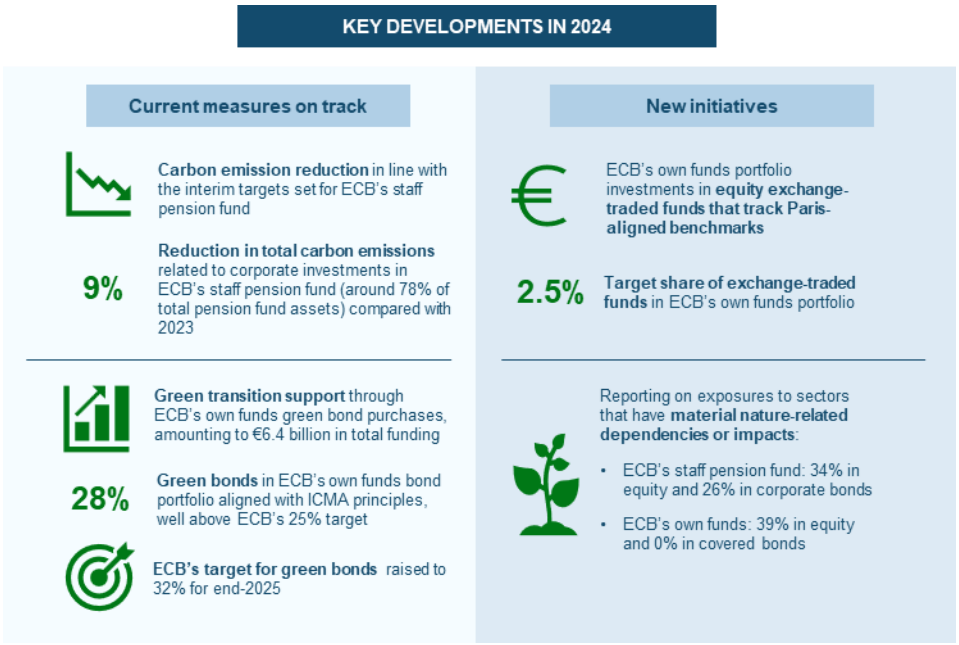
Frankfurt am Main, June 2025
Isabel Schnabel
Executive Board Member, European Central Bank

1 Introduction

This report discloses climate-related information about the ECB's euro-denominated non-monetary policy portfolios. The report includes investments into the ECB's staff pension fund and its own funds portfolio.

The ECB's efforts to reduce carbon emissions in line with the interim targets set for its staff pension fund and to support the green transition through its own fund portfolios' green bond purchases are on track (Figure 1). The corporate bond and equity investments in the ECB's staff pension fund track EU benchmarks that are aligned with the Paris Agreement. The share of green bonds in its own funds portfolio increased to 28% in 2024, from 20% in 2023, which means that the portfolio now provides around €6.4 billion in funding for the low-carbon transition. Over 90% of this funding is allocated to issuers based in the European Union. In 2024 the ECB started investing a part of its own funds in equity exchange-traded funds (ETFs) that track Paris-aligned benchmarks, thereby lending further support to decarbonising this portfolio in the future.

Figure 1
Key developments in the ECB's climate-related financial disclosures



Source: ECB.
Note: The International Capital Market Association (ICMA) is the secretariat for the Green Bond Principles, the Social Bond Principles, the Sustainability Bond Guidelines and the Sustainability-Linked Bond Principles, referred to in this report as the "ICMA principles".

These climate-related financial disclosures follow the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures and

its supplementary guidance for asset owners.[1] Financial disclosures under the "Metrics and targets" category shown in Section 5 adhere to the updated common disclosure principles developed by the Eurosystem, which in addition consider the recommendations of the Partnership for Carbon Accounting Financials and those of the Network of central banks and supervisors for Greening the Financial System (NGFS).[2]

The ECB continues to refine its climate-related financial disclosures, reflecting improvements in climate-related data availability and quality, in financial disclosure methodologies and practices, and available expertise in handling risks related to climate change, nature degradation and wider sustainability issues. This report is the first to provide information on the ECB's exposure to sectors considered to have material nature-related dependencies or impacts. This is a core financial disclosure metric recommended for financial institutions and asset owners by the Taskforce on Nature-related Financial Disclosures (TNFD). Furthermore, a new indicator of aggregate holdings of social, sustainability and sustainability-linked bonds increases available information on the wider sustainability issues of the ECB's investments in line with the relevant but voluntary principles developed by the International Capital Market Association (ICMA).

The ECB closely monitors developments regarding the EU's Corporate Sustainability Reporting Directive. While the ECB does not fall within the scope of mandatory reporting under this Directive, it does consider it to be highly relevant, because it is a natural reference point for sustainability reporting within the EU.

The report is structured as follows. Section 2 summarises the organisational set-up and decision-making responsibilities underlying the ECB's staff pension fund and its own funds portfolio. Section 3 describes how the ECB integrates sustainability considerations within both portfolios. Section 4 explains how the ECB considers climate risks when managing portfolio risks. Section 5 presents the relevant quantitative and qualitative metrics and targets.

1 The Task Force on Climate-related Financial Disclosures was disbanded at the end of 2023 and since 2024, its recommendations are incorporated into the standards of the International Sustainability Standards Board, an independent standard-setting body within the International Financial Reporting Standards Foundation.

2 See, "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures", Task Force on Climate-related Financial Disclosures, October 2021; "Eurosystem agrees on common stance for climate change-related sustainable investments in non-monetary policy portfolios", *press release*, ECB, 4 February 2021; and "Guide on climate-related disclosure for central banks", NGFS, December 2021.

2 Governance

The ECB and each of the national central banks of the Eurosystem manage their non-monetary policy portfolio investments under their own responsibility. Their investment activities therefore generally do not fall within the scope of monetary policy mandates. Different to the portfolios held for monetary policy operations, the ECB disposes of a wider range of options to steer its non-monetary policy portfolio investments in a sustainability-conscious manner, at the same time as achieving the specific objectives of these types of portfolio. The ECB's approach to its own non-monetary policy portfolios investment policies is guided by the Eurosystem common disclosure principles (Annex 1).

The ECB continues to address climate change-related considerations within its existing governance structures and investment strategies.[3] The Executive Board is supported in its oversight of climate-related risks and opportunities for its own funds portfolio by the ECB's internal Investment Committee, and for its staff pension fund by the Investment Committee in its Pension Fund composition, which includes two staff representatives. The investment decisions for the ECB's pension fund also fall under the scrutiny of the staff-elected ECB Pension Oversight Committee. Investment strategies incorporating climate change-related considerations are implemented by the ECB's portfolio management experts in the Directorate General Market Operations and Directorate Risk Management for its own funds portfolio, and by external investment managers for the ECB's staff pension fund. The Executive Board regularly approves the investment strategies and interim and long-term sustainability targets for each of these portfolios based on the proposals made by the Investment Committee and the Investment Committee in its Pension Fund composition.

Incorporating climate considerations into its non-monetary policy portfolio investment decisions underpins the ECB's overall climate strategy, which is steered by the ECB's climate change centre. The ECB Annual Report provides an overview of its climate strategy and how it is implemented.

It should be noted that the sustainability-related information in this report has not been verified by any external parties.

[3] For a detailed description of the governance structure, see the report entitled "ECB's Climate-related financial disclosures of the ECB's non-monetary portfolios", ECB, March 2023.

3 Strategy

As an institutional asset owner, the ECB assesses sustainability-related risks and opportunities underlying its non-monetary policy portfolio investments. The ECB integrates climate-related risks into its overall risk management process as an amplifying factor for existing risk categories such as credit risk and market risk. To foster knowledge sharing with peers, the ECB actively participates in international discussions on risks relating to climate change and nature degradation under the aegis of the NGFS. Risks and opportunities relating to climate change and nature degradation are also discussed within the Eurosystem.

The ECB's strategy is to align its non-monetary policy portfolios with the EU's long-term decarbonisation objective in support of the Paris Agreement and the European Climate Law. Therefore, the ECB takes various sustainability considerations into account for its staff pension fund and its own funds portfolio investments, subject to both portfolio-specific objectives and constraints. Figure 2 summarises the main features of the climate-related investment strategy for both of these portfolios.

The ECB's sustainability strategy for its staff pension fund continues to be based on four elements:

- Investment managers are required to be signatories to the United Nations' Principles for Responsible Investment and the United Nations' Global Compact.
- Two external investment managers vote and engage in line with their proxy voting and engagement guidelines, which incorporate environmental, social and governance principles. Each investment manager applies its guidelines independently and regularly report to the ECB on the impact of their voting and engagement activities.
- Issuers that violate the United Nations' Global Compact principles or the international treaties and conventions related to controversial weapons are excluded from the investment universe.
- All corporate investments (equity and corporate bonds) track EU Paris-aligned benchmarks, with the aim of gradually decarbonising the underlying portfolios. The ECB strives to steer the decarbonisation process through interim emission reduction targets.

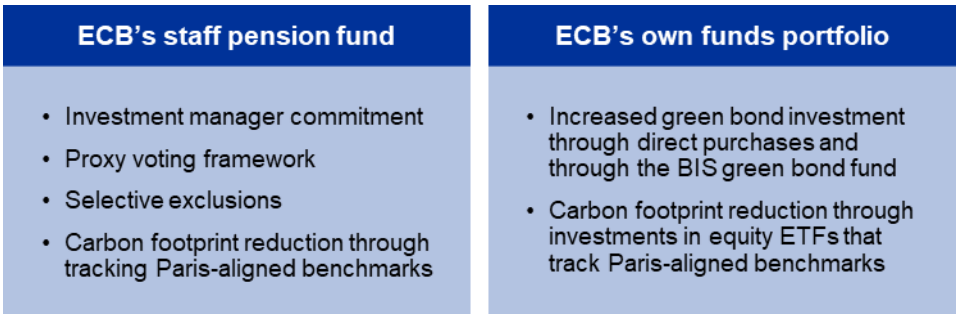
Investments in the ECB's own funds portfolio are subject to an explicit climate objective, which is of equal priority to its financial objectives. As this portfolio predominantly comprises sovereign bonds, the reduction of emissions largely relies on governments to deliver on their decarbonisation plans as signatories to the Paris Agreement and as adopters of the European Climate Law. The ECB's own climate action in terms of this portfolio comprises two elements, as follows.

- By increasing the share of green bonds in this portfolio, the ECB pursues an impact investment strategy that further contributes to the green transition of the real economy.
- In October 2024, the ECB started investing a small share of its own funds in equity ETFs that track Paris-aligned benchmarks. This diversification enhances the return potential of the ECB's own funds portfolio and further aligns its portfolio investments with a decarbonisation trajectory that is consistent with the goals of the Paris Agreement and the European Climate Law.

The Executive Board sets targets for the share of green bond holdings and equity ETFs that track Paris-aligned benchmarks. The green bond holding target is achieved via a combination of direct green bond purchases and additional investments in the externally-managed Bank for International Settlements (BIS) green bond investment fund for central banks.[4]

Figure 2

Climate change strategies for the ECB's staff pension fund and its own funds portfolio



Source: ECB.

Section 5 describes the climate-related metrics used for tracking the progress made in terms of the aforementioned objectives and shows the climate-related targets for the ECB's non-monetary policy portfolios. For corporate investments in the ECB's staff pension fund, these metrics and targets include the interim emission reduction targets and the carbon footprint metric for these investments in line with the specifications of the relevant regulations that apply to the benchmarks set for tracking progress. For its own funds portfolio, the reporting of the share of green bonds tracks the progress made in the ECB's impact investment strategy. The reported asset classes together account for around 94.5% of the total market value of the ECB's staff pension fund and its own funds.[5] Overall, the evolving methodologies and data challenges for some asset classes require careful consideration. The ECB therefore considers it prudent to track progress across several complementary metrics, which are also disclosed in this report.

4 See "ECB to invest in Bank for International Settlements' green bond fund", *press release*, ECB, 25 January 2021.

5 "Other assets", including cash and derivatives, are excluded from climate-related reporting owing to a lack of guidance on their methodological treatment.

4 Risk management

The ECB has adopted the recommendations and terminology proposed by the Task Force on Climate-related Financial Disclosures in identifying, assessing and mitigating climate-related risks. Risk management is a continuous process of (i) risk identification and assessment; (ii) review of the risk strategy and policies; (iii) implementation of risk-mitigating actions; and (iv) risk monitoring and reporting, all of which are supported by effective methodologies, processes and systems.[6] The ECB actively integrates long-term climate-related risks into the processes governing its non-monetary policy portfolio investments and continues to explore methodological enhancements. To support this work, the central banks of the Eurosystem have jointly identified relevant data sources (Section 5).

As a prominent public institution operating at the centre of the European financial system, the ECB recognises the importance of developing a proper understanding of the climate- and nature-related risks underlying its non-monetary policy portfolios. Work to better understand these risks is ongoing, particularly given the complexity of the impact of nature degradation and the limitations concerning existing available data and methodologies.

The ECB's non-monetary policy portfolios are exposed to climate-related risks, which could ultimately lead to adverse outcomes in the event of gradual risk factor changes or a climate shock. A distinction is made between transition risks and physical risks. Transition risks concern the likelihood and impact of the economic consequences of the transition to a carbon-neutral economy. Physical risks, by contrast, concern the likelihood and impact of severe weather events or natural disasters.

The ECB takes a holistic approach when assessing and managing the potential impact on its balance sheet of climate-related risks underlying its non-monetary policy investments. Carbon intensity metrics are used as a proxy for transition risks with a potential negative impact on the balance sheet, as the policies adopted to align with the goals of the Paris Agreement can also affect the financial position and performance of issuers.

Investment limits are monitored within the tolerance levels under the risk management framework for the non-monetary policy portfolios. For the ECB's staff pension fund, it is ensured that the externally-managed investment funds closely follow their Paris-aligned benchmarks. Detected breaches are investigated by the Directorate Risk Management following a standardised procedure, and appropriate resolutions are examined and implemented. The Directorate Risk Management reports monthly to the Investment Committee in its Pension Fund composition on the general performance of the investment funds, and benchmark breaches are explicitly discussed by the committee. Similarly, for the ECB's own funds portfolio, it is

[6] For further details on its financial and non-financial risk management processes, see the ECB Annual Report.

ensured that the thematic investment and diversification objectives are integrated into the ECB's strategic benchmark in accordance with pre-specified risk budgets.

The climate objective for the ECB's own funds portfolio has equal priority to other investment goals for this portfolio. This objective specifies that risks originating from climate change are considered in risk management with the objective of aligning the portfolio with a decarbonisation path that is consistent with the goals of the Paris Agreement and the objectives of the European Climate Law. The diversification of the portfolio into equity ETFs that track Paris-aligned benchmarks, which began in 2024, enhances the return potential of the ECB's own funds and further aligns its investments with the climate objective.

5 Metrics and targets

The ECB's staff pension fund and its own funds portfolio account for around €25 billion in investments held across different asset classes. The key metrics for the ECB's climate-related financial disclosures include the total carbon emissions, the weighted average carbon intensity (WACI), the carbon footprint and the carbon intensity. Annex 1 defines each metric. Annex 2 provides information on the emission allocation methods, the normalisation and the attribution factors that are applied.

The availability and quality of data must be good in order to calculate reliable and relevant climate metrics. Two independent climate data providers, Institutional Shareholder Services and Carbon4 Finance, supply the ECB with climate data. The ECB promotes transparent disclosures aimed at providing the most relevant and accurate information available. Therefore, the Eurosystem regularly discusses improvements in data availability and quality with policymakers and its climate data providers. Where relevant, data availability has been indicated as a percentage for each metric and asset class.

The asset classes covered in this section include sovereign bonds, supranational and agency bonds, corporate bonds and equity. Together they account for around 94.5% of the total market value of the non-monetary policy portfolios. Sovereign bond emissions are allocated in three ways: (i) those within a country's physical borders (production emissions); (ii) those related to domestic consumption (consumption emissions); and (iii) those related to government institutions and government expenditure (government emissions). 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 all other emissions are modelled by the aforementioned data providers. The three emission allocation methods are reported to provide a maximum degree of transparency. They are complementary in that they provide a different angle on the emissions associated with sovereign issuers. The latest available sovereign emissions data refer to 2022, except for government emissions data which refer to 2021, as these are no longer updated by the data provider following a change to the guidance given by the Partnership for Carbon Accounting Financials.

Data reported for supranational, agency and corporate issuers include these issuers' scope 1, 2 and 3 emissions. The underlying issuer emissions are partly self-reported by issuers and partly modelled by the data providers. The latest available emissions data refer to 2023.

All emission trends in the current report are calculated based on scope 1 and 2 data only, the reason being that scope 3 emissions data remain subject to quality issues that limit their reliability and comparability over time, including i) considerable estimation uncertainty, ii) diverging estimates across different data providers, and iii) methodological refinements. These shortcomings in the data also imply that 2024's reporting provides the basis for future transparency regarding developments in

scope 3 emissions, while historical data is only available in certain cases. Notwithstanding these data shortcomings, the ECB decided to start reporting and discussing scope 3 emissions in the main text of this report.

Macroeconomic developments have contributed significantly to trends in reported values in key climate-related metrics in recent years. The recovery in economic activity from the coronavirus (COVID-19) pandemic led to increases in issuers' emissions. At the same time, the recovery also resulted in increases in issuers' economic activity as measured by corporate revenue and national GDP. On balance, the relative increase in economic activity exceeded that of emissions, leading to improvements in carbon intensities for many issuers. The remainder of this section analyses climate-related developments in the ECB's staff pension fund and its own funds portfolio in greater detail. Changes compared with the metrics reported in previous years' reports reflect improved data availability or a retrospective revision of issuers' emissions or financial data.

5.1 ECB's staff pension fund

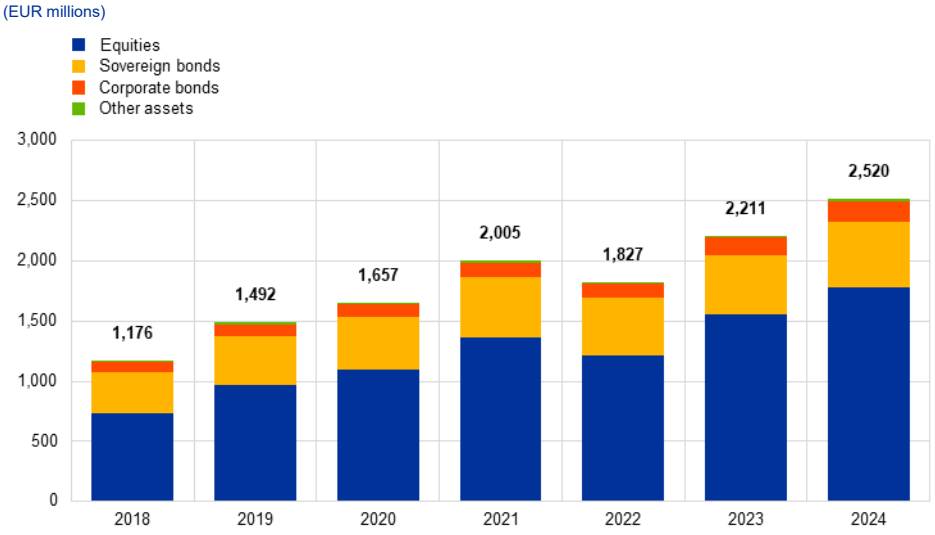
- Total carbon emissions (scopes 1and 2) for corporate investments, which comprise approximately 78% of total staff pension fund assets and which track EU Paris-aligned benchmarks, declined by 9% in 2024 as compared with the previous year.
- At the end of 2024, 26% of corporate bond investments and 34% of equity investments were exposed to sectors that are considered to have material nature-related dependencies or impacts.

The market value of the ECB's staff pension fund amounted to approximately €2.5 billion at the end of 2024, of which 71% was invested in equities, 22% in sovereign bonds, 7% in corporate bonds and 1% in other assets such as cash and derivatives (Chart 1).[7] Year-on-year changes in portfolio value reflect investment returns and the difference between pay-outs and paid-in contributions of the members of the pension fund and of the ECB. The pension fund invests globally in financial assets across developed and emerging markets.

[7] The category "other assets" is excluded from the climate-related reporting owing to a lack of guidance on their methodological treatment.

Chart 1

Portfolio value and asset allocation of the ECB's staff pension fund



Source: ECB calculations.
Note: The portfolio value is the market value expressed in EUR millions.

Tables 1 and 2 show key climate-related metrics for the ECB's staff pension fund in 2024. These metrics indicate the extent to which the pension fund is exposed to climate transition risks through its sovereign and corporate investments. Such risks could result from policy actions targeted at reducing emissions at the issuer or portfolio level. Metrics for sovereign and non-sovereign investments are not comparable with each other owing to the different underlying emission allocation methods.

Developments in climate-related metrics are further detailed in the remainder of this section. The full history of climate-related metrics is presented in Annex 3 (scope 1 and 2 emissions) and Annex 4 (scope 3 emissions).

Table 1

Key climate-related metrics for sovereign issuers in the ECB's staff pension fund in 2024

		Sovereign issuers			
		Sovereign and sub-sovereign bonds			
		Production		Consumption	Government
		excl. LULUCF	incl. LULUCF		
Portfolio value	EUR millions	546			
Total carbon emissions	tCO_2e	67,250	63,851	88,733	6,912
WACI	tCO2e per EUR million PPP-adjusted GDP, or per capita, or per EUR million final consumption expenditure	125	118	9.3	63
Carbon footprint	tCO_2e per EUR million invested	125	118	164	13
Carbon intensity	tCO2e per EUR million PPP-adjusted GDP, or per capita, or per EUR million final consumption expenditure	125	118	9.1	62

Table 2

Key climate-related metrics for non-sovereign issuers in the ECB's staff pension fund in 2024

		Non-sovereign issuers		
		Total	Corporate bonds	Equities
Portfolio value	EUR millions	1,947	164	1,783
Total carbon emissions	tCO_2e, scope 1+2 emissions	19,954	2,748	17,206
	tCO_2e, scope 3 emissions	634,934	52,055	582,879
WACI	tCO_2e per EUR million revenue, scope 1+2 emissions	42	61	40
Carbon footprint	tCO_2e per EUR million invested, scope 1+2 emissions	11	17	10
Carbon intensity	tCO_2e per EUR million revenue, scope 1+2 emissions	35	53	33

Sources: Institutional Shareholder Services, Carbon4 Finance, the World Bank, Bloomberg and ECB calculations.
Note: The portfolio value is the market value expressed in EUR millions, while other metrics are calculated using market values for equities and nominal values for bonds.

5.1.1 ECB's staff pension fund – corporate investments

The ECB's staff pension fund's corporate investments (equity and corporate bonds) continued to reduce their financed emissions both in absolute and in relative terms (Chart 2). This reduction is a result of all corporate investments that track the Paris-aligned benchmarks. These benchmarks ensure decarbonisation in line with the objectives of the European Climate Law.

Paris-aligned benchmarks must meet the minimum standards as defined in the EU Benchmarks Regulation and accompanying Commission Delegated Regulation. This legislation requires using the 1.5°C scenario with no, or limited, overshoot to determine the Paris-aligned benchmarks' minimum decarbonisation path, as the methodology is based on the commitments laid down in the Paris Agreement. More precisely, benchmarks labelled as "Paris-aligned" must have a baseline percentage reduction in exposure to carbon-intensive assets of at least 50% compared with their parent benchmarks or underlying investment universes, followed by an average annual reduction of at least 7%, as measured by carbon footprint or total carbon emissions.[8] In addition, Paris-aligned benchmarks apply a combination of norms-based and activity-based exclusions related to coal, oil and gas.

The carbon footprint (scopes 1 and 2) of the corporate investments in the ECB's staff pension fund declined by around 20% in 2024 as compared with 2023, thereby surpassing the minimum annual decarbonisation rate required for Paris-aligned benchmarks.[9] Over the period between 2018 and 2024, the carbon footprint fell by 92%. The scope 3 emissions, which were not included in this trend, accounted for 97% of the total carbon emissions of the corporate investments. Data quality issues limit the reliability and comparability of scope 3 emissions over time, implying that 2024's reporting provides the basis for transparency in terms of future developments.

To interpret these trends correctly, it is important to consider aspects related to the underlying data. Metrics calculated for the ECB's staff pension fund holdings in 2024 are based on the corporate emissions and corporate financial data from 2023, because of a delay in reporting those data. The application of past emissions data artificially stabilises emission metrics for 2024, showing only the impact of the changing portfolio composition and not that of changes in issuers' emissions. The ECB will retrospectively update metrics in forthcoming reports, as and when the revised data become available, which may change the reported metrics in either direction.

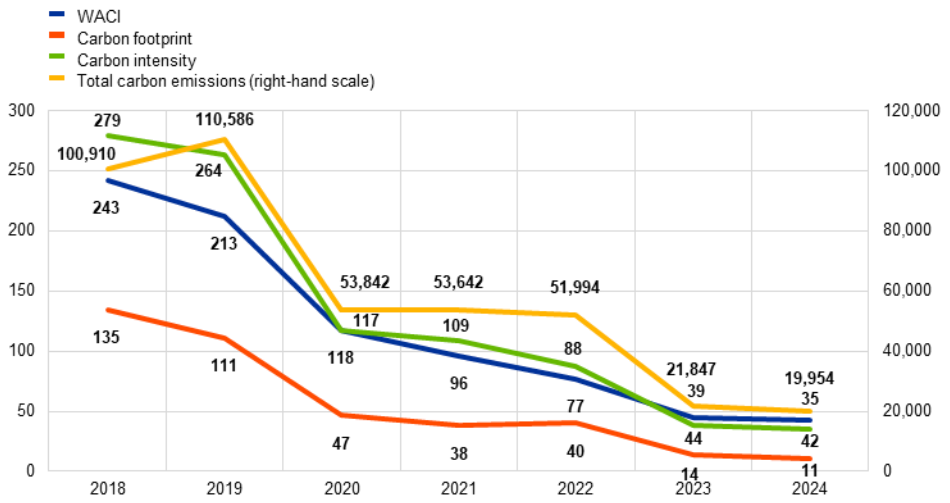
8 The metric used to steer the benchmark's self-decarbonisation depends on the index' securities: for listed equity, the regulation stipulates use of the carbon footprint (called "greenhouse gas intensity" in the legislation) with an adjustment for enterprise value inflation; while for corporate bonds either the same carbon footprint metric or total carbon emissions (called "absolute greenhouse gas emissions" in the legislation) should be used, depending on whether the related issuers are listed.

9 Since the reference metric for Paris-aligned benchmarks used to steer portfolio decarbonisation is the carbon footprint adjusted for enterprise value inflation for equity portfolios and the same carbon footprint or total carbon emissions for corporate bond portfolios, the unadjusted carbon footprint reported here does not necessarily follow the same trajectory. However, it is likely to follow a similar high-level trend when inflation is limited.

Chart 2

Developments in key scope 1 and 2 metrics for corporate investments in the ECB's staff pension fund

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



Sources: Institutional Shareholder Services and ECB calculations.
Notes: Metrics are calculated using market values for equities and nominal values for bonds. The WACI and carbon intensity are expressed as tCO_2e per EUR million revenue and the carbon footprint as tCO_2e per EUR million invested.

A breakdown of the total scope 1 and 2 carbon emissions by sector shows a concentration in utilities, information technology, industrials and materials (Chart 3). In 2024 these four sectors collectively contributed 76% to total carbon emissions associated with the portfolio (panel a), while accounting for 50% of holdings (panel b).

The high emissions contribution of the information technology and industrials sectors reflects the significant amounts that the pension fund invests in these sectors. By contrast, the disproportionately large contribution of the utilities and materials sectors to the total carbon emissions is driven by their high carbon intensity (panel c). This illustrates that the potential to decarbonise a portfolio is concentrated in its most energy-intensive sectors.

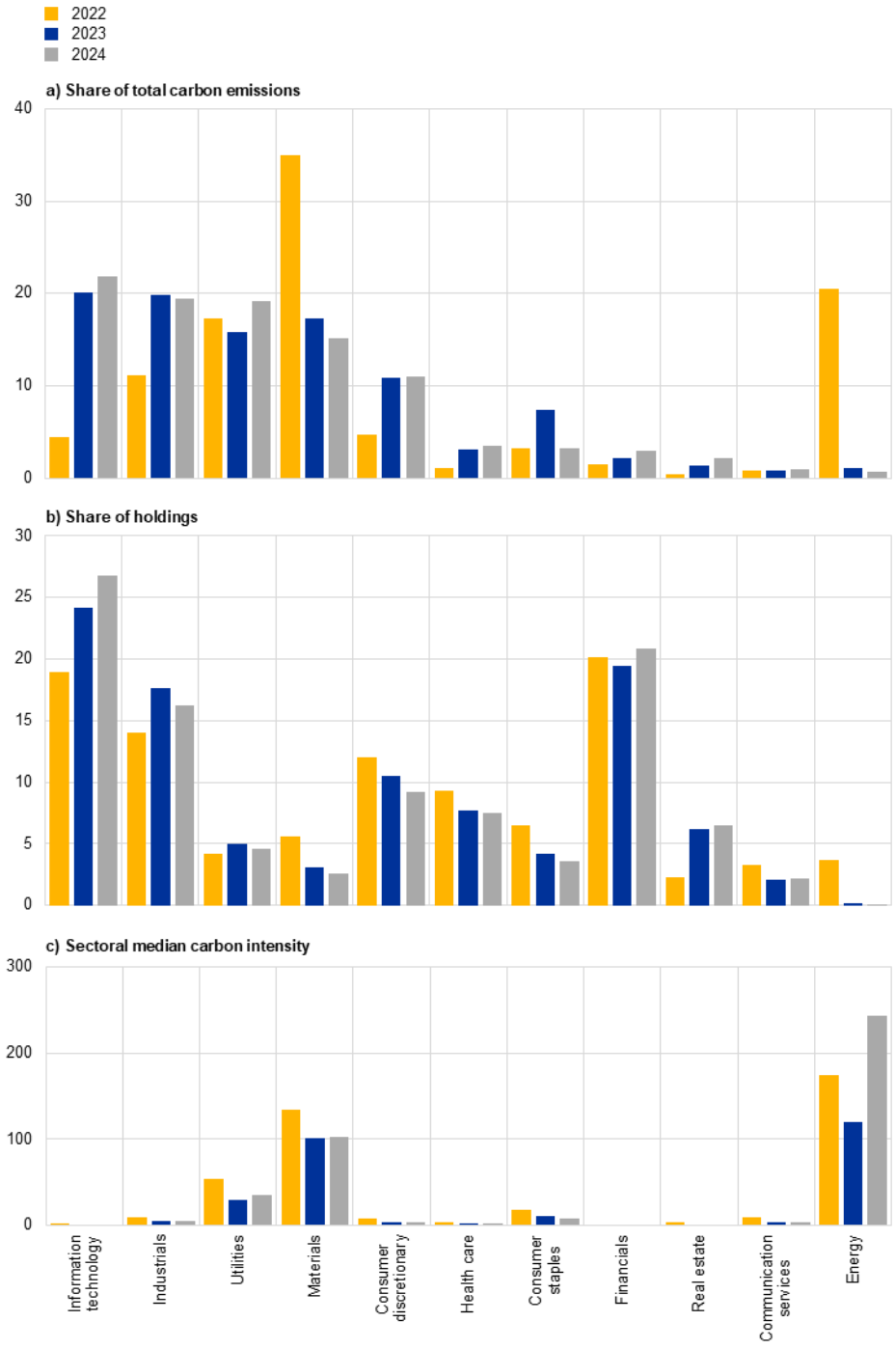
While the adoption of EU Paris-aligned equity benchmarks in 2023 led to notable changes in sectoral breakdown, the allocation did not alter significantly in 2024. There were some noticeable relative increases in holdings in low-carbon sectors, such as information technology and financials, and decreases in holdings in carbon-intensive sectors, such as materials and energy. The carbon intensity of the portfolio holdings declined across most sectors owing to the "best-in-class approach" of the benchmark, which reallocates holdings towards the most carbon-efficient issuers in each sector. An exception is the energy sector, for which the sectoral median carbon intensity roughly doubled in 2024. Given the low number of portfolio holdings in this sector, such median volatility can be expected when reallocating capital. The sectoral contribution to total emissions is a result of the capital reallocation across and within sectors. For example, despite the increase in its sectoral median carbon intensity, the energy sector altogether contributed less to total carbon emissions in

2024, driven by a decrease in the ECB's investments in this sector and changed asset allocation within it.

Chart 3

Share of total carbon emissions, share of holdings and sectoral median carbon intensity associated with corporate investments in the ECB's staff pension fund, by sector

(panels a) and b): percentages; panel c): tCO_2e per EUR million EVIC)

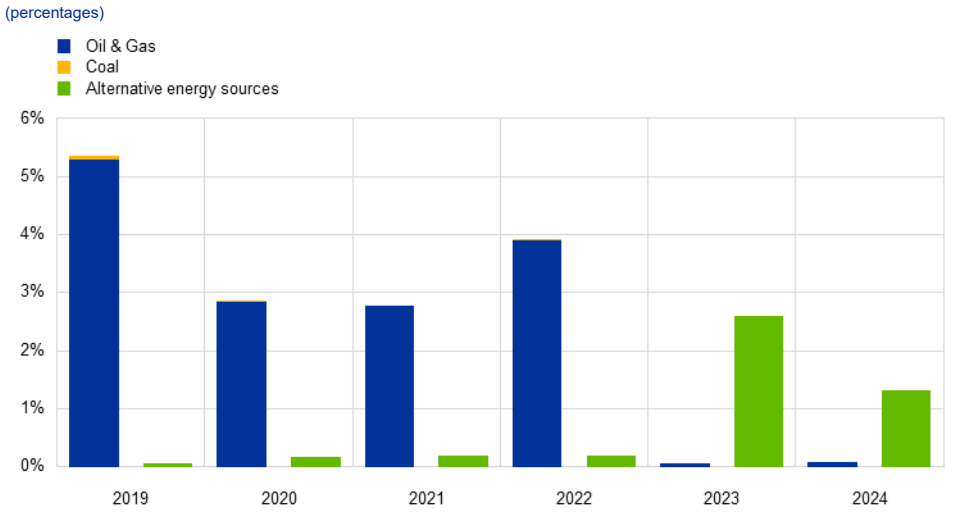


Sources: Institutional Shareholder Services and ECB calculations.
Note: Panel c) shows the sectoral median carbon intensity expressed as scope 1 and 2 emissions (in tCO_2e) divided by enterprise value including cash (EVIC) (in EUR millions).

The activity-based exclusions of the Paris-aligned equity benchmarks resulted in a significant decline in the ECB's staff pension fund's investments in the oil and gas industry, from 3.9% in 2022 to 0.1% in 2024 (Chart 4). Over the same period, investments in the alternative energy industry, which includes solar and wind energy, increased from 0.2% to 1.3%.

Chart 4

Corporate investments in the fossil fuel and alternative energy industries



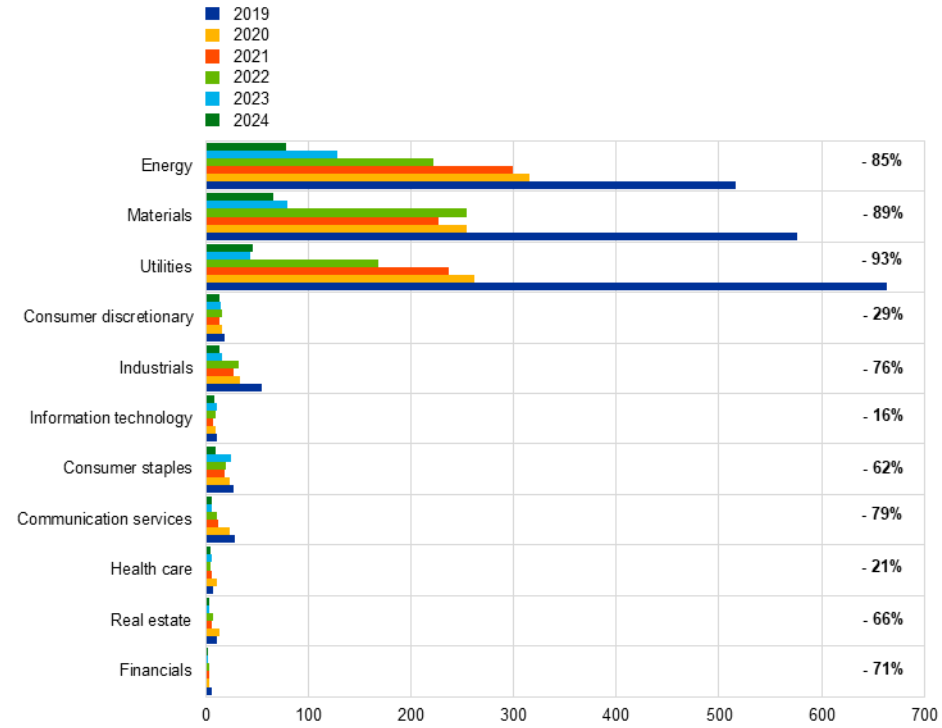
Sources: Bloomberg and ECB calculations.
Notes: The sector classification is based on Bloomberg field "Industry Group". The sectors "Oil & Gas", "Oil & Gas Services" and "Gas" have been grouped together into "Oil & Gas". The metric is calculated using market values for equities and nominal values for bonds. Changes may be related to shifts in portfolio investments or changing equity market values.

Breaking down the carbon footprint into corporate sectors shows that the carbon footprint declined across all sectors between 2019 and 2024, with the sharpest declines in the carbon-intensive sectors of utilities (-93%), materials (-89%) and energy (-85%) (Chart 5).

Chart 5

Breakdown by sector of scope 1and 2 carbon footprint in the ECB's staff pension fund

(tCO_2e per EUR million, percentage changes 2019-2024)



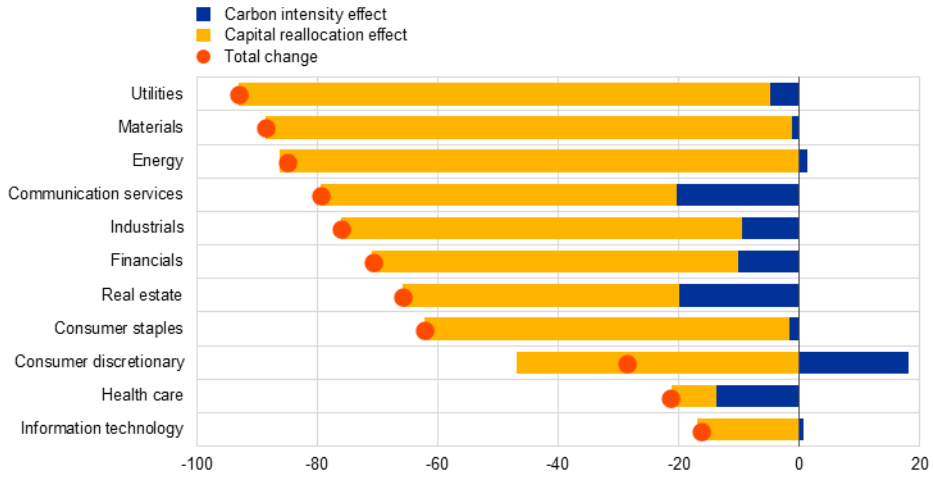
Sources: Institutional Shareholder Services, Carbon4 Finance, World Bank, Bloomberg and ECB calculations.
Notes: Metrics are calculated using market values for equities and nominal values for bonds. Sectors are sorted in descending order from the highest carbon footprint to the lowest.

Chart 6 shows that the best-in-class capital reallocation (together with the reallocation due to the previous broad market-based benchmark) reduced the carbon footprint for all sectors, which means that the benchmarks were highly effective in decarbonising the ECB's staff pension fund. In addition, the improved carbon intensity of issuers reduced the carbon footprint by sector in 8 out of 11 sectors.

Chart 6

Attribution of the changes in carbon footprint by sector between 2019 and 2024 to the capital reallocation effect and the carbon intensity effect

(percentages)

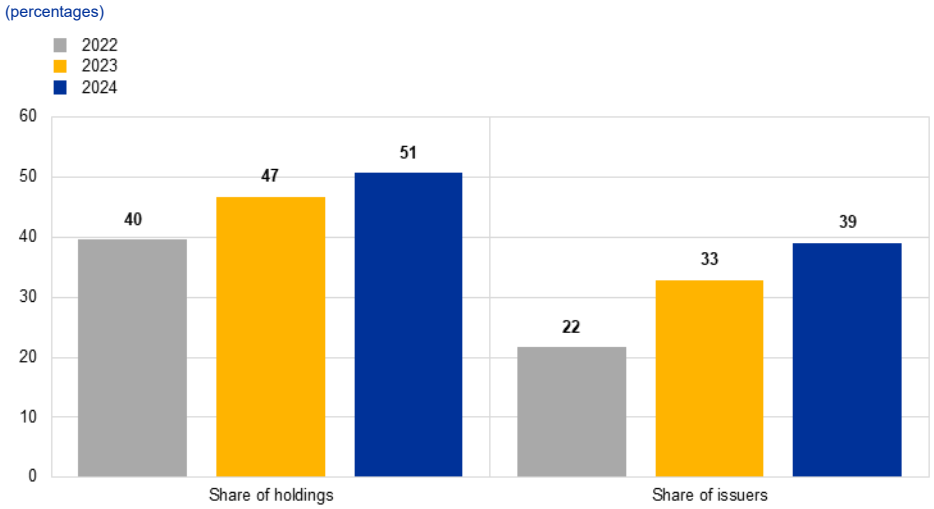


Sources: Institutional Shareholder Services, Carbon4 Finance, World Bank, Bloomberg and ECB calculations.
Notes: To isolate the capital reallocation and the carbon intensity effect, we apply a Marshall-Edgeworth-type decomposition which uses the simple average of the previous and present period values. Carbon intensity is expressed as scope 1 and 2 emissions (in tCO_2e) divided by EVIC (in EUR millions).

Achieving the goals of the Paris Agreement requires a significant reduction in absolute emissions and issuers to deliver on their self-imposed emission reduction targets. The ECB's staff pension fund allocates a large share of its corporate investments to issuers that set science-based targets to decarbonise their operations (Chart 7). In 2024, 51% of the corporate investments and 39% of the number of issuers set science-based targets, increasing by 4 and 6 percentage points, respectively.

Chart 7

Share of holdings and of issuers with science-based targets in the corporate investments of the ECB's staff pension fund

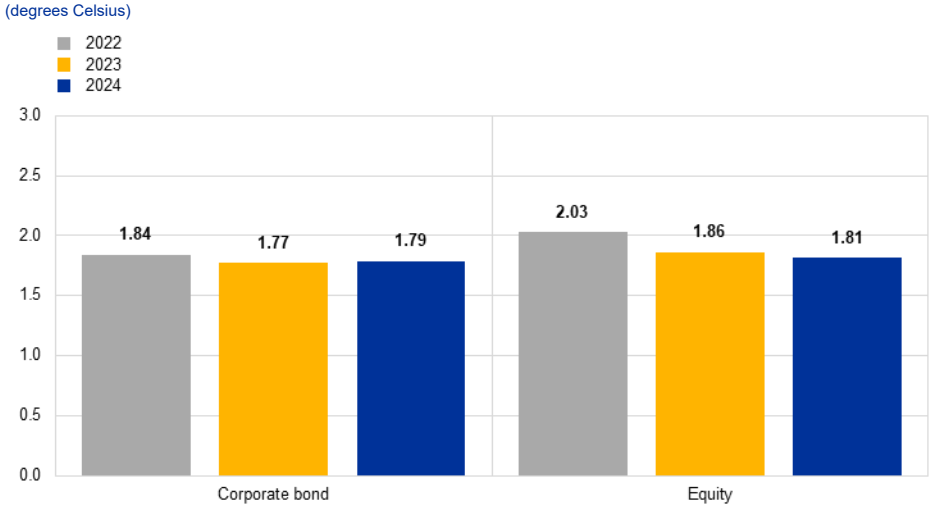


Sources: Institutional Shareholder Services and ECB calculations.
Notes: Metrics are calculated using market values for equities and nominal values for bonds. Calculations are based on latest available data for the most recent year and on historical data for previous years.

Forward-looking analysis based on the proprietary issuer temperature score of the data service provider, Institutional Shareholder Services, suggests that the ECB's staff pension fund's current corporate bond and equity investments are in line with a global warming scenario of 1.8ºC (Chart 8). The results should only serve as a rough indication, as forward-looking analysis is subject to considerable uncertainty.

Chart 8

Weighted average issuer temperature score of corporate investments in the ECB's staff pension fund



Sources: Institutional Shareholder Services and ECB calculations.
Notes: Weighting is calculated using bonds' nominal values and equities' market values. Issuer temperature score data were available for 92% of corporate bond investments and 98% of the equity investments. The forward-looking analysis underlying the score considers the latest International Energy Agency Sustainable Development Scenarios, projected future emissions and science-based targets. Calculations are based on latest available data for the most recent year and on historical data for previous years.

This is the first time that the report discloses the corporate exposure of the ECB's staff pension fund to nature-related priority sectors, incorporating an element of the framework of the Taskforce on Nature-related Financial Disclosures.[10] This marks the first step towards assessing the ECB's exposure to sectors considered to have material nature-related dependencies or impacts. This gradual approach acknowledges the current limitations of methodologies and data.

The corporate exposure metric provides an overview of potential, rather than actual, dependencies of or impacts on nature. Although companies within the priority sectors are more likely to have impacts and dependencies, these are influenced by various factors, such as company locations, actions taken to limit them, and the robustness of supply chains. Identifying actual dependencies and measuring the financial implications that nature-related risks may have, require further analysis, which can be guided by an initial identification of priority sectors.

At the end of 2024, 26% of corporate bond investments and 34% of equity investments in the ECB's staff pension fund were exposed to sectors that are considered to have material nature-related dependencies or impacts.

5.1.2 ECB's staff pension fund – sovereign investments

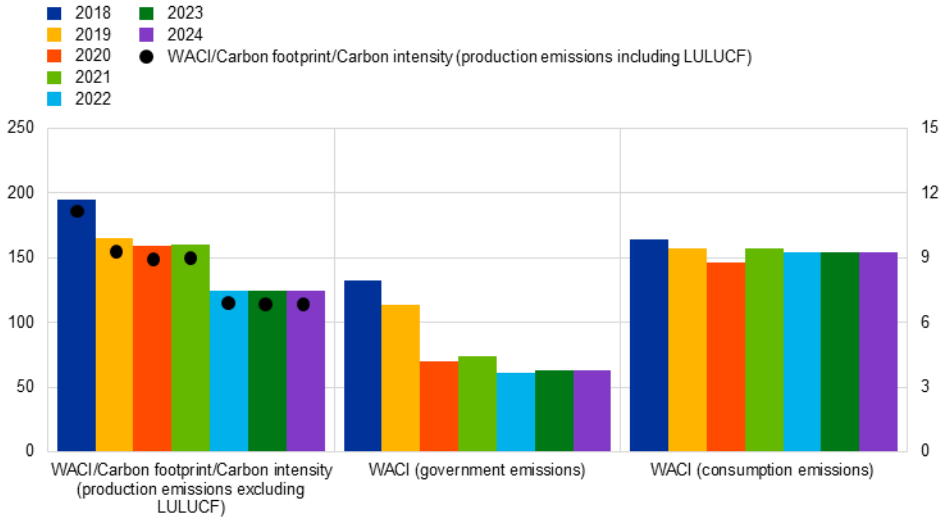
All sovereign issuers whose assets are held in the ECB's staff pension fund are signatories to the Paris Agreement and have committed to reducing their emissions by submitting climate action plans. The sovereign emissions shown in Chart 9 have been normalised, i.e. adjusted relative to a specific metric such as GDP or population, to provide a comparable measure of environmental performance over time or against other sovereigns, regardless of changes in size. The normalised emissions associated with sovereign bond investments have declined since 2018. Between 2022 and 2024, the WACI based on production emissions (which is equal to the carbon footprint and the carbon intensity metrics) and on consumption emissions generally remained stable.

[10] Metric disclosed is the "Financial institution core disclosure metric (FI.C0.0) – Exposure to sectors" of the Taskforce on Nature-related Financial Disclosures. See also "Sector guidance – Additional guidance for financial institutions", Version 2.0, Taskforce on Nature-related Financial Disclosures, June 2024.

Chart 9

Developments in key metrics for sovereign bond investments in the ECB's staff pension fund

(left-hand scale: tCO_2e per EUR million; right-hand scale: tCO_2e per capita)



Sources: Institutional Shareholder Services, Carbon4 Finance, World Bank, Bloomberg, United Nations Framework Convention on Climate Change and ECB calculations.
Notes: WACI and carbon intensity are expressed as tCO_2e per EUR million and GDP adjusted for purchasing power parity (PPP) (production emissions; left-hand scale), or per capita (consumption emissions, right-hand scale), or per EUR million for final consumption expenditure (government emissions; left-hand scale). Carbon footprint is expressed as tCO_2e per EUR million invested (left- hand scale). Metrics are calculated using bonds' nominal values.

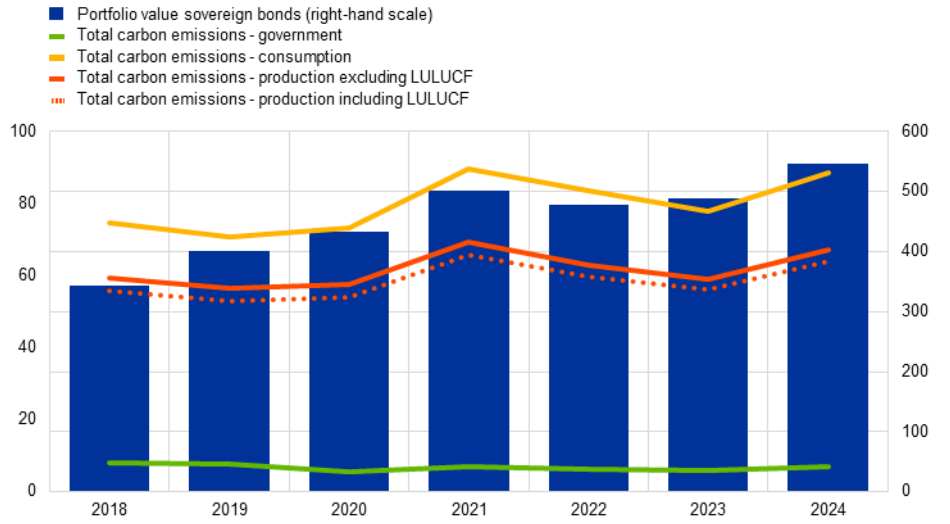
Between 2022 and 2024, the value of the sovereign holdings in the ECB's staff pension fund increased by 14% (in market value), while the average GDP of the issuer countries, used to attribute sovereign emissions to the investment, increased. With the 2022 emissions data being applied to all three years (owing to data availability lags), this results in the total carbon emissions, based on production emissions (excluding and including LULUCF), consumption emissions and government emissions, all increasing by around 7% over the same period (Chart 10). The level of consumption emissions exceeds that of production emissions, which shows that those euro area countries with assets in the ECB's staff pension fund are, on aggregate, net carbon importers.

In their submitted nationally determined contributions, sovereigns target a reduction in territorial production emissions. The total carbon production emission paths of sovereign issuers in the ECB's pension fund in 2024 show that they have, on average, decarbonised their economies, in absolute terms, by 3% each year between 2018 and 2022, i.e. the latest available reference year for which sovereign production emissions data are available.

Chart 10

Total carbon emissions of sovereign bond investments in the ECB's staff pension fund

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



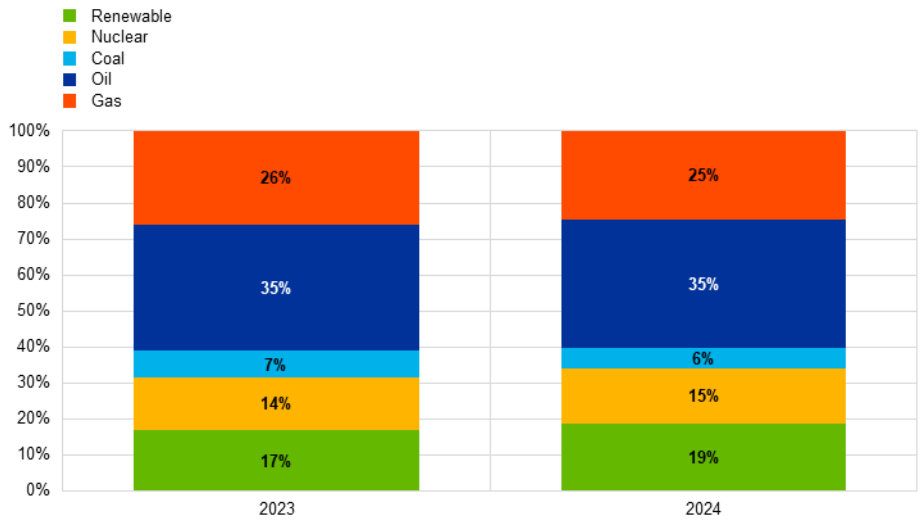
Sources: Institutional Shareholder Services, Carbon4 Finance, World Bank, Bloomberg, United Nations Framework Convention on Climate Change and ECB calculations.
Note: The portfolio value is calculated at the market value, while other metrics are calculated using bonds' nominal values.

Developments in countries' energy mix can provide insight into the progress made in transitioning the energy system. Renewable and nuclear energy rose slightly in 2024 in terms of the share of the sovereign bond issuers' total energy mix, at the expense of coal and gas (Chart 11).

Chart 11

Weighted average energy supply mix of sovereign bond issuers in the ECB's staff pension fund

(percentages)



Sources: Institutional Shareholder Services and ECB calculations.
Notes: 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. Calculations are based on the latest available data for the most recent year and on historical data for previous years.

5.1.3 ECB's staff pension fund – green, social, sustainability and sustainability-linked bond investments

The ECB's staff pension fund also contributes to financing the low-carbon transition by investing in green bonds. In 2024 green bond investments amounted to approximately €35 million, which is a share of around 4.9% of total bond investments. Of the green bond investments, around one-third were held in sovereign issuers and two-thirds in corporate issuers. Around two-thirds of the green bond investments were held in bonds with a maturity exceeding five years, providing long-term funding for the transition to a low-carbon economy. In total, 87% of the green bond issuers were located in the euro area, and 5% in other EU countries.

The ECB's staff pension fund also invests in social, sustainability and sustainability-linked bonds. By purchasing such bonds, the ECB provides funding for projects that facilitate a just transition towards a low-carbon economy. Combining environmental and social aspects, such funding aims to support the transition by driving changes in sectors critical to achieving global climate targets, while striving for economic growth to remain inclusive. In 2024, the aggregate share of social, sustainability and sustainability-linked bonds, as aligned with the relevant ICMA principles and guidelines, amounted to 0.8% of the total fixed income part of the ECB's staff pension fund. This comparatively low share reflects both the slower growth and the market share of these types of labelled bonds and portfolio characteristics.

5.2 ECB's own funds portfolio

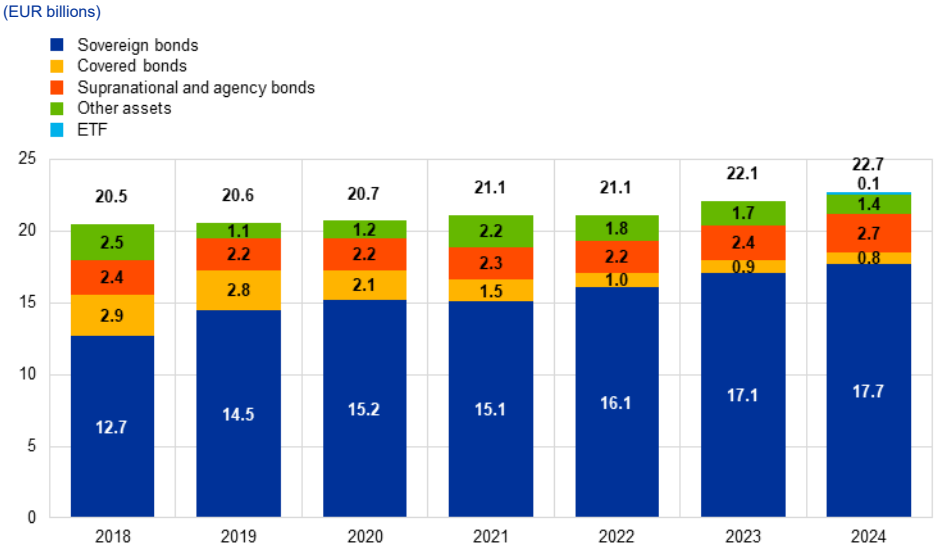
- The portfolio's green bond investments provide €6.4 billion of funding for the low-carbon transition, of which over 90% is allocated to issuers located in the EU.
- The green bond share of the portfolio increased by 8 percentage points to 28% in 2024, as compared with 2023.
- In October 2024, the ECB started investing a small share of its own funds in equity ETFs which track Paris-aligned benchmarks, further aligning its investments with a decarbonisation path consistent with the goals of the Paris Agreement and the European Climate Law.

The ECB's own funds portfolio value stood at €22.7 billion at the end of 2024, of which 78% was invested in sovereign bonds, 12% in supranational and agency bonds, 4% in covered bonds, 1% in equity ETFs and 6% in other assets including cash (Chart 12). These disclosures cover all asset classes in the portfolio, except for cash and derivatives. The value of the ECB's own funds portfolio increased by €0.6 billion by the end of 2024, primarily owing to the reinvestment of interest income generated in this portfolio. The ECB's own funds portfolio is predominantly invested in fixed income assets issued by euro area issuers. Investments in the ECB's own funds portfolio are subject to an explicit climate objective, which is of equal priority to its financial objectives. The ECB's own funds' benchmark that is calculated internally

steers the monthly portfolio rebalancing. Climate considerations are incorporated through green bonds and investments in equity ETFs that track Paris-aligned benchmarks.

Chart 12

Portfolio value and asset allocation of the ECB's own funds portfolio



Source: ECB calculations.
Note: The portfolio value is the market value expressed in EUR billions.

Tables 3 and 4 summarise the key emission metrics for the ECB's own funds portfolio in 2024. Sovereign bonds constitute the very largest part of the portfolio's associated emissions and its exposure to climate risks. This is because, first, sovereign bonds account for most investments. Second, in addition to their small investment share, the scope 1 and 2 emissions of supranational, agency and covered bond issuers are also comparably low owing to the service-oriented nature of their business.

Recent developments in the ECB's own funds metrics are further explained in the following sections. The full history of metrics is presented in Annex 5 (scope 1 and 2 emissions) and Annex 6 (scope 3 emissions).

Table 3

Key climate-related metrics for sovereign issuers in the ECB's own funds portfolio in 2024

		Sovereign issuers			
		Sovereign and sub-sovereign bonds			
		Production		Consumption	Government
		excl. LULUCF	incl. LULUCF		
Portfolio value	EUR billions	17.7			
Total carbon emissions	tCO_2e	2,337,647	2,237,165	3,124,440	226,637
WACI	tCO2e per EUR million PPP-adjusted GDP, or per capita, or per EUR million final consumption expenditure	127	122	10	60
Carbon footprint	tCO_2e per EUR million invested	127	122	170	12
Carbon intensity	tCO2e per EUR million PPP-adjusted GDP, or per capita, or per EUR million final consumption expenditure	127	122	10	59

Table 4

Key climate-related metrics for non-sovereign issuers in the ECB's own funds portfolio in 2024

		Non-sovereign issuers			
		Total	Supranational and agency bonds	Covered bonds	Equities
Portfolio value	EUR billions	3.6	2.7	0.8	0.1
Total carbon emissions	tCO_2e, scope 1+2 emissions	3,080	803	53	2,224
	tCO_2e, scope 3 emissions	526,842	189,992	283,266	53,615
WACI	tCO_2e per EUR million revenue, scope 1+2 emissions	2.8	1.0	0.4	49
Carbon footprint	tCO_2e per EUR million invested, scope 1+2 emissions	1.0	0.4	0.1	16
Carbon intensity	tCO_2e per EUR million revenue, scope 1+2 emissions	9.6	5.6	0.4	44

Sources: Institutional Shareholder Services, Carbon4 Finance, World Bank, Bloomberg and ECB calculations.
Notes: The portfolio value is the market value expressed in EUR billions. Other metrics are calculated using market values for equities and nominal values for bonds.

5.2.1 ECB's own funds portfolio – sovereign investments

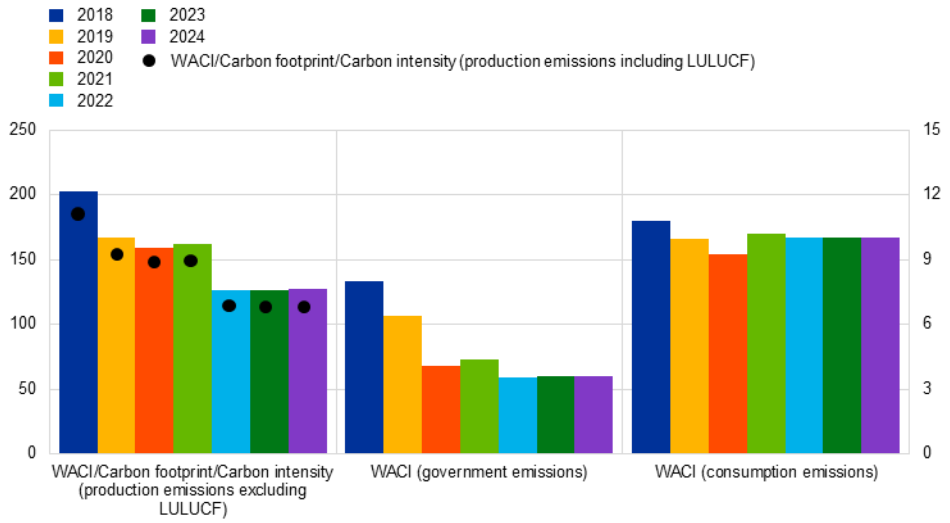
All sovereign issuers of securities held in the ECB's own funds portfolio are signatories to the Paris Agreement and have committed to decarbonising their economies in line with its goals. The largest share of investments in the ECB's own funds portfolio, namely 78%, consists of sovereign bonds, for which developments in key metrics have remained stable in recent years, (Chart 13), similar to that of

sovereign bonds held in the ECB's staff pension fund. These results should be interpreted with caution, as the temporary distorting effects of the pandemic, the one-year delay in the release of economic data, the two-year delay in the release of sovereign emissions data and the absence of a targeted decarbonisation strategy mean that the metrics move in a rather arbitrary manner.

Chart 13

Developments in key metrics for sovereign bond investments in the ECB's own funds portfolio

(left-hand scale: tCO_2e per EUR million; right-hand scale: tCO_2e per capita)



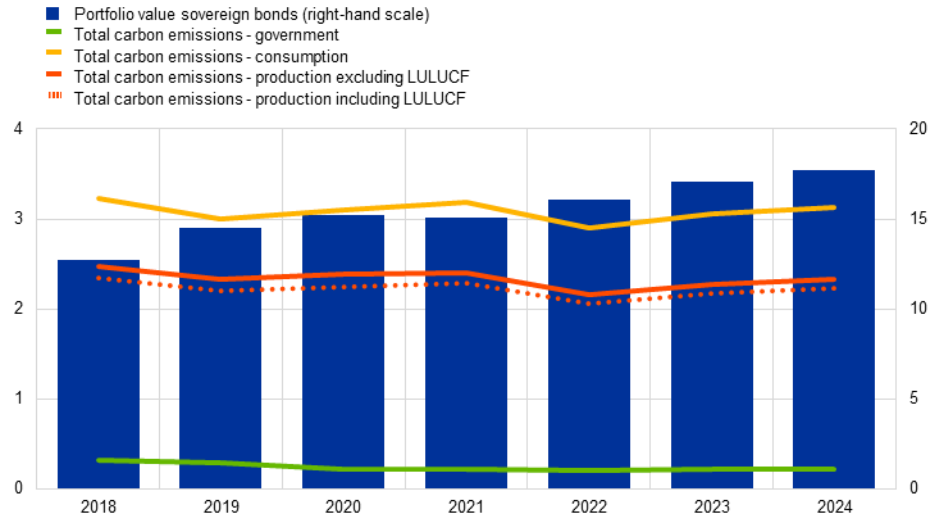
Sources: Institutional Shareholder Services, Carbon4 Finance, World Bank, Bloomberg and ECB calculations.
Notes: Production emissions are reported excluding and including the effects of land use, land-use change and forestry (LULUCF). The WACI and carbon intensity are expressed as tCO_2e per EUR million PPP-adjusted GDP (production emissions; left-hand scale), or per capita (consumption emissions, right-hand scale), or per EUR million final consumption expenditure (government emissions; left-hand scale). The carbon footprint is expressed as tCO_2e per EUR million invested (left-hand scale). Metrics are calculated using bonds' nominal values.

Following a drop between 2021 and 2022, the total carbon emissions based on production and consumption emissions increased by 8% between 2022 and 2024, while the portfolio value increased by 10% (Chart 14). The level of consumption emissions exceeds that of production emissions, which shows that those euro area countries with assets held in the ECB's own funds portfolio are, on aggregate, net carbon importers.

Chart 14

Total carbon emissions of sovereign bond investments in the ECB's own funds portfolio

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



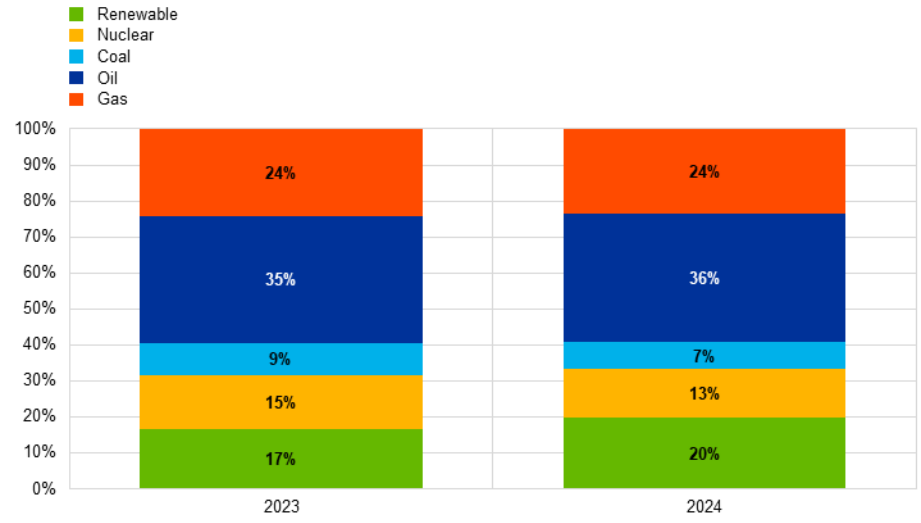
Sources: Institutional Shareholder Services, Carbon4 Finance, World Bank, Bloomberg, United Nations Framework Convention on Climate Change and ECB calculations.
Note: The portfolio value is expressed in market value, while other metrics are calculated using bonds' nominal values.

Chart 15 shows that the share of renewables in the energy mix of sovereign bond issuers increased over the period from 2023 to 2024, at the expense of nuclear and coal.

Chart 15

Weighted average energy supply mix of sovereign bond issuers in the ECB's own funds portfolio

(percentages)



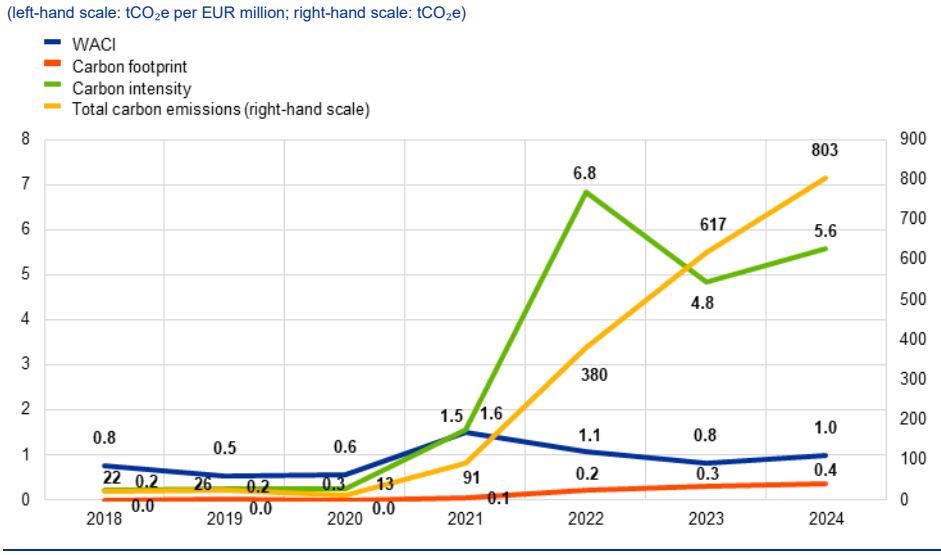
Sources: Institutional Shareholder Services and ECB calculations.
Notes: Weighting is done using bonds' nominal values. The total energy supply is the quantity of all energy necessary to satisfy inland consumption. It is defined as production + imports - exports - international marine bunkers - international aviation bunkers +/- stock changes. Calculations are based on the latest available data for the most recent year and on historical data for previous years.

5.2.2 ECB's own funds portfolio – supranational and agency investments

Chart 16 shows the key emission metrics for supranational and agency bond investments, which represent around 12% of the ECB's own funds portfolio. The surge in scope 1 and 2 total carbon emissions since 2021 was mostly driven by a gradual increase in investments in the green bonds of one particular carbon-intensive issuer that was not part of the portfolio prior to 2022. This increase highlights two issues. First, investors face a potential trade-off between funding the transition of high-emitting issuers through green bond purchases and aiming to reduce the overall emissions associated with their investment portfolios. Second, interpreting the metrics is not always straightforward and can be complicated by the sensitivity of trends to individual investments as well as the interaction of emissions and financial data across different metrics. In addition, the scope 1and 2 carbon intensity metric is highly sensitive to developments in the emissions and revenue of this particular carbon-intensive issuer. Hence, small differences between the trend in emissions and that of revenue can significantly impact the carbon intensity, explaining the bump in 2022. The scope 3 total carbon emissions accounted for nearly 100% of the total carbon emissions of the supranational and agency bond investments. This reflects the nature of these issuers' business operations, with typically low scope 1 and 2 emissions resulting primarily from administrative operations but high scope 3 emissions resulting from their financed projects and activities. Data quality issues compromise the reliability and comparability of scope 3 emissions over time, meaning that 2024's reporting is used as the basis for transparency regarding any future developments in these emissions.

Chart 16

Scope 1 and 2 emission metrics for supranational and agency bond investments in the ECB's own funds portfolio



Sources: Institutional Shareholder Services, Carbon4 Finance, World Bank, Bloomberg and ECB calculations.
Note: Metrics are calculated using bonds' nominal values.

5.2.3 ECB's own funds portfolio – corporate investments

By the end of 2024, a small share of the ECB's own funds was invested in corporate assets, namely in covered bonds and equity ETFs, accounting for 4% and 1%, respectively, of the total portfolio value. In October 2024, the ECB started investing in those equity ETFs that track Paris-aligned benchmarks. These types of benchmarks apply the tilting approach and strict exclusions in order to meet the ambitious decarbonisation objectives set by EU legislation. Therefore, investing in these ETFs supports the ECB's own funds climate objectives, further aligning its investments with a decarbonisation path that is consistent with the goals of the Paris Agreement and the European Climate Law.

Diversifying its assets also increases the return potential of its own funds portfolio. Furthermore, by selecting ETFs that track euro area equity indices, the ECB in turn fosters the decarbonisation efforts being made by euro area companies.

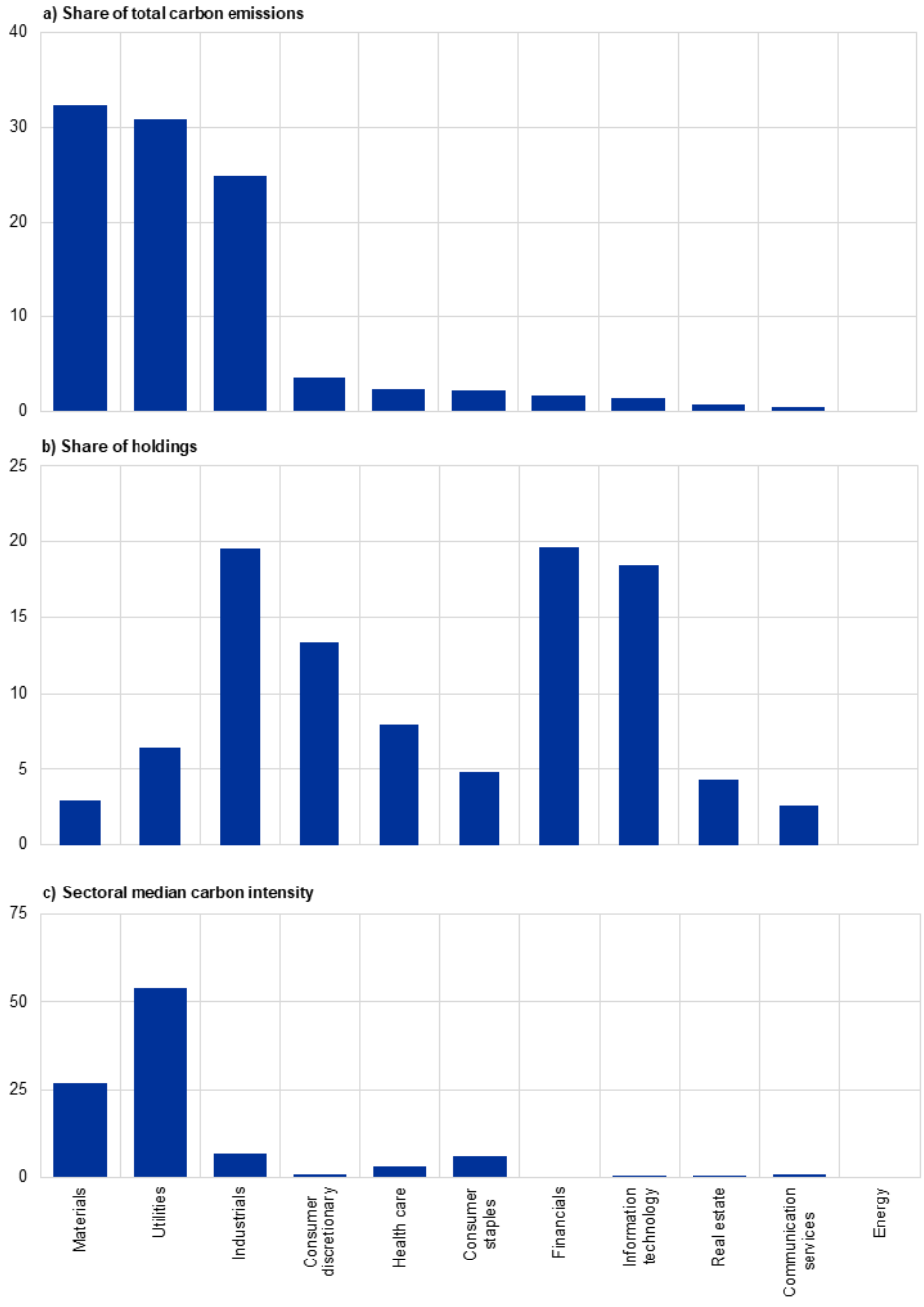
A breakdown of the total carbon emissions by sector, resulting from the ECB's ETF investments, shows a concentration in materials, utilities, and industrials (Chart 17). In 2024 these three sectors collectively contributed 88% to the total scope 1 and 2 carbon emissions of this portfolio (panel a), while accounting only for 29% of total holdings (panel b). The scope 3 total carbon emissions accounted for 96% of the total carbon emissions of corporate investments.

The relatively high contribution from the industrial sector to total carbon emissions reflects the significant amounts invested in this sector by the ETFs. By contrast, the large contribution from the utilities and materials sectors to the total carbon emissions is driven by their high carbon intensity (panel c, as measured by sectoral median carbon intensity based on the EVIC). Collectively, materials and utilities contributed 63% to total carbon emissions, while accounting for 9% of holdings. This illustrates that the potential to reduce portfolio emissions is concentrated in its most energy-intensive sectors.

Chart 17

Share of total carbon emissions, share of holdings and sectoral median carbon intensity associated with ETF investments in the ECB's own funds portfolio, by sector in 2024

(panels a) and b): percentages; panel c): tCO_2e per EUR million EVIC)



Sources: Institutional Shareholder Services and ECB calculations.
Note: Panel c) shows the sectoral median carbon intensity expressed as scope 1 and 2 emissions (in tCO_2e) divided by EVIC (in EUR millions).

Achieving the goals of the Paris Agreement requires a significant reduction in absolute emissions and issuers to deliver on their self-imposed emission reduction targets. The ETFs allocate a large share of their investments to issuers that set

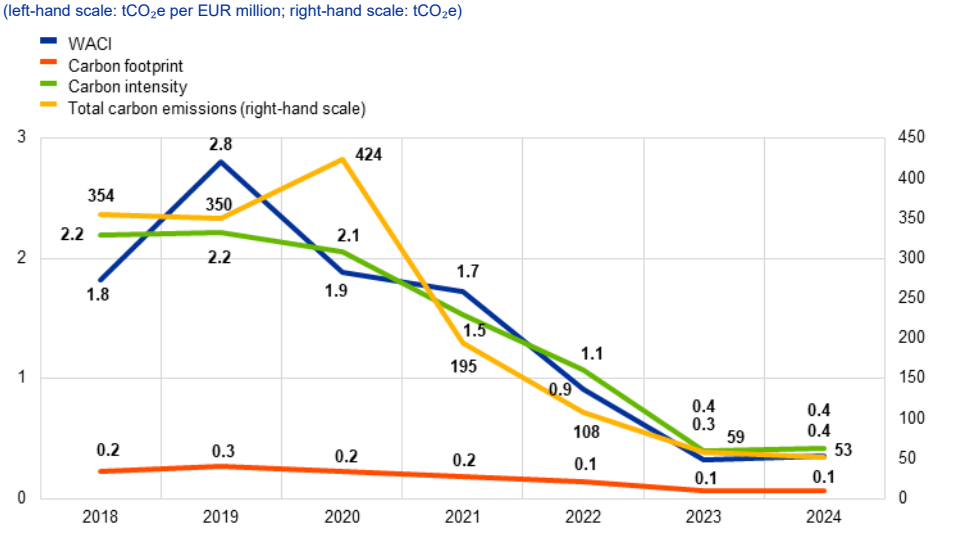
science-based targets to decarbonise their business operations. In 2024, 63% of the corporate issuers held in the ETFs set science-based targets, reflecting 73% of the ETF investment holdings.

Forward-looking analyses based on the proprietary issuer temperature score of the data service provider, Institutional Shareholder Services, suggest that the ETF investments from the ECB's own funds in 2024 are in line with a global warming scenario of 1.69ºC. This result should be regarded as a rough estimate, since any forward-looking analysis is subject to considerable uncertainty.

Chart 18 shows the key emission metrics for covered bond investments, which represent only around 4% of the ECB's own funds portfolio. The scope 3 total carbon emissions accounted for nearly 100% of the total carbon emissions of the covered bonds. As is the case for supranational and agency issuers, this reflects the nature of these issuers' business operations, with typically low scope 1 and 2 emissions resulting primarily from administrative operations but high scope 3 emissions resulting from their financed projects and activities. Data availability for covered bond issuers improved substantially recently, as coverage increased by 26 percentage points to 98% between 2021 and 2024.

Chart 18

Scope 1 and 2 emission metrics for covered bonds in the ECB's own funds portfolio



Sources: Institutional Shareholder Services, Carbon4 Finance, World Bank, Bloomberg and ECB calculations.
Note: Metrics are calculated using bonds' nominal values.

The corporate exposure of the ECB's own funds portfolio to nature-related priority sectors that are considered to have material nature-related dependencies or impacts amounted to 39% of the equity ETF investments and to 0% of the covered bond issuers in 2024. The absence of exposure for covered bonds is a result of these bonds typically being issued by banks, which are not listed as a priority sector by the Taskforce on Nature-related Financial Disclosures.

5.2.4 ECB's own funds portfolio – green, social, sustainability and sustainability-linked bond investments

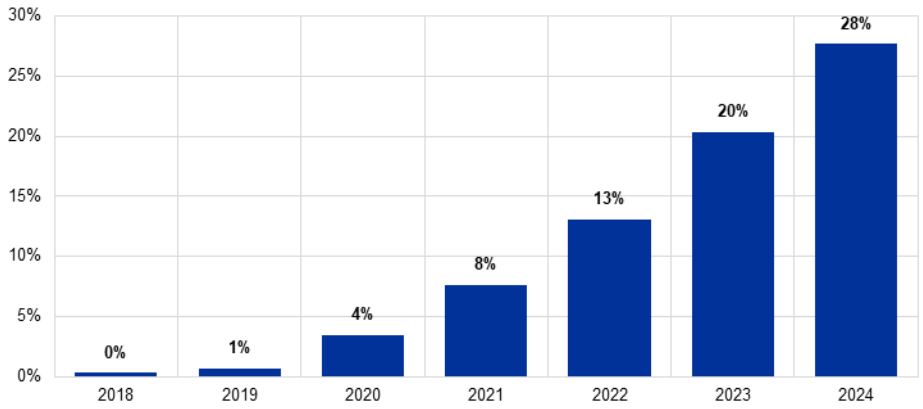
The ECB supports the application of the European Green Bond Standard, which was adopted by the Council in October 2023 and which began being applied as a "voluntary" standard by the end of 2024.

The ECB's own funds portfolio investments in green bonds support the funding for the low-carbon transition and climate solutions that contribute to decarbonising the real economy. Since the launch of the green bond investment strategy for the ECB's own funds, the allocation to green bonds increased from less than 1% of fixed income holdings in 2019 to 28% in 2024 (Chart 19), amounting to €6.4 billion by the end of 2024. This implies an increase of 8 percentage points in 2024 as compared with 2023, reflecting the ECB's commitment to increasing funding for the low-carbon transition. The share in green bonds is calculated based on the fixed income holdings in the ECB's own funds, thus excluding cash and equity ETF holdings.

Chart 19

Share of green bonds in the ECB's own funds portfolio

(percentages)



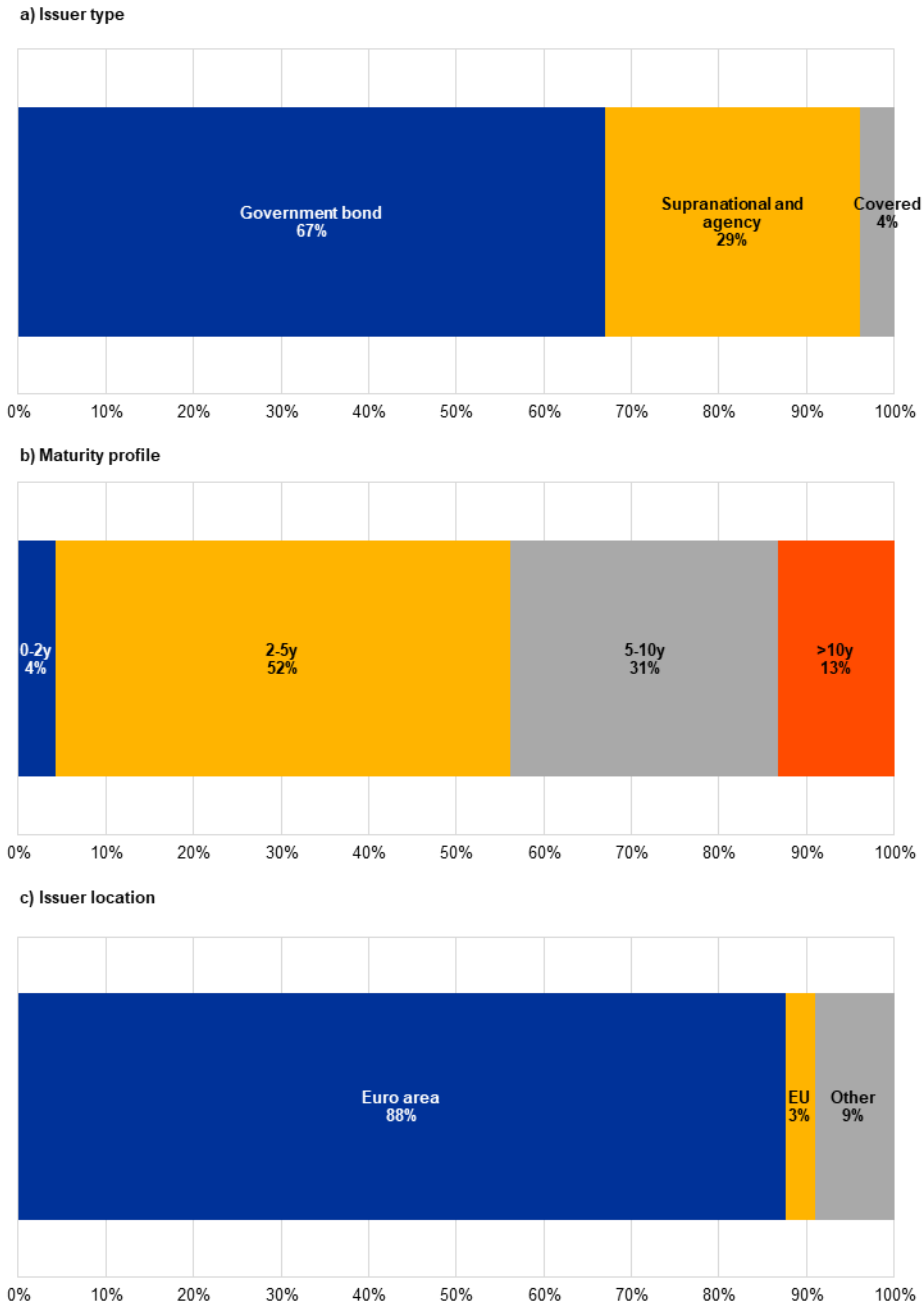
Sources: ICMA, Bloomberg and ECB calculations.
Notes: The ECB relies on the ICMA labelling to identify green bonds. The calculation is based on bonds' nominal values and excludes cash and equity ETF holdings. The calculation is based on the latest available data for the most recent year and on historical data for previous years.

Chart 20 illustrates the green bond holdings in 2024 categorised by issuer type, maturity profile and issuer location. Of the €6.4 billion green bond investments, 67% were held in sovereign issuers, 29% in supranational and agency issuers, and 4% in corporate issuers. Around 44% of the green bond investments were held in bonds with a remaining maturity exceeding five years, providing long-term funding for the transition to a low-carbon economy. Green bond investments were heavily concentrated in euro area issuers (88%) but also benefited other EU issuers (3%).

Chart 20

Green bonds in the ECB's own funds portfolio by issuer type, maturity profile and issuer location in 2024

(percentages)



Sources: ICMA, Bloomberg and ECB calculations.
Notes: The ECB relies on the ICMA labelling to identify green bonds. The calculation is based on bonds' nominal values.

The ECB's own funds portfolio also invests in social, sustainability and sustainability-linked bonds. In 2024, the aggregate share of social, sustainability and sustainability-linked bonds, as aligned with the relevant ICMA principles and guidelines, amounted to 0.2% of the fixed income part of its own funds. This comparatively low share

reflects both the slower growth and market share of these types of labelled bonds and the ECB's own fund portfolio characteristics, including a focus on green bonds.

5.3 Targets

The ECB strives to reduce the emissions associated with its staff pension fund and its own funds portfolio in line with the goals of the Paris Agreement and the European Climate Law. This translates into aiming for carbon neutrality for these portfolios by 2050.

To that end, for the ECB's staff pension fund, since corporate investments track the EU Paris-aligned benchmark, their exposure to carbon-intensive assets is expected to further decrease by an average annual amount of at least 7%, as measured by the carbon footprint or total carbon emissions (based on scope 1, 2 and 3 emissions).[11] That annual reduction should have started from 2023 onwards, which is the year since which all corporate investments in the ECB's staff pension fund have been tracking the Paris-aligned benchmarks.

At this pace, the ECB expects the carbon footprint of the corporate investments in its staff pension fund to further decline by at least 40% by 2030 and by at least 70% by 2040, as compared with 2023.[12]

These interim targets will support the gradual reduction of the ECB's pension fund's exposure to climate transition risks in support of the European Climate Law. These interim targets do not apply to sovereign bond holdings, which are expected to decarbonise over time, as sovereigns deliver on their commitments as signatories to the Paris Agreement.

In its own funds portfolio, the ECB aims to further step up its funding for the low-carbon transition by increasing its share in green bonds. By the end of 2025, the ECB aims to increase its share in green bonds to at least 32%. In addition, the ECB intends to increase its equity ETF investments that track Paris-aligned benchmarks up to a share of 2.5% of its total own funds portfolio over the course of 2025, after which this target will be reviewed.

The ECB will continue to monitor evolving climate science and guidance on (interim) target-setting. It reserves the right to apply full flexibility in terms of adjusting its

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11 The metric used to steer the benchmark's self-decarbonisation depends on the index' securities: for listed equity, the regulation stipulates the use of the carbon footprint (called "greenhouse gas intensity" in the relevant legislation), with an adjustment for enterprise value inflation; while for corporate bonds, either the same carbon footprint metric or total carbon emissions (called "absolute greenhouse gas emissions" in the relevant legislation) should be used, depending on whether the associated issuers are listed.

12 The investments' carbon footprint is technically measured by the carbon footprint or total carbon emissions, depending on the asset class (see also footnote 11). As the reference metric for Paris-aligned benchmarks' decarbonisation differs from the carbon footprint disclosed in this report, their respective decarbonisation trajectories are not necessarily the same. However, they are likely to follow a similar trend when inflation is limited (see also footnote 9). The external investment managers for the ECB's staff pension fund might use a different data source to the ECB, which could further hinder comparing figures disclosed here and those used for steering the decarbonisation of the corporate investments – an impact that could become particularly relevant when integrating scope 3 emissions.

existing targets and allowing additional asset classes to be included in the future, reflecting the Eurosystem's growing experience with climate-related financial disclosures.

Targets shall continue to reflect portfolio-specific objectives and constraints, including the target for the portfolio's duration, the expected green bond issuance volumes, liquidity conditions and issuer and bond specific risk limits.

Annexes

Annex 1

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

Element	Details
Weighted average carbon intensity (WACI))	$= \sum_{i=1}^{n} \left(\frac{\text{current value of investment}_i}{\text{current portfolio value}} \right) \text{x} \left(\frac{\text{issuer's carbon emissions}_i}{\text{issuer's revenue, PPP-adjusted GDP, population, or final consumption expenditure}_i} \right)$
Total carbon emissions	$= \sum_{i=1}^{n} \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP-adjusted GDP}_i} \text{x issuer's carbon emissions}_i \right)$
Carbon footprint	$= \frac{\sum_{i=1}^{n} \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP-adjusted GDP}_i} \right) \text{x issuer's carbon emissions}_i}{\text{current portfolio value}}$
Green bond share	Of fixed income portfolios based on ICMA's Green Bond Principles.
Aggregate share of Sustainability, Sustainability-linked and Social bonds	Of fixed income portfolios based on 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 by asset class.
Emissions scope	Scope 1 and 2 emission metrics, and scope 3 (reported separately) subject to possible exemptions for some asset classes (covered bonds, supranationals and agencies) under a “comply or explain” approach.
Data availability	Indicated in brackets as a percentage for each metric and asset class.
Data sources	Such as the names of the (climate) data providers.
Target	At least one broadly defined long-term target covering all non-monetary policy portfolio 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 developed by the Task Force on Climate-related Financial Disclosures are provided here. For the Eurosystem common disclosure principles, they have been adjusted where necessary to reflect the latest guidance from the Partnership for Carbon Accounting Financials and cover additional asset classes.

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

- Carbon intensity

$$= \frac{\sum_{i=1}^{n} \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP-adjusted GDP}_i} \right) \text{x issuer's carbon emissions}_i}{\sum_{i=1}^{n} \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP-adjusted GDP}_i} \text{x} \begin{array}{c} \text{issuer's revenue, PPP-adjusted GDP,} \\ \text{population, or final consumption} \\ \text{expenditure} \end{array}_i \right)}$$

- 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 TNFD priorityi*” equals 1 if the issuer's sector is listed in the TNFD priority sectors list, and 0 if it is not, as shown in Annex 1 of the Additional

guidance for financial institutions developed by the Taskforce on Nature-related Financial Disclosures (TNFD), Version 2.0, June 2024.

Annex 2

Carbon emission allocation methods, normalisation factors and attribution factors

Allocation

Issuer type	Factor	Remarks	Unit
Corporate **Supranational and agency**	Scope 1, 2 and 3 emissions	Scope 1 comprises direct carbon emissions that emanate 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. The Eurosystem uses market-based scope 2 emissions data where these are available and reliable. Location-based scope 2 emissions might be used when market-based reporting is not available. Scope 3 emissions are the result of activities from assets not owned or controlled by the reporting organisation, but that the organisation indirectly affects in its value chain. They often represent the majority of an organisation's total greenhouse gas emissions.	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 including and excluding the effects of land use, land-use change and forestry, (LULUCF), because the rate of build-up of carbon dioxide in the atmosphere is affected by changes to vegetation and soils in terrestrial ecosystems.	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 due to production shifts from countries where goods are consumed later.	tCO_2e
	Government emissions	Direct emissions (e.g. from buildings, vehicles) and indirect emissions (e.g. emissions related to energy consumption, but also expenditures, subsidies and investments) of the central government.	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
	Government: Final consumption expenditure	General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defence and security but excludes government military expenditures that are part of government capital formation.	EUR millions

Attribution

Asset class	Factor	Remarks	Unit
Sovereign bonds	PPP-adjusted GDP	See description of "PPP-adjusted GDP" in normalisation factor.	EUR
Equities **Supranational and agency bonds** **Corporate bonds** **Covered bonds**	EVIC	Enterprise value including cash. 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

Annex 3

Emission metrics for the ECB's staff pension fund

Portfolio value (EUR millions)

	Sovereign issuers				Non-sovereign issuers		
	Sovereign and sub-sovereign bonds						
	Production						
	excl. LULUCF	incl. LULUCF	Consumption	Government	Total	Bonds	Equities
2024	546				1,947	164	1,783
2023	489				1,703	144	1,559
2022	479				1,331	119	1,212
2021	502				1,482	121	1,361
2020	433				1,204	103	1,101
2019	402				1,070	97	973
2018	343				813	81	732
2017	323				825	76	749

WACI (tCO2e per EUR million PPP-adjusted GDP, or per capita, or per EUR million final consumption expenditure)

2024	125	118	9.3	63	42	61	40
	100%	100%	100%	100%	99%	94%	99%
2023	125	119	9.3	63	44	70	41
	100%	100%	100%	100%	99%	99%	99%
2022	125	118	9.3	61	77	82	77
	100%	100%	100%	100%	100%	98%	100%
2021	160	152	9.4	74	96	149	92
	100%	100%	100%	100%	99%	95%	100%
2020	159	149	8.8	70	118	174	112
	100%	100%	100%	100%	99%	95%	100%
2019	166	155	9.5	114	213	214	213
	100%	100%	100%	100%	96%	63%	99%
2018	195	183	10	133	243	147	250
	100%	100%	100%	100%	95%	60%	100%
2017	199	191	10	136	238	158	244
	100%	100%	100%	100%	95%	60%	99%

Total carbon emissions (tCO2e)

2024	67,250	63,851	88,733	6,912	19,954	2,748	17,206
	100%	100%	100%	100%	98%	85%	99%
2023	59,127	56,189	78,019	6,064	21,847	2,641	19,206
	100%	100%	100%	100%	98%	90%	99%
2022	63,106	59,888	83,450	6,468	51,994	5,802	46,192
	100%	100%	100%	100%	99%	94%	100%
2021	69,363	65,669	89,470	6,897	53,642	6,978	46,663
	100%	100%	100%	100%	99%	88%	100%
2020	57,568	53,869	73,131	5,621	53,842	8,338	45,504
	100%	100%	100%	100%	99%	90%	100%
2019	56,394	52,816	70,652	7,689	110,586	7,768	102,818
	100%	100%	100%	100%	96%	62%	99%
2018	59,369	55,739	74,628	8,081	100,910	6,342	94,568
	100%	100%	100%	100%	94%	59%	99%
2017	55,457	53,067	67,634	7,581	111,090	6,413	104,677
	100%	100%	100%	100%	95%	60%	99%

Carbon footprint (tCO2e per EUR million invested)

2024	125	118	164	13	11	17	10
	100%	100%	100%	100%	98%	85%	99%
2023	125	119	165	13	14	18	13
	100%	100%	100%	100%	98%	90%	99%
2022	125	118	165	13	40	42	40
	100%	100%	100%	100%	99%	94%	100%
2021	160	152	207	16	38	64	36
	100%	100%	100%	100%	99%	88%	100%
2020	159	149	202	16	47	87	43
	100%	100%	100%	100%	99%	90%	100%
2019	166	155	207	23	111	118	111
	100%	100%	100%	100%	96%	62%	99%
2018	195	183	245	27	135	112	137
	100%	100%	100%	100%	94%	59%	99%
2017	199	191	243	27	146	123	148
	100%	100%	100%	100%	95%	60%	99%

Carbon intensity (tCO2e per EUR million PPP-adjusted GDP, or per capita, or per EUR million final consumption expenditure)

2024	125	118	9.1	62	35	53	33
	100%	100%	100%	100%	98%	85%	99%
2023	125	119	9.1	62	39	46	38
	100%	100%	100%	100%	98%	90%	99%
2022	125	118	9.1	60	88	113	86
	100%	100%	100%	100%	99%	94%	100%
2021	160	152	9.2	74	109	167	104
	100%	100%	100%	100%	99%	88%	100%
2020	159	149	8.5	69	117	222	108
	100%	100%	100%	100%	99%	90%	100%
2019	166	155	9.3	111	264	287	262
	100%	100%	100%	100%	96%	62%	99%
2018	195	183	9.7	129	279	249	282
	100%	100%	100%	100%	94%	59%	99%
2017	199	191	9.7	133	266	248	267
	100%	100%	100%	100%	95%	60%	99%

Sources: Institutional Shareholder Services, Carbon4 Finance, World Bank, Bloomberg and ECB calculations.
Notes: The portfolio value is the market value expressed in EUR millions. Percentages below each metric indicate data availability, calculated as the percentage of investments for which all required data (i.e. emissions data and financial data) are available. For non-sovereign issuers, the coverage includes scope 1 and 2 emissions. Where available and reliable, the Eurosystem uses scope 2 emissions data following the market-based approach, which reflects emissions from electricity, steam, heat or cooling that companies have purposefully chosen (or their lack of choice) and derives emission factors from contractual instruments.

Annex 4

Scope 3 emission metrics for the ECB's staff pension fund's non-sovereign investments

WACI (tCO2e/EUR million revenue)

	Total	Corporate bonds	Equities
2024	836	953	823
	99%	94%	100%
2023	827	1,139	792
	99%	99%	99%
2022	1,120	1,095	1,123
	100%	98%	100%
2021	1,003	1,097	994
	99%	95%	100%
2020	882	1,056	865
	99%	95%	100%

Total carbon emissions (tCO2e)

2024	634,934	52,055	582,879
	98%	85%	100%
2023	505,000	68,948	436,052
	98%	90%	99%
2022	807,514	51,888	755,626
	99%	94%	100%
2021	673,005	53,771	619,234
	99%	88%	100%
2020	570,881	47,219	523,662
	99%	90%	100%

Carbon intensity (tCO2e/EUR million revenue)

2024	1,107	1,000	1,117
	98%	85%	99%
2023	895	1,208	859
	98%	90%	99%
2022	1,365	1,007	1,399
	99%	94%	100%
2021	1,371	1,285	1,379
	99%	88%	100%
2020	1,239	1,260	1,237
	99%	90%	100%

Carbon footprint (tCO2e per EUR million invested)

2024	351	314	355
	98%	85%	100%
2023	317	460	302
	98%	90%	99%
2022	627	377	657
	99%	94%	100%
2021	478	493	477
	99%	88%	100%
2020	498	493	499
	99%	90%	100%

Sources: Institutional Shareholder Services, Carbon4 Finance, World Bank, Bloomberg and ECB calculations.
Notes: Percentages below each metric indicate data availability, calculated as the percentage of investments for which all required data (i.e. emissions data and financial data) are available. Scope 3 emissions are reported only as of 2020 owing to a methodological change in that year which prevents cross-year comparison.
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

Emission metrics for the ECB's own funds portfolio

Portfolio value (EUR billions)

	Sovereign issuers				Non-sovereign issuers			
	Sovereign and sub-sovereign bonds							
	Production							
Own funds	excl. LULUCF	incl. LULUCF	Consumption	Government	Total	Supranational and agency bonds	Covered bonds	ETF
2024			17.7		3.6	2.7	0.8	0.1
2023			17.1		3.3	2.4	0.9	
2022			16.1		3.2	2.2	1.0	
2021			15.1		3.8	2.3	1.5	
2020			15.2		4.3	2.2	2.1	
2019			14.5		5.0	2.2	2.8	
2018			12.7		5.3	2.4	2.9	
2017			13.2		5.2	2.7	2.5	

WACI (tCO2e per EUR million PPP-adjusted GDP, or per capita, or per EUR million final consumption expenditure)

2024	127	122	10	60	2.8	1.0	0.4	49
	100%	100%	100%	100%	99%	98%	100%	99%
2023	127	121	10	60	0.7	0.8	0.3	
	100%	100%	100%	100%	98%	98%	100%	
2022	126	121	10	59	1.0	1.1	0.9	
	100%	100%	100%	100%	93%	89%	100%	
2021	162	154	10	73	1.6	1.5	1.7	
	100%	100%	100%	100%	98%	96%	100%	
2020	159	150	9.2	68	1.3	0.6	1.9	
	100%	100%	100%	100%	93%	90%	96%	
2019	167	157	10	106	1.6	0.5	2.8	
	100%	100%	100%	100%	76%	95%	62%	
2018	203	192	11	134	1.3	0.8	1.8	
	100%	100%	100%	100%	75%	91%	63%	
2017	203	192	11	134	0.5	0.5	0.7	
	100%	100%	100%	100%	51%	83%	20%	

Total carbon emissions (tCO2e)

2024	2,337,647	2,237,165	3,124,440	226,637	3,080	803	53	2,224
	100%	100%	100%	100%	94%	92%	98%	99%
2023	2,281,539	2,181,774	3,059,879	223,875	676	617	59	
	100%	100%	100%	100%	92%	90%	96%	
2022	2,160,683	2,064,563	2,905,726	213,164	488	380	108	
	100%	100%	100%	100%	80%	84%	73%	
2021	2,401,327	2,288,745	3,187,469	230,892	286	91	195	
	100%	100%	100%	100%	77%	81%	72%	
2020	2,392,300	2,244,635	3,106,609	227,635	437	13	424	
	100%	100%	100%	100%	89%	82%	95%	
2019	2,335,855	2,200,898	3,005,410	297,670	376	26	350	
	100%	100%	100%	100%	68%	95%	49%	
2018	2,480,330	2,348,659	3,225,709	322,595	377	22	354	
	100%	100%	100%	100%	70%	91%	55%	
2017	2,585,769	2,439,367	3,344,084	343,477	79	38	41	
	100%	100%	100%	100%	51%	83%	20%	

Carbon footprint (tCO2e per EUR million invested)

2024	127	122	170	12	1.0	0.4	0.1	16
	100%	100%	100%	100%	94%	92%	98%	99%
2023	127	121	170	12	0.2	0.3	0.1	
	100%	100%	100%	100%	92%	90%	96%	
2022	126	121	170	12	0.2	0.2	0.1	
	100%	100%	100%	100%	80%	84%	73%	
2021	162	154	215	16	0.1	0.1	0.2	
	100%	100%	100%	100%	77%	81%	72%	
2020	159	150	207	15	0.1	0.0	0.2	
	100%	100%	100%	100%	89%	82%	95%	
2019	167	157	215	21	0.1	0.0	0.3	
	100%	100%	100%	100%	68%	95%	49%	
2018	203	192	263	26	0.1	0.0	0.2	
	100%	100%	100%	100%	70%	91%	55%	
2017	203	192	263	27	0.0	0.0	0.1	
	100%	100%	100%	100%	51%	83%	20%	

Carbon intensity (tCO2e per EUR million PPP-adjusted GDP, or per capita, or per EUR million final consumption expenditure)

2024	127	122	10	59	9.6	5.6	0.4	44
	100%	100%	100%	100%	94%	92%	98%	99%
2023	127	121	10	60	2.5	4.8	0.4	
	100%	100%	100%	100%	92%	90%	96%	
2022	126	121	10	59	3.1	6.8	1.07	
	100%	100%	100%	100%	80%	84%	73%	
2021	162	154	10	72	1.5	1.6	1.5	
	100%	100%	100%	100%	77%	81%	72%	
2020	159	150	8.8	68	1.7	0.3	2.1	
	100%	100%	100%	100%	89%	82%	95%	
2019	167	157	10	104	1.4	0.2	2.2	
	100%	100%	100%	100%	68%	95%	49%	
2018	203	192	10	130	1.5	0.2	2.2	
	100%	100%	100%	100%	70%	91%	55%	
2017	203	192	11	131	0.5	0.4	0.8	
	100%	100%	100%	100%	51%	83%	20%	

Sources: Institutional Shareholder Services, Carbon4 Finance, World Bank, Bloomberg and ECB calculations.
Notes: The portfolio value is the market value expressed in EUR billions. Percentages below each metric indicate data availability, calculated as the percentage of investments for which all required data (i.e. emissions data and financial data) are available. For non-sovereign issuers, the coverage includes scope 1 and 2 emissions. Where these are available and reliable, the Eurosystem uses scope 2 emissions data following the market-based approach, which reflects emissions from electricity, steam, heat or cooling that companies have purposefully chosen (or their lack of choice) and derives emission factors from contractual instruments.

Annex 6

Scope 3 emission metrics for the ECB's own funds portfolio's non-sovereign investments

WACI (tCO2e/EUR million revenue)

	Total	Supranational and agency bonds	Covered bonds	ETF
2024	1,405	1,305	1,764	877
	99%	98%	100%	99%
2023	1,349	1,301	1,458	
	98%	98%	100%	
2022	1,353	1,353	1,353	
	93%	89%	100%	
2021	487	317	727	
	98%	96%	100%	
2020	470	343	587	
	93%	90%	96%	

Total carbon emissions (tCO2e)

2024	526,842	189,992	283,266	53,615
	94%	92%	98%	99%
2023	399,764	171,417	228,347	
	92%	90%	96%	
2022	201,068	73,602	127,466	
	80%	84%	73%	
2021	100,379	18,917	81,462	
	77%	81%	72%	
2020	116,667	17,313	99,354	
	89%	82%	95%	

Carbon intensity (tCO2e/EUR million revenue)

2024	1,643	1,321	2,238	1,068
	94%	92%	98%	99%
2023	1,458	1,343	1,559	
	92%	90%	96%	
2022	1,287	1,325	1,266	
	80%	84%	73%	
2021	542	326	640	
	77%	81%	72%	
2020	455	345	482	
	89%	82%	95%	

Carbon footprint (tCO2e per EUR million invested)

2024	166	86	339	396
	94%	92%	98%	99%
2023	141	88	256	
	92%	90%	96%	
2022	79	41	164	
	80%	84%	73%	
2021	36	11.0	79	
	77%	81%	72%	
2020	33	10.9	52	
	89%	82%	95%	

Sources: Institutional Shareholder Services, Carbon4 Finance, World Bank, Bloomberg and ECB calculations.
Notes: Percentages below each metric indicate data availability, calculated as the percentage of investments for which all required data (i.e. emissions data and financial data) are available. Scope 3 emissions are reported only since 2020 owing to a methodological change in that year which prevents cross-year comparison.
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.

Postal address 60640 Frankfurt am Main, Germany
Telephone +49 69 1344 0
Website www.ecb.europa.eu

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

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