

CLIMATE-RELATED ASPECTS  
OF THE BANCO DE ESPAÑA'S  
NON-MONETARY POLICY PORTFOLIOS

2026

June

BANCO DE **ESPAÑA**  
Eurosistema



### CLIMATE-RELATED ASPECTS OF THE BANCO DE ESPAÑA'S NON-MONETARY POLICY PORTFOLIOS June 2026

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# 1 Introduction

Since 2023 the Banco de España has drawn up and published an annual report dedicated specifically to the financial disclosure of the climate-related aspects of its non-monetary policy portfolios.<sup>1</sup> This report forms part of the joint commitment to transparency made by the Eurosystem national central banks (NCBs) and the European Central Bank (ECB), as part of the common stance<sup>2</sup> agreed in 2021 for implementing sustainable and responsible investment (SRI) principles in such portfolios.

This commitment led to the first coordinated publication of such information by the 20 Eurosystem NCBs<sup>3</sup> and the ECB<sup>4</sup> in 2023. They repeated the exercise in 2024, broadening the coverage of the report to include non-euro-denominated portfolios.<sup>5</sup> Each new edition incorporates methodological enhancements that reinforce transparency. For instance, the 2025 report<sup>6</sup> incorporated the disclosure of the total scope 3 greenhouse gas (GHG) emissions – indirect emissions – for non-sovereign assets, as well as the aggregate proportion of social and sustainable bonds.

The report has been structured based on the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).<sup>7</sup> The TCFD was disbanded in October 2023, and in 2024 its recommendations were incorporated into the standards of the International Sustainability Standards Board (ISSB), an independent standard-setting body within the International Financial Reporting Standards Foundation. By complying with these standards, the Banco de España reaffirms its commitment to climate transparency. Moreover, the Banco de España collaborates closely with the Eurosystem to continue to refine its climate disclosures, thanks to improvements in data availability and quality, advances in disclosure methodology and practices (within current data limitations) and greater expertise in handling risks related to climate change.

As has been indicated in previous editions, the main responsibility for addressing climate change resides with governments. Within the limits of their respective mandates, NCBs contribute to this economic transformation towards the Paris Agreement goals by conducting disclosure exercises such as this report and incorporating SRI criteria in their investment management.

For the Banco de España, these principles have been a cornerstone of its own portfolio investment policy since 2019.<sup>8</sup> This approach is in line with Recommendation n°2 of the Network

1 Banco de España (2023).

2 ECB (2021).

3 All reports available at <https://www.ecb.europa.eu/ecb/climate/climate-related-financial-disclosures/html/index.en.html>.

4 ECB (2023).

5 Banco de España (2024a).

6 Banco de España (2025).

7 TCFD (2017). The TCFD was set up in late 2015 by the Financial Stability Board, at the request of the G20, and was made up of representatives from the private sector. Its work entailed drafting a set of voluntary recommendations for the disclosure of consistent, comparable, accurate and clear information on climate change-related financial risks and opportunities.

8 Banco de España (2026b).

for Greening the Financial System (NGFS),<sup>9</sup> which the Banco de España joined in April 2018, and the ten recommendations published by the NGFS in 2024 to further advance the integration of SRI practices.<sup>10</sup>

These principles have also been incorporated in response to the institutional sustainability commitment envisaged in the Banco de España's strategic plans.<sup>11, 12</sup> Within this framework, the Bank focuses in particular on the climate change-related aspects that are directly related to its areas of action, including management of its own investment (non-monetary policy) portfolios.

The analysis presented in this report shows that the climate quality of the Banco de España's investment portfolios has continued to gradually improve in recent years. Specifically, investment in green bonds has continued to increase, accounting for 6.7% of the total portfolio in 2025 (9.4% in the euro-denominated portfolios and 5.1% in the non-euro portfolios). These investments finance projects that have a positive environmental impact and support the transition towards a low-carbon economy.

The Banco de España remains committed to gradually decarbonising its investment portfolios and will continue to monitor their climate performance, aiming to further progress towards full alignment with the Paris Agreement and with the climate-neutral goals established in European legislation.

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9 NGFS (2019).

10 NGFS (2024).

11 Banco de España (2020).

12 Banco de España (2024b).

## 2 Governance

The Banco de España manages various financial asset portfolios within the scope of its functions.<sup>13</sup> These investments are grouped into three main categories:

- 1 *Monetary policy portfolios*: used to implement the monetary policy decisions adopted by the ECB's Governing Council.
- 2 *Third-party portfolios*: managed by the Banco de España on behalf of third parties.
- 3 *Investment portfolios*: created in response to other institutional needs and controlled exclusively by the Banco de España's governing bodies, these portfolios are denominated both in euro and other currencies.

The Banco de España addresses the climate change-related risks and opportunities associated with its investment portfolios by integrating them into the existing governance structures. Specifically, the Executive Commission<sup>14</sup> is responsible for approving the financial investment policy, which sets out the core principles and decision-making and accountability procedures. In 2019 SRI was incorporated as an additional key investment management principle. Moreover, specific guidelines are approved annually to guide short-term financial management. The Executive Commission is assisted in risk management by the Risk Management and Continuity Committee.

The SRI strategy is approved by the Executive Committee annually and incorporated into the financial investment guidelines. The Directorate General Operations, Markets and Payment Systems is responsible for portfolio management and, along with the Associate Directorate General Services and Control and Accounting, reports on implementation of the approved guidelines to the Executive Commission. The Operations Department, with the support of the Investment Sub-Committee, is responsible for the day-to-day management and execution of financial operations. For its part, the Control and Accounting and Risk Control Department is tasked with financial risk monitoring and management, with the support of the Financial Risk Sub-Committee.

Beyond activities related purely to financial investment, the Banco de España continues to reinforce its sustainability commitment through its Environmental, Social and Governance (ESG) Office, which works to promote internal coordination, encourage analysis and awareness of ESG criteria at domestic and international level, and provide strategic support to senior management.

<sup>13</sup> Law 13/1994 of 1 June 1994 of Autonomy of the Banco de España, Treaty on the Functioning of the European Union (Official Journal of the European Union (OJEU) of 7 June 2016) and Statute of the European System of Central Banks and of the European Central Bank (OJEU of 7 June 2016).

<sup>14</sup> The Executive Commission comprises the Governor, the Deputy Governor and two members elected by the Banco de España's Governing Council. The General Secretary and the Directors General attend its meetings, with the right to speak but not to vote. See <https://www.bde.es/wbe/en/sobre-banco/organizacion/organos-rectores/comision-ejecutiva/>.

### 3 Strategy

The Banco de España's own portfolio investment policy is governed by five principles: market neutrality, prudence, professionalism, efficiency and SRI (Figure 1). Moreover, the Banco de España subscribes to the common stance adopted by the Eurosystem on the application of SRI principles to non-monetary policy portfolios.<sup>15</sup>

In both cases, the aim is to actively contribute to the global response to climate change, in line with the Paris Agreement commitments, by incorporating climate change considerations into financial risk management and helping channel resources towards green and low-carbon investments, so as to lead by example.

Specifically, the Banco de España has defined a thematic (or impact) strategy, creating a specific SRI portfolio that prioritises investment in assets associated with projects with positive environmental impacts, explicitly incorporating the climate dimension into the risk-return analysis.

The SRI portfolio comprises direct investments in green, social and sustainable bonds<sup>16</sup> (as of 2026, for social and sustainable bonds), alongside holdings in US dollar and euro-denominated green investment funds managed by the Bank for International Settlements (BIS).

The Banco de España first participated in the BIS's green funds in 2019 (Figure 2), when the first dollar-denominated fund was launched with the aim of driving sustainable finance through investments in energy efficiency projects, renewables and other initiatives with a positive environmental impact.<sup>17</sup> Subsequently, in January 2021 the Banco de España extended its commitment, participating in a second BIS investment fund, this time focused on euro-denominated green bonds.<sup>18</sup>

The Banco de España also monitors the climate-related aspects of all its investment portfolios on an ongoing basis, in close coordination with the other Eurosystem NCBs. This work is explained in greater detail in Section 5 of this report.

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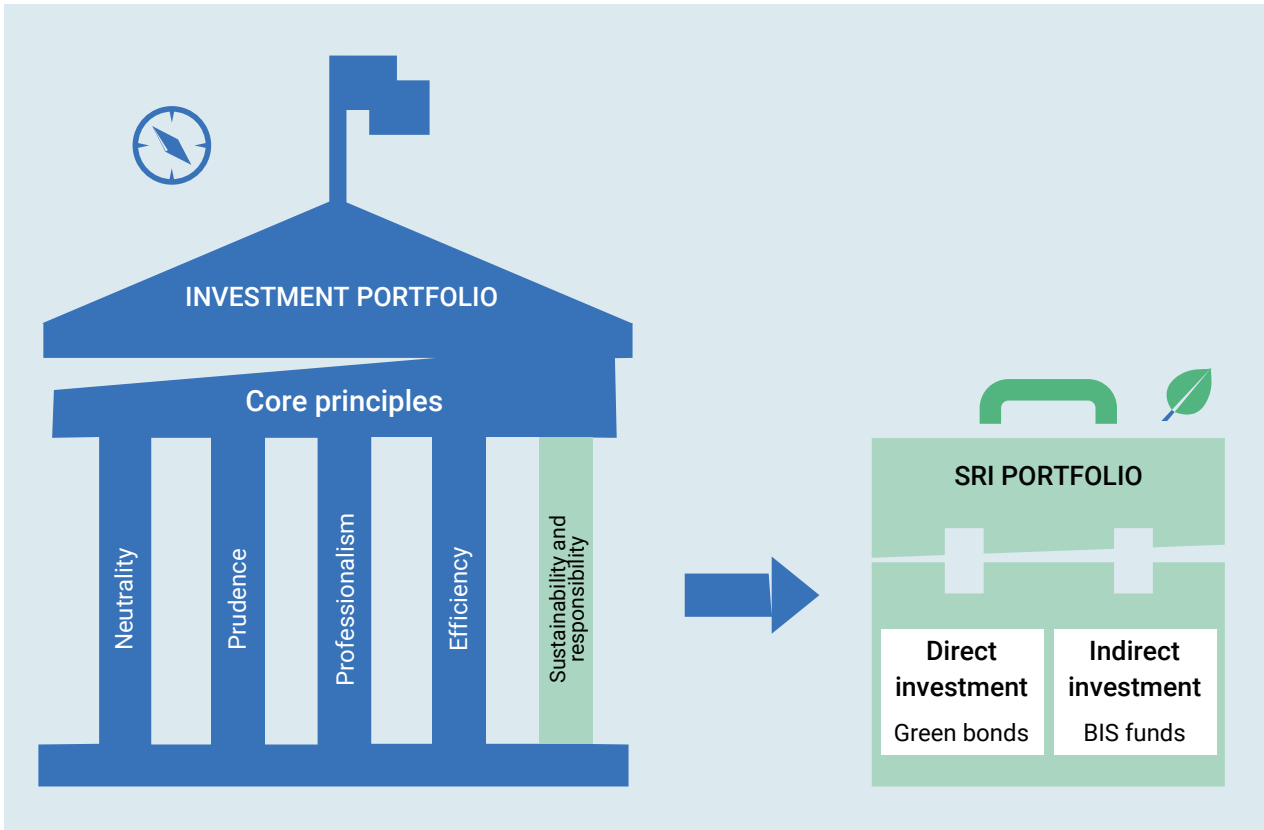
15 Banco de España (2021b).

16 Social bonds raise funds for projects that address or mitigate specific social problems and/or seek to achieve a positive social impact. Sustainable bonds combine social and green projects.

17 Banco de España (2019).

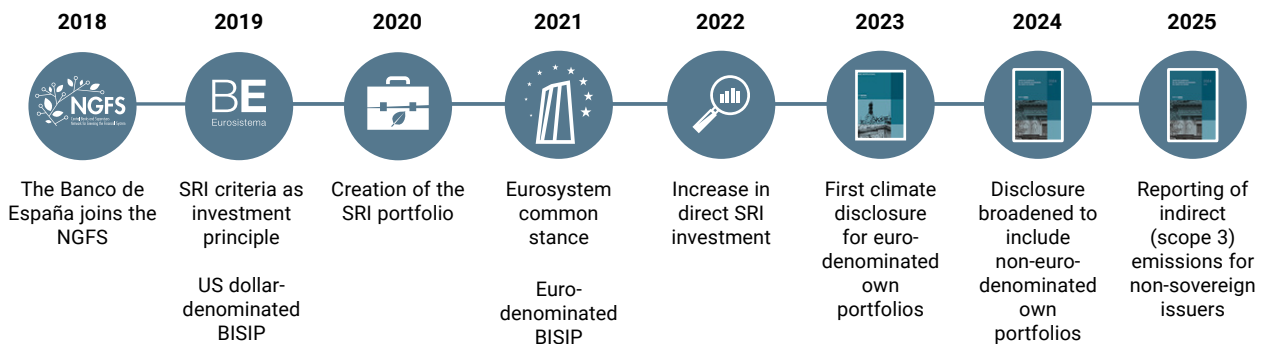
18 Banco de España (2021a).

Figure 1  
Key elements of the Banco de España's SRI strategy



SOURCE: Banco de España.

Figure 2  
Key milestones in the Banco de España's SRI strategy



SOURCE: Banco de España.

## 4 Risk management

NCBs' investment portfolios are exposed to climate-related financial risks. In line with the TCFD recommendations, the Banco de España distinguishes between transition risks (which refer to the adjustment towards a low-carbon economy) and physical risks (which refer to extreme weather events or long-term climate change).

These two climate risks are, in turn, integrated into traditional financial risks (credit, market, liquidity and operational risks), which facilitates their overall management. In the identification and analysis stages, the Banco de España employs conventional tools, which can detect climate risks reflected in asset prices, volatility and credit assessments, along with specialist tools for conducting activities such as scenario analyses and stress tests. It also collaborates closely with the Eurosystem to refine methodologies and ensure the availability of accurate and reliable climate data.

The Banco de España's risk policies and strategies are geared towards achieving the investment objectives by minimising exposures to risk and applying SRI criteria. The investment framework takes into account the materiality of the climate risks in the portfolios and defines risk management priorities. This analysis considers a dual perspective: first, the potential effect of climate risks in the form of economic losses or an adverse impact on capital; second, the role of the Bank's balance sheet vis-à-vis climate risks, essentially in respect of the GHG emissions produced by the entities included in its portfolios or those saved thanks to investment in green bonds as opposed to traditional bonds.

As sovereign debt is the predominant asset class in the Banco de España's portfolios, transition risks are determined by carbon emissions and the decarbonisation process of the various emission jurisdictions, alongside the transition policies that have been or will be implemented by the corresponding governments and authorities. The physical risks associated with the different regions can influence the market value of bonds in the near term and also represent a potential volatility factor.

The investment portfolio goals offer limited scope for specific climate risk management measures. Nevertheless, the financial risk framework for such investments, which are founded on the principles of liquidity and prudence, allows for the effective management of risks such as climate risk. The Banco de España controls this risk through limit systems to prevent a concentration of exposures and also applies specific measures, such as the SRI portfolio, detailed in Section 3 on Strategy.

Since the Banco de España published its first report on the climate-related aspects of its investment portfolios in 2023, its transparency around these risks has gradually increased, as has the quality of data available.

## 5 Metrics and targets

### 5.1 Metrics

This section presents the main results for the climate metrics applied to the euro-denominated (see Section 5.1.1) and non-euro-denominated (see Section 5.1.2) portfolios, and updates the information published in the 2025 report. The data disclosed cover just under 60% of the total portfolio at end-2025 (Chart 1). Gold holdings, special drawing rights (SDRs)<sup>19</sup> and cash and cash equivalents (such as deposits) are excluded from this analysis because there is currently no generally accepted methodology to assess their impact from a climate perspective. The lesser coverage compared with the previous year is chiefly attributable to the increase in valuation of gold holdings in 2025.

For the first time, this report incorporates the disclosure of the relative metrics related to scope 3 GHG emissions (i.e. indirect emissions) for non-sovereign assets, as included in the coordinated exercise at Eurosystem level.<sup>20</sup> These metrics complement the disclosure of the total scope 3 emissions for these assets, which was incorporated for the first time last year. The metrics for scope 3 GHG emissions are reported separately to those for scope 1 and 2, because the scope 3 emissions data remain subject to data quality issues that limit their reliability and comparability over time.<sup>21</sup> Nevertheless, an overall metric for the three scopes can be obtained, as the sum of their values.<sup>22</sup>

Ever since the first edition of this report was published in 2023, the metrics used have been aligned with the recommendations set out by the TCFD (TCFD, 2021), the NGFS (NGFS, 2021) and the Partnership for Carbon Accounting Financials (PCAF, 2022 and 2025). Moreover, the framework used is in line with the harmonisation guidelines adopted by the ECB's Governing Council for Eurosystem NCBs.<sup>23</sup> In particular, the following four metrics are used:

- weighted average carbon intensity;
- total GHG emissions;
- carbon footprint;
- carbon intensity.

<sup>19</sup> SDRs are included under claims on the International Monetary Fund (IMF). They are an international reserve asset created by the IMF to complement its members' official reserve assets. SDRs are defined in terms of a basket of currencies. Their value is determined as the weighted sum of the exchange rates of the five major currencies: the US dollar, the euro, the Japanese yen, the pound sterling and the Chinese renminbi.

<sup>20</sup> For more information, see Box 2.

<sup>21</sup> Quality issues affecting scope 3 emissions data continue to limit their reliability and comparability over time. These issues include: (i) considerable estimation uncertainty, (ii) diverging estimates across different data providers, and (iii) methodological refinements.

<sup>22</sup> The key climate metrics used allow for such aggregation.

<sup>23</sup> See Table A2.1 (Annex 2) for the formulae of the four metrics.

Chart 1

**Financial assets of the Banco de España, 2025 (a)**



**SOURCE:** Banco de España (2026a).

**a** Assets that fall within the scope of this climate report are shown in green; assets excluded owing to the lack of a standardised methodology are shown in grey. The size of the rectangles is proportional to the respective asset volume, based on the accounting valuation used in the Annual Accounts of the Banco de España 2025 (Banco de España, 2026a).

*Weighted average carbon intensity (WACI)* measures a portfolio’s exposure to carbon-intensive issuers and is expressed in tonnes of CO<sub>2</sub> equivalent<sup>24</sup> per million euro. It is calculated by first determining each issuer’s carbon intensity – normalising their GHG emissions by a measure of their economic activity – before weighting these values by each investor’s relative share in the portfolio.

*Total GHG emissions* reflects the emissions associated with each portfolio in absolute terms, expressed in tonnes of CO<sub>2</sub>e. As this metric is not adjusted for portfolio size, it is of limited use for drawing comparisons between portfolios or over time, as it tends to mainly reflect changes in the volume or value of the assets reported.

*Carbon footprint* measures total GHG emissions relative to the portfolio’s size and is expressed in tonnes of CO<sub>2</sub>e per million euro invested. This enables more useful comparisons to be made between portfolios of different sizes and at different points in time, as with the WACI.

For its part, *carbon intensity* measures total GHG emissions normalised using an economic variable and is expressed in tonnes of CO<sub>2</sub>e per million euro. This metric assesses a portfolio’s carbon emission efficiency by measuring the size of each issuer relative to its revenues.

All of these metrics, recommended by the TCFD and now included in the ISSB standards, were designed to characterise, from a climate standpoint, investments in assets issued by non-financial and, to a lesser extent, financial corporations. However, the portfolios managed by NCBs tend to be largely composed of other asset classes, especially sovereign bonds.

<sup>24</sup> Carbon dioxide equivalent (CO<sub>2</sub>e) is a measure used to compare different GHG emissions. It converts other GHG emissions into their CO<sub>2</sub> equivalent (i.e. with the same global warming potential). For more information, see [Eurostat](#).

Accordingly, the metrics have to be adapted to ensure their applicability to other types of instruments.<sup>25</sup>

In the case of sovereign bonds, two approaches are used for allocating GHG emissions:

- a) the *production approach*, under which all GHG emissions produced in a country, including those linked to domestic consumption and exports, are allocated to the sovereign issuer;
- b) the *consumption approach*, which includes part of the GHG emissions produced in the country, correcting for international trade effects; emissions allocated to imports are included while those allocated to exports are excluded.<sup>26</sup>

This edition does not include emissions under the *government approach*, i.e. the central government's direct and indirect GHG emissions. The decision to exclude this approach reflects the updated PCAF standard<sup>27</sup> for the financial industry, which recognises only production emissions, including and excluding adjustments for emissions related to land use, land-use change and forestry (LULUCF),<sup>28</sup> and consumption emissions as relevant methodologies for climate disclosures by sovereign bond investors.

Both the production and consumption approaches lead to a double counting issue and introduce an upward bias in indicators when a portfolio combines sovereign bonds with other securities, since the GHG emissions of non-sovereign agents will also be included in the total emissions produced in the country.

### 5.1.1 Euro-denominated portfolios

The Banco de España's euro-denominated own portfolios comprise euro-denominated debt securities issued by euro area residents and non-residents that are not held for monetary policy purposes. These portfolios include sovereign bonds, sub-sovereign bonds (issued by regional governments), bonds issued by supnationals and agencies, and covered bonds. As Chart 2 shows, sovereign bonds continue to account for most of these investments, representing 92% at end-2025, a very similar share to that recorded in 2024.

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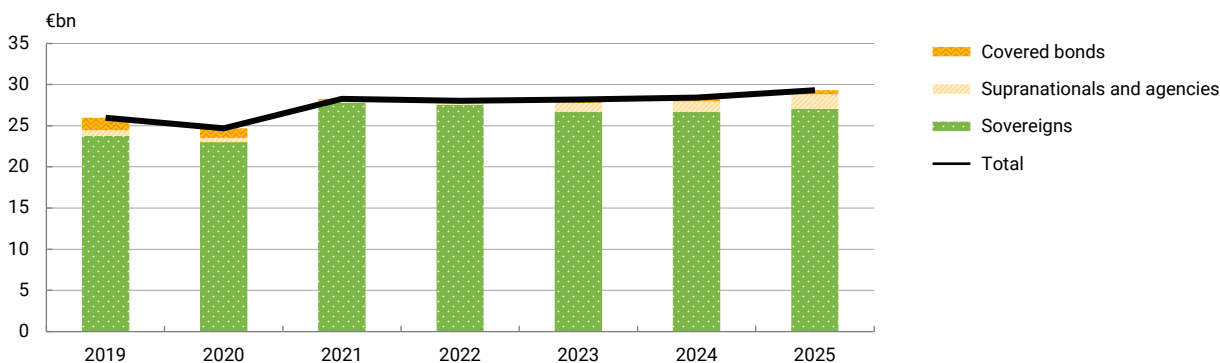
<sup>25</sup> For more information, see Arranz Gozalo, González Martínez and de Luis López (2025).

<sup>26</sup> The data source used to calculate the metrics for sovereign bond emissions under the consumption approach has changed in this year's report, following the termination of the Eurosystem's agreement with Carbon4 Finance, and they are now calculated based on data supplied by ISS. For consistency purposes, the previous years' metrics have been recalculated and are presented again in the annexes.

<sup>27</sup> PCAF recommends considering both production and consumption intensity indicators when comparing, monitoring and engaging with sovereigns. Government emissions are no longer mentioned in the section covering sovereign debt. For more information, see PCAF (2025). Following the exclusion of this approach in the PCAF methodology, ISS stopped providing data on government emissions in December 2024.

<sup>28</sup> For a more detailed explanation of this concept, see Box 1 of the 2024 report.

Chart 2  
Holdings in euro-denominated investment portfolios, 2019-25 (a)



SOURCE: Banco de España.

a Nominal amounts. The holdings reported are the position at year-end.

Table 1 presents the main indicators for the Banco de España’s euro-denominated investment portfolios at end-2025 (the last full year available) applying the various climate metrics.<sup>29</sup> One of the main changes this year is the disclosure of relative metrics that include scope 3 emissions for non-sovereign assets.<sup>30</sup> This table also shows the total share of investment in social and sustainable bonds and the breakdown of the proportion invested in green bonds by asset type for 2025 (see Annex 3 for previous years). In addition, a broader analysis with complementary metrics is provided in Section 5.1.3.

These values are best interpreted from a dual perspective: a time perspective, to assess how the indicators change over time; and a spatial or geographical perspective, to facilitate comparison with the portfolios of other leading NCBs.

As regards the spatial or geographical perspective, the Eurosystem has worked to create a common disclosure framework which is significantly enhancing comparability. However, it should be borne in mind that these portfolios may be subject to different mandates and may vary substantially in terms of composition or size. For instance, the reports published in 2025 showed that the Banco de España portfolios covered by the analysis were among the largest in the Eurosystem, which naturally results in a higher volume of emissions in absolute terms. However, once this size effect is corrected through relative metrics, the emissions are well below the NCB median, because most of the assets in the Banco de España’s portfolios correspond to low carbon intensity issuers.

<sup>29</sup> Table A.1 (Annex 1) sets out the main variables used by type of approach and asset. More details are provided in Annex 2. Box 2 of the 2024 report discusses the data sources for the variables used to calculate the indicators.

<sup>30</sup> In 2025 scope 3 carbon emissions accounted for more than 99% of total non-sovereign asset emissions, in both absolute and relative terms. This owes to how they operate: they have low administrative expenses (scope 1 and 2), but they finance projects that cause substantial scope 3 emissions.

**Table 1**  
**Main climate-related metrics for euro-denominated investment portfolios at end-2025**

Holdings in euro-denominated own portfolios, 2025	Sovereigns (a)			Non-sovereigns		
	Approaches			Total	Supranational and agency bonds	Covered bonds
	Country (excl. LULUCF) (c)	Country (incl. LULUCF) (c)	Consumption			
<b>Main metrics</b>						
Portfolio size (€bn)		27.1		2.3	1.7	0.5
WACI (b)	106.0	87.7	6.8	3.3	3.7	1.9
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	100%	100%	100%	98%	99%	92%
				1,926.7	2,118.2	1,237.6
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>				98%	99%	92%
Total absolute emissions	2,867,051	2,371,898	3,425,656	688	530	158
<i>(scope 1 and 2 in tCO<sub>2</sub>e)</i>	100%	100%	100%	97%	98%	92%
<i>(scope 3 in tCO<sub>2</sub>e)</i>				288,739	171,135	117,603
				97%	98%	92%
Carbon footprint	106.0	87.7	126.7	0.3	0.3	0.3
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m invested)</i>	100%	100%	100%	97%	98%	92%
<i>(scope 3 in tCO<sub>2</sub>e/€m invested)</i>				132.3	100.4	245.6
				97%	98%	92%
<b>Additional metrics</b>						
Carbon intensity	106.0	87.7	6.8	3.0	4.2	1.5
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>	100%	100%	100%	97%	98%	92%
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>				1,260.8	1,352.4	1,147.6
				97%	98%	92%
Percentage of green bonds		5.0%		62%	75%	19%
(%)		100%		100%	100%	100%
Percentage of social and sustainable bonds		2.5%		11%	15%	0%
(%)		100%		100%	100%	100%

**SOURCE:** Banco de España calculations, drawing on ISS, World Bank, EEA and BIS data. Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report).

**NOTE:** The percentages in italics beneath the metrics denote the level of data availability. The metrics are calculated using nominal values. The holdings refer to the position at year-end. Holdings in the euro-denominated BISIP fund are included under their respective asset class.

Information taken from the data provider ISS which was one of the firms selected in the joint Eurosystem procurement process, led by the Bundesbank, in 2021-22. See Deutsche Bundesbank (2022).

**a** Includes sovereign and sub-sovereign bonds and bonds issued by public sector entities.

**b** Weighted average carbon intensity.

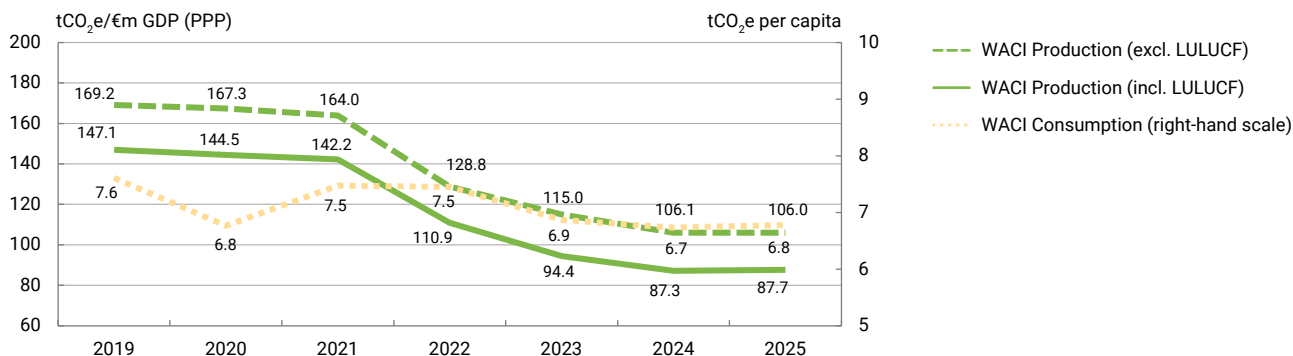
**c** Due to the mathematical construction of the formula for sovereign assets, and under the production approach, when GDP is used as an attribution and normalisation factor the WACI, carbon footprint and carbon intensity metrics yield the same outcome.

From a time perspective, Table A3.1 (Annex 3) reproduces Table 1 for the years 2019-24. Focusing on the most notable aspects, Chart 3 shows how the WACI metric has changed up to 2025 for sovereign bonds, as these account for the main core of the euro-denominated investment portfolios. Excluding the pandemic year (2020),<sup>31</sup> both versions of this indicator steadily declined

<sup>31</sup> 2020 was the worst year of the COVID-19 pandemic, which had a singular and atypical impact on both economic and GHG emissions indicators.

Chart 3

**WACI according to different approaches: sovereign bonds in euro-denominated portfolios, 2019-25 (a)**



**SOURCE:** Banco de España calculations, drawing on ISS, World Bank and EEA data.

**a** Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report). The figure for 2019 for the consumption approach has been estimated drawing on ISS data.

during the period analysed, reflecting a gradual improvement in the quality of the portfolio, in terms of its contribution to combating climate change. Moreover, a comparison of the different approaches used to allocate emissions to sovereign bonds reveals that relative emissions have declined across the board, albeit more gradually under the consumption approach. This difference arises because under this approach GHG emissions are relative to the population, which is more stable over time than the macroeconomic variables (such as GDP) used for the other approach.

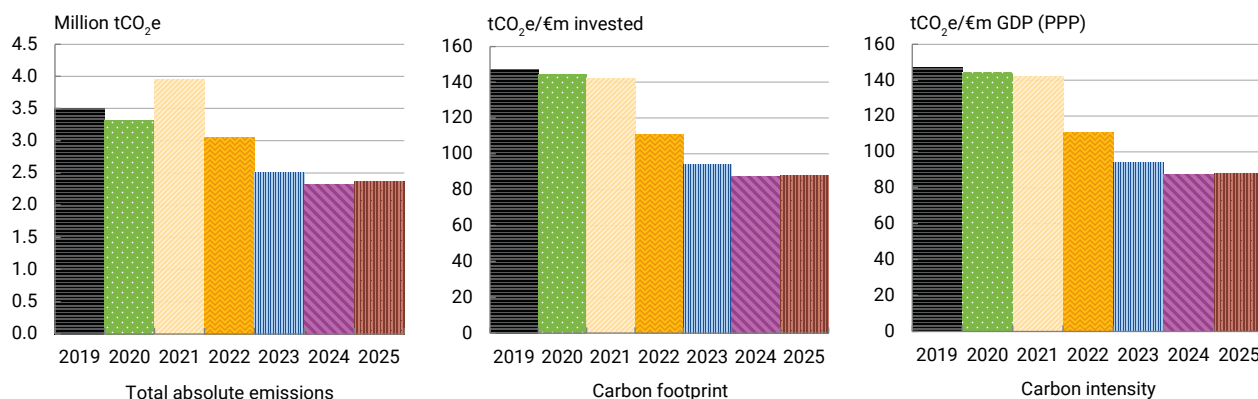
It is worth noting that the data for the most recent year (2025 in the case of this report) are subject to an important limitation due to a lack of information available. While the composition of the portfolios corresponds to 2025, the emissions data available are for the immediately preceding year (see Box 2 of the 2024 report for a more detailed explanation of the methodology). Therefore, the changes between 2024 and 2025 solely reflect developments in portfolio size and composition, rather than changes in issuers' GHG emissions.

Chart 4 also shows the changes in absolute carbon emissions (Chart 4.a), the carbon footprint (Chart 4.b) and carbon intensity (Chart 4.c) for sovereign bonds. In this case, only the results under the production approach, including LULUCF emissions, are shown. By methodological construction, the carbon footprint and carbon intensity metrics yield the same result.

The trajectory of total GHG emissions is mainly determined by changes in portfolio size, meaning that its analytical value is more limited. By contrast, the relative metrics (such as carbon footprint or carbon intensity) correct this size effect and offer a clearer picture. As with the WACI, these metrics show an improvement over the period analysed, leaving aside the exceptional behaviour observed during the pandemic year. This echoes the conclusion drawn from Chart 3, i.e. gradual progress towards an investment portfolio more aligned with the climate goals, as reflected in the 41% decrease in the carbon footprint between 2019 and 2024 (the latest year for which climate data are available).

Chart 4

**Metrics for sovereign bonds in euro-denominated portfolios, 2019-25: production approach, including LULUCF emissions**



**SOURCE:** Banco de España calculations, drawing on ISS, World Bank and EEA data.

**NOTE:** Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report).

### 5.1.2 Non-euro-denominated portfolios

The Banco de España independently manages the foreign reserves that have not been transferred to the European Central Bank. These reserves comprise debt securities issued by both euro area and non-euro area residents denominated in US dollars, Canadian dollars, pound sterling, Japanese yen<sup>32</sup> and Chinese renminbi.<sup>33</sup> These portfolios include current accounts, deposits, sovereign bonds, sub-sovereign bonds (issued by regional governments), bonds issued by supranationals and agencies, and covered bonds, as well as other foreign currency assets.

The climate metrics are calculated taking into account positions in sovereign and sub-sovereign bonds, bonds issued by supranationals and agencies, and covered bonds. However, the analysis excludes cash, cash equivalents and derivatives, given that, as indicated above, there is still no standardised methodology for measuring the emissions associated with these instruments. As a result, the totals presented in this report (Chart 5) do not exactly match the size of the portfolios, since they are also influenced by asset composition and whether each asset type falls within the scope of the report. This effect was especially evident between 2022 and 2023. Turning to the distribution of assets, at end-2025 sovereign bonds accounted for 87% of the reported assets included in the chart, unchanged from 2024.

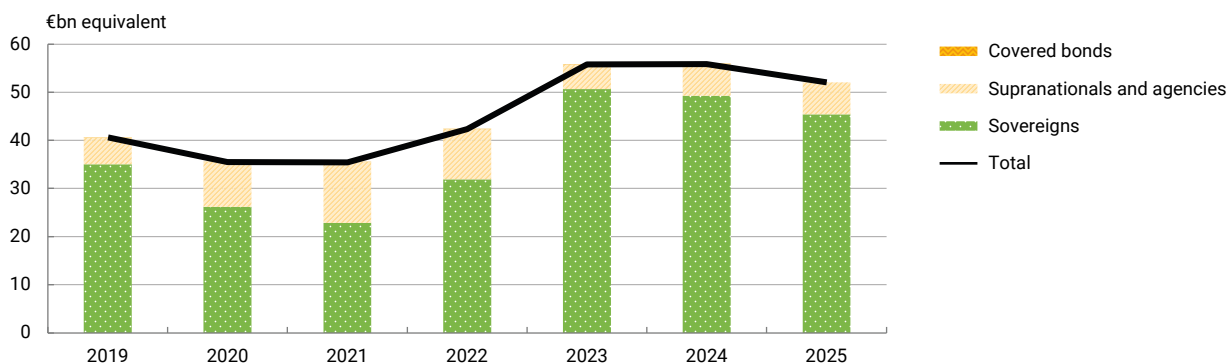
Table 2 presents the main indicators derived from applying the climate metrics to the assets reported for the non-euro-denominated investment portfolios at end-2025.<sup>34</sup> For the first time, the relative metrics for scope 3 GHG emissions associated with non-sovereign assets are also

<sup>32</sup> The foreign exchange risk on yen-denominated investments is covered by swap transactions (mainly against the US dollar).

<sup>33</sup> Banco de España (2026a).

<sup>34</sup> Figure A1.1 (Annex 1) sets out the main variables used by type of approach and asset. More details are provided in Annex 2. Box 2 of the 2024 report discusses the data sources for the variables used to calculate the indicators.

Chart 5  
Holdings in non-euro-denominated investment portfolios, 2019-25 (a)



SOURCE: Banco de España.

a Nominal amounts. The holdings reported are the position at year-end.

included this year.<sup>35</sup> The table also shows the aggregate share of investment in social and sustainable bonds, along with the breakdown of investment in green bonds by asset type for 2025 (see Annex 4 for previous years). Complementary metrics providing further information can be found in Section 5.1.3.

Annex 4 presents the same table for the period 2019-24, showing how the indicators have changed over time. Focusing on the key results, Chart 6 shows how the WACI metric has performed for sovereign bonds which, as indicated above, account for the bulk of non-euro-denominated investment portfolios. The data show that, leaving aside 2020 (the worst year of the COVID-19 pandemic), both versions of this indicator have decreased since 2019, which would indicate a gradual improvement in the portfolio's climate-related quality. As is the case with the euro-denominated portfolios, the consumption approach shows a more gradual decline than the other approaches, since the population (the variable analysed relative to consumption GHG emissions) is more stable over time than GDP.

It is worth noting that the data for the most recent year (2025 in this report) are subject to an important limitation due to a lack of available information. While the composition of the portfolios corresponds to 2025, the emissions data available are for 2023<sup>36</sup> (see Box 2 of the 2024 report for a more detailed explanation of the methodology). Therefore, the changes observed in 2024 and 2025 reflect changes in portfolio size, portfolio composition and macro-aggregates, rather than changes in issuers' GHG emissions.

35 In 2025 scope 3 carbon emissions accounted for more than 99% of total non-sovereign asset emissions, both in absolute and relative terms. This is due to the nature of their business operations, which have low administrative expenses (scope 1 and 2), while the projects they finance give rise to substantial scope 3 emissions.

36 For 2023 onwards the UN Framework Convention on Climate Change (UNFCCC) data for 2022 have been used for sovereign holdings in the United States, as the Eurosystem's data provider has not updated its US climate data for 2023. This is due to the United States' withdrawal from the UNFCCC, formally communicated on 27 February 2026 and effective in February 2027. The move followed the announcement on 20 January 2025 that the country would withdraw from the Paris Agreement and would not implement its nationally determined contribution.

**Table 2**  
**Main climate-related metrics for non-euro-denominated investment portfolios at end-2025**

Holdings in non-euro-denominated own portfolios, 2025	Sovereigns (a)			Non-sovereigns		
	Approaches			Total	Supranational and agency bonds	Covered bonds
	Country (excl. LULUCF) (c)	Country (incl. LULUCF) (c)	Consumption			
<b>Main metrics</b>						
Portfolio size (€bn eq.)	45.4			6.7	6.7	–
WACI (b)	229.4	204.6	18.0	0.6	0.6	–
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	100%	100%	100%	88%	88%	–
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>				1,734.8	1,734.8	–
				88%	88%	–
Total absolute emissions	10,412,663	9,283,506	10,879,632	712	712	–
<i>(scope 1 and 2 in tCO<sub>2</sub>e)</i>	100%	100%	100%	85%	85%	–
<i>(scope 3 in tCO<sub>2</sub>e)</i>				613,464	613,464	–
				85%	85%	–
Carbon footprint	229.4	204.6	239.7	0.1	0.1	–
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m eq. invested)</i>	100%	100%	100%	85%	85%	–
<i>(scope 3 in tCO<sub>2</sub>e/€m eq. invested)</i>				107.9	107.9	–
				85%	85%	–
<b>Additional metrics</b>						
Carbon intensity	229.4	204.6	17.3	1.0	1.0	–
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	100%	100%	100%	85%	85%	–
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>				867.1	867.1	–
				85%	85%	–
Percentage of green bonds		1.5%		30%	30%	–
(%)		100%		100%	100%	–
Percentage of social and sustainable bonds		–		15%	15%	–
(%)		100%		100%	100%	–

**SOURCE:** Banco de España calculations, drawing on ISS, World Bank and BIS data. Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report).

**NOTE:** The percentages in italics beneath the metrics denote the level of data availability. The metrics are calculated using nominal values. The holdings refer to the position at year-end. Holdings in the US dollar-denominated BISIP fund are included under their respective asset class.

Information taken from the data provider ISS which was one of the firms selected in the joint Eurosystem procurement process, led by the Bundesbank, in 2021-22. See Deutsche Bundesbank (2022).

**a** Includes sovereign and sub-sovereign bonds and bonds issued by public sector entities.

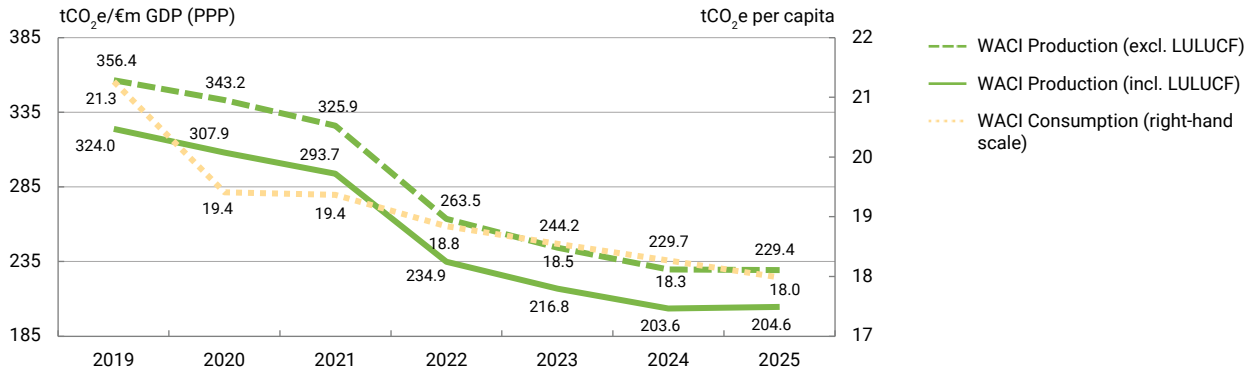
**b** Weighted average carbon intensity.

**c** Due to the mathematical construction of the formula for sovereign assets, and under the production approach, when GDP is used as an attribution and normalisation factor the WACI, carbon footprint and carbon intensity metrics yield the same outcome.

Chart 7.a shows the changes in absolute carbon emissions, Chart 7.b presents the carbon footprint and Chart 7.c shows carbon intensity, again for sovereign bonds. In this case, only the results under the production approach, including LULUCF emissions, are shown. As previously explained, by methodological construction the carbon footprint and carbon intensity metrics coincide under this approach.

Chart 6

**WACI according to different approaches: sovereign bonds in non-euro-denominated portfolios, 2019-25 (a)**

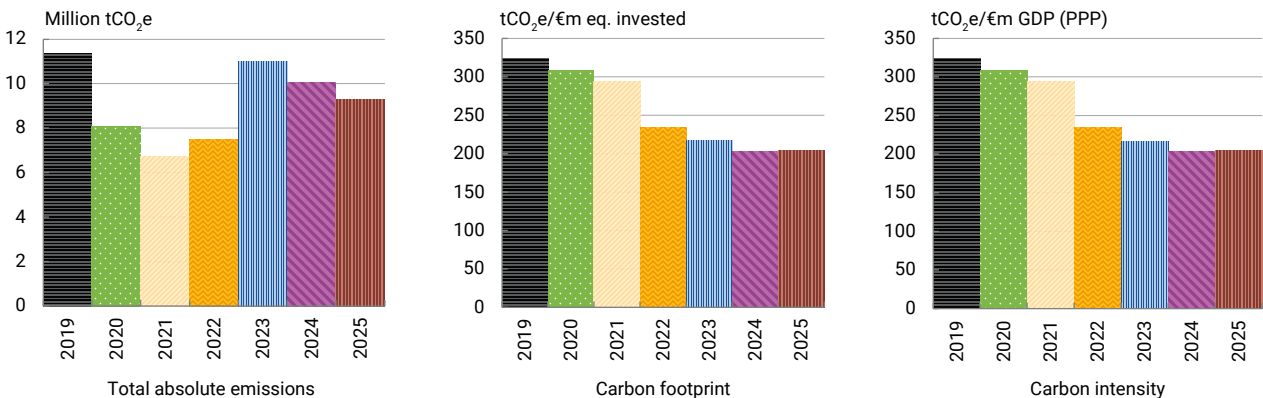


SOURCE: Banco de España calculations, drawing on ISS and World Bank data.

a Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report). The figure for 2019 for the consumption approach has been estimated drawing on ISS data.

Chart 7

**Metrics for sovereign bonds in non-euro-denominated portfolios, 2019-25: production approach, including LULUCF emissions**



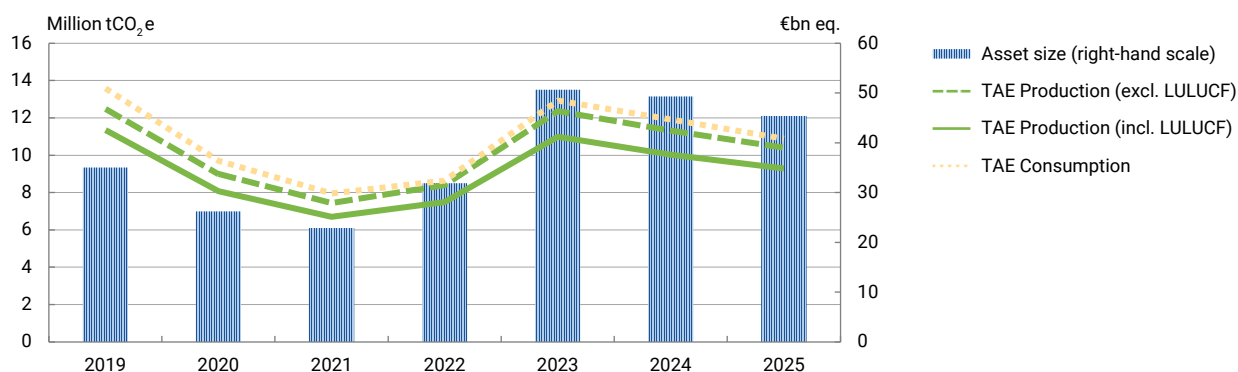
SOURCE: Banco de España calculations, drawing on ISS and World Bank data.

NOTE: Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report).

The trajectory of total GHG emissions is primarily determined by changes in the volume of reported assets. Consequently, as noted at the beginning of this section, its analytical value is limited as it is strongly influenced by portfolio size. This relationship can be seen more clearly in Chart 8. By contrast, the relative metrics (such as carbon footprint and carbon intensity) correct this size effect and offer a clearer picture of developments. Both metrics show an improvement since the start of the period analysed and, like WACI, have declined steadily since 2019. This echoes the conclusion drawn from Chart 6, showing steady progress towards a portfolio more in line with the climate goals, as reflected in a 33% decrease in the carbon footprint between 2019 and 2023 (the latest year for which climate data are available).

Chart 8

**Absolute emissions and size of sovereign assets in non-euro-denominated portfolios (a) (b)**



**SOURCE:** Banco de España calculations, drawing on ISS and World Bank data.

- a Nominal values for sovereign assets. Holdings refer to the position at year-end.
- b TAE: total absolute emissions.

### 5.1.3 Investment in green bonds

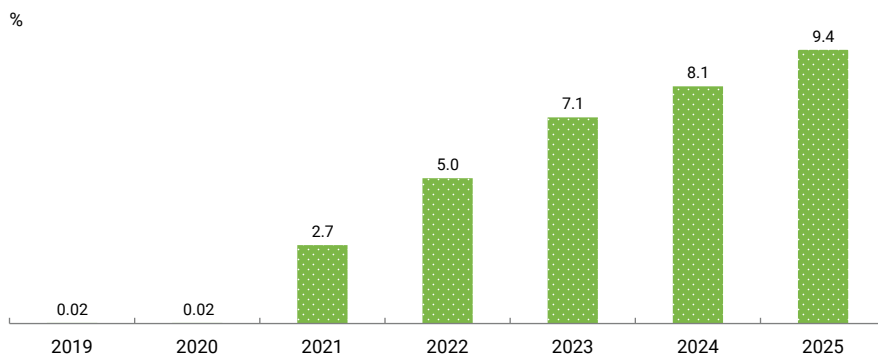
Although Sections 5.1.1 and 5.1.2 present information on the proportion of both euro and non-euro-denominated portfolios invested in green bonds in 2025 (Tables 1 and 2, respectively), this section expands on that analysis using additional specific metrics for these assets. Charts 9 and 10 show how the share of green bonds in the Banco de España’s euro and non-euro-denominated own portfolios has continued to grow since 2019, as a result of the investment strategy adopted (described in Section 3). Again, this indicator confirms that the portfolio composition is appropriately aligned with the goals.

Another relatively common way to measure the environmental impact of investment in green bonds is by estimating “avoided emissions”: investment in green bonds translates into funding for renewable energy and energy efficiency projects, among others, which can be seen as one way of reducing GHG emissions, measured in tonnes of CO<sub>2</sub>e avoided. The BIS compiles this indicator for its green funds. It does so by estimating the annual impact expected of the projects financed by the issuers of the green bonds in which the fund invests using the proceeds raised by the green bonds, once at their expected operating capacity in normal conditions, based on the data provided by the issuers of the green bonds in the investment fund portfolios.

As Table 3 shows, the estimated environmental impact attributable to the Banco de España’s holding in the euro-denominated BIS green bond fund at end-September 2025 was 205,335 tonnes of CO<sub>2</sub>e avoided annually. Renewable energy was the main contributor to this total, with an estimated 120,727 tonnes of CO<sub>2</sub>e avoided annually. Next came clean transport projects (23% of estimated avoided emissions), natural resources and land use (15%), and energy efficiency, green buildings, waste management and biodiversity (4% combined) (Chart 11). The environmental impact of these estimated avoided CO<sub>2</sub>e emissions is equivalent to just over

Chart 9

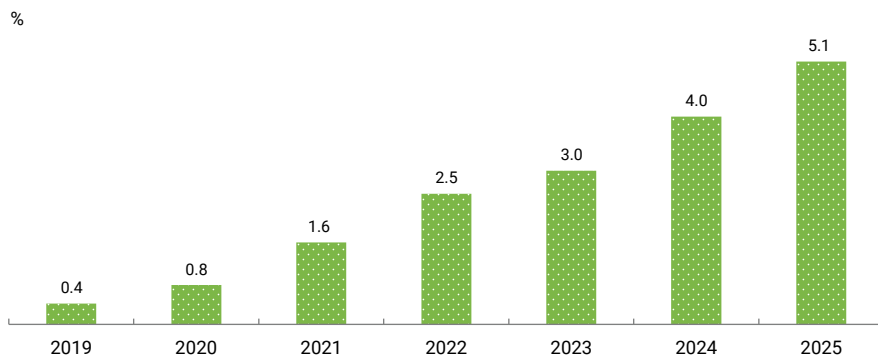
**Green investment as a percentage of the holdings in euro-denominated investment portfolios**



SOURCE: Banco de España calculations.

Chart 10

**Green investment as a percentage of the holdings in non-euro-denominated investment portfolios**



SOURCE: Banco de España calculations.

Table 3

**Additional metrics relating to indirect holdings of euro and US dollar-denominated green bonds**

	2021	2022	2023	2024	2025	
Avoided emissions euro-denominated BISIP fund (a) (tCO <sub>2</sub> e)	151,437	393,594	299,670	205,800	205,335	
(b)	95%	96%	84%	90%	97%	
	2020	2021	2022	2023	2024	2025
Avoided emissions US dollar-denominated BISIP fund (a) (tCO <sub>2</sub> e)	69,856	65,175	43,286	48,307	46,628	47,568
(b)	100%	94%	95%	83%	81%	85%

SOURCE: Banco de España calculations, drawing on aggregate data provided by the BIS.

a Annual avoided emissions estimated for each fund, attributed based on the holding therein. Data at end-September each year.

b The percentages in italics beneath the metrics denote the level of data availability. Previous years' figures have been updated per the data revisions.

Chart 11

**Environmental impact of the estimated avoided GHG emissions by project type, as a percentage. Euro-denominated BISIP (2025) (a)**



SOURCE: Banco de España calculations, drawing on aggregate data provided by the BIS.

a Annual avoided emissions estimated for each fund, attributed based on the holding therein. Data as at end-September 2025.

Chart 12

**Environmental impact of the estimated avoided GHG emissions by project type, as a percentage. US dollar-denominated BISIP (2025) (a)**



SOURCE: Banco de España calculations, drawing on aggregate data provided by the BIS.

a Annual avoided emissions estimated for each fund, attributed based on the holding therein. Data as at end-September 2025.

480,000 barrels of oil consumed annually or more than 48,000 cars driven for a year. It is also equivalent to charging 18 billion smartphones or the annual electricity consumption of over 46,000 households.

As Table 3 also shows, the estimated environmental impact attributable to the Banco de España’s holding in the US dollar-denominated BIS green bond fund at end-September 2025 was 47,568 tonnes of CO<sub>2</sub>e avoided annually. Renewable energy was the main contributor to this total, with an estimated 34,722 tonnes of CO<sub>2</sub>e avoided annually, followed by natural resources and land use projects (12% of estimated emissions avoided), clean transportation (6%), waste management (4%) and green buildings, energy efficiency and biodiversity (5% combined) (Chart 12). The

Table 4  
Additional metrics relating to direct investment in green bonds (a)

	2024	2025
Avoided emissions of direct investment in green bonds (tCO <sub>2</sub> e)	1,234,417	1,176,978
(b)	71%	91%

SOURCE: Banco de España, calculated drawing on aggregate data provided by the Luxembourg Green Exchange (LGX) by the Luxembourg Stock Exchange.

a Data at end-March each year.

b The percentages in italics beneath the metrics denote the level of data availability.

Chart 13  
Environmental impact of the estimated avoided GHG emissions by project type, as a percentage. Direct investment in green bonds (2025)



SOURCE: Banco de España calculations, drawing on data from the Luxembourg Green Exchange (LGX) by the Luxembourg Stock Exchange.

environmental impact of these estimated avoided annual emissions of CO<sub>2</sub>e is equivalent to slightly more than 110,000 barrels of oil consumed annually or more than 11,000 cars driven for a year. It is also equivalent to charging over 2 billion smartphones or to the annual electricity consumption of over 6,000 households.

Changes in the avoided emissions attributable to the Banco de España’s investment in these funds are driven by two components: first, the emissions avoided per fund participation unit and, second, the Banco de España’s total holdings in the fund. As the latter held unchanged last year, the movement observed was entirely attributable to the former.

Turning to direct investments in green bonds in the SRI portfolio, Table 4 shows that the estimated environmental impact attributable to the Banco de España’s holdings at end-March 2025 was 1,176,978 tonnes of CO<sub>2</sub>e avoided annually. Among the projects financed, clean transportation accounted for the largest share (36% of the total), followed by renewable energy and energy efficiency (both 21%), green buildings (12%) and sustainable water and wastewater management (6%). The rest was attributable to other categories, such as natural resources and land use, climate change adaptation, eco-efficient products and processes, and pollution prevention and control, among others (4% combined) (Chart 13).

Figure 3

**Equivalencies of the environmental impact of estimated avoided GHG emissions.  
Direct investment in green bonds (2025)**



**SOURCE:** Banco de España calculations, drawing on data from the Luxembourg Green Exchange (LGX), by the Luxembourg Stock Exchange, and the United States Environmental Protection Agency (EPA) Greenhouse Gas Equivalencies Calculator.

The scale of this environmental impact (shown in Figure 3) is equivalent to the GHG emissions of nearly 250,000 cars driven for a year. It is also equivalent to the CO<sub>2</sub> emissions generated from almost 2.5 million barrels of oil consumed annually, charging over 85 billion smartphones or the annual electricity consumption of over 215,000 households. The impact is equivalent to recycling more than 375,000 tonnes of waste or more than 300 wind turbines functioning for a year. In addition, the projects financed by green bonds contribute to achieving the United Nation's Sustainable Development Goals (SDGs). See Box 1 for further information on the relationship between SDGs and the Banco de España's direct holdings in green bonds.

## 5.2 Targets

The Banco de España is committed to decarbonising its euro and non-euro-denominated investment portfolios, to make them carbon neutral by 2050. This is in line with the Paris Agreement goals and with the carbon neutral commitment set out in the European Climate Law, which aims for Europe's economy and society to become climate-neutral by 2050.

Consistent with the common stance adopted by the Eurosystem, the Banco de España thus has a clear long-term target to decarbonise its own portfolios, established at the institutional level.

Annual tracking of the indicators presented in this report helps guide and oversee the transition process over time.






In the coming years emissions linked to investments in sovereign bonds are expected to progressively decline, in line with the measures adopted by governments to meet their emission-reduction commitments under the Paris Agreement and the European Climate Law. Given that sovereign bonds account for a very significant share of the Banco de España's portfolios, progress towards this target will largely depend on the pace of decarbonisation in the issuing countries. Accordingly, it is important for the Banco de España that governments meet those commitments.

As the indicators are further developed and improved, the Banco de España will consider establishing quantitative goals over shorter-term horizons.

## Annex 1 Variables by approach and asset type

Figure A1.1

**Variables by approach and asset type**

	Sovereigns and sub-sovereigns		Supranationals and agencies	Covered bonds
	Approach			
	Country 	Consumption 		
<b>GHG emissions allocation</b> 	Emissions produced within a country's physical borders, including domestic consumption and exports (excluding and including LULUCF GHG emissions)	Domestic demand emissions, taking into account trade effects (including imports and excluding exports)	GHG emissions (scope 1 and 2; scope 3)	
<b>Normalisation</b> 	GDP (PPP)	Population	Revenues	
<b>Attribution</b> 	GDP (PPP)		Enterprise value including cash (EVIC)	

SOURCE: Banco de España.

## Annex 2 Metrics and variables

Table A2.1

### Description of main metrics

Metric	Formula
WACI (scope 1 and 2; and scope 3 in tCO <sub>2</sub> e/€m revenues, GDP (PPP) or per capita)	$WACI = \sum_i^i \left( \frac{\text{investment value}_i}{\text{current portfolio value}} \times \frac{\text{GHG emissions}_i}{\text{revenues}_i, \text{GDP (PPP)}_i \text{ or population}_i} \right)$
Total absolute emissions (scope 1 and 2; and scope 3 in tCO <sub>2</sub> e)	$\text{Total absolute emissions} = \sum \left( \frac{\text{investment value}_i}{\text{GDP (PPP)}_i \text{ or EVIC}_i} \times \text{GHG emissions}_i \right)$
Carbon footprint (scope 1 and 2; and scope 3 in tCO <sub>2</sub> e/€m invested)	$\text{Carbon footprint} = \frac{\sum_i^i \left( \frac{\text{investment value}_i}{\text{GDP (PPP)}_i \text{ or EVIC}_i} \times \text{GHG emissions}_i \right)}{\text{current portfolio value}}$
Carbon intensity (scope 1 and 2; and scope 3 in tCO <sub>2</sub> e/€m revenues, GDP (PPP) or per capita)	$\text{Carbon intensity} = \frac{\sum_i^i \left( \frac{\text{investment value}_i}{\text{GDP (PPP)}_i \text{ or EVIC}_i} \times \text{GHG emissions}_i \right)}{\sum_i^i \left( \frac{\text{investment value}_i}{\text{GDP (PPP)}_i \text{ or EVIC}_i} \times \text{revenues}_i, \text{GDP (PPP)}_i \text{ or population}_i \right)}$

SOURCE: Banco de España.

Table A2.2

### Carbon emissions by type of issuer

Type of issuer	Sovereigns and sub-sovereigns	Supranationals and agencies	Covered bonds
Factor	i) Country emissions, production approach (excluding and including LULUCF)	Scope 1 and 2 emissions	Scope 1 and 2 emissions
	ii) Country emissions, consumption approach	Scope 3 emissions	Scope 3 emissions

SOURCE: Banco de España.

Table A2.3

### Normalisation factors by asset type

Type of issuer	Sovereigns and sub-sovereigns	Supranationals and agencies	Covered bonds
Factor	i) GDP (PPP adjusted)	Revenues	Revenues
	ii) Population		

SOURCE: Banco de España.

Table A2.4

**Attribution factors by asset type**

Type of issuer	Sovereigns and sub-sovereigns	Supranationals and agencies	Covered bonds
Factor	GDP (PPP adjusted)	EVIC	EVIC

**SOURCE:** Banco de España.

## Annex 3 Main metrics of euro-denominated investment portfolios, 2019-24

Table A3.1

**Main metrics of euro-denominated investment portfolios, 2019-24**

Holdings in euro-denominated own portfolios, 2024	Sovereigns (a)			Non-sovereigns		
	Approaches			Total	Supranationals and agencies	Covered bonds
	Country (excl. LULUCF) (c)	Country (incl. LULUCF) (c)	Consumption			
<b>Main metrics</b>						
Portfolio size (€bn)		26.6		1.8	1.3	0.5
WACI (b)	106.1	87.3	6.7	4.0	4.5	2.1
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	100%	100%	100%	97%	100%	91%
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>				1,853.0	1,996.0	1,405.6
				97%	100%	91%
Total absolute emissions (scope 1 and 2 in tCO <sub>2</sub> e)	2,823,582	2,324,357	3,365,042	688	537	151
<i>(scope 3 in tCO<sub>2</sub>e)</i>	100%	100%	100%	96%	98%	91%
				229,669	113,905	115,764
				96%	98%	91%
Carbon footprint (scope 1 and 2 in tCO <sub>2</sub> e/€m invested)	106.1	87.3	126.4	0.4	0.4	0.4
<i>(scope 3 in tCO<sub>2</sub>e/€m invested)</i>	100%	100%	100%	96%	98%	91%
				134.2	88.2	276.4
				96%	98%	91%
<b>Additional metrics</b>						
Carbon intensity	106.1	87.3	6.7	4.6	8.6	1.7
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>	100%	100%	100%	96%	98%	91%
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>				1,532.0	1,817.7	1,326.8
				96%	98%	91%
Percentage of green bonds (%)		4.8%		58%	71%	22%
		100%		100%	100%	100%
Percentage of social and sustainable bonds (%)		2.5%		11%	15%	0%
		100%		100%	100%	100%

**SOURCE:** Banco de España calculations, drawing on ISS, World Bank, EEA and BIS data. Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report). The 2019 figure for the consumption approach has been estimated based on ISS data.

**NOTE:** The percentages in italics beneath the metrics denote the level of data availability. The metrics are calculated using nominal values. The holdings refer to the position at year-end. Holdings in the euro-denominated BISIP fund are included under their respective asset class.

**a** Includes sovereign and sub-sovereign bonds and bonds issued by public sector entities.

**b** Weighted average carbon intensity.

**c** Due to the mathematical construction of the formula for sovereign assets, and under the production approach, when GDP is used as an attribution and normalisation factor the WACI, carbon footprint and carbon intensity metrics yield the same outcome.

Table A3.1

**Main metrics of euro-denominated investment portfolios, 2019-24 (cont'd)**

Holdings in euro-denominated own portfolios, 2023	Sovereigns (a)			Non-sovereigns		
	Approaches			Total	Supranationals and agencies	Covered bonds
	Country (excl. LULUCF) (c)	Country (incl. LULUCF) (c)	Consumption			
<b>Main metrics</b>						
Portfolio size (€bn)		26.7		1.5	1.1	0.4
WACI (b)	115.0	94.4	6.9	1.5	1.2	2.3
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>94%</i>	<i>92%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>				1,374.2	1,271.3	1,624.1
				<i>94%</i>	<i>92%</i>	<i>100%</i>
Total absolute emissions	3,064,777	2,516,663	3,654,367	467	405	61
<i>(scope 1 and 2 in tCO<sub>2</sub>e)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>94%</i>	<i>91%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e)</i>				188,094	73,593	114,501
				<i>94%</i>	<i>91%</i>	<i>100%</i>
Carbon footprint	115.0	94.4	137.1	0.3	0.4	0.2
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m invested)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>94%</i>	<i>91%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m invested)</i>				136.4	75.6	282.6
				<i>94%</i>	<i>91%</i>	<i>100%</i>
<b>Additional metrics</b>						
Carbon intensity	115.0	94.4	6.9	3.2	6.6	0.7
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>94%</i>	<i>91%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>				1,278.2	1,205.7	1,329.6
				<i>94%</i>	<i>91%</i>	<i>100%</i>
Percentage of green bonds		4.5%		54%	64%	25%
(%)		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>
Percentage of social and sustainable bonds		2.4%		14%	19%	0%
(%)		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>

**SOURCE:** Banco de España calculations, drawing on ISS, World Bank, EEA and BIS data. Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report). The 2019 figure for the consumption approach has been estimated based on ISS data.

**NOTE:** The percentages in italics beneath the metrics denote the level of data availability. The metrics are calculated using nominal values. The holdings refer to the position at year-end. Holdings in the euro-denominated BISIP fund are included under their respective asset class.

**a** Includes sovereign and sub-sovereign bonds and bonds issued by public sector entities.

**b** Weighted average carbon intensity.

**c** Due to the mathematical construction of the formula for sovereign assets, and under the production approach, when GDP is used as an attribution and normalisation factor the WACI, carbon footprint and carbon intensity metrics yield the same outcome.

Table A3.1

## Main metrics of euro-denominated investment portfolios, 2019-24 (cont'd)

Holdings in euro-denominated own portfolios, 2022	Sovereigns (a)			Non-sovereigns		
	Approaches			Total	Supranationals and agencies	Covered bonds
	Country (excl. LULUCF) (c)	Country (incl. LULUCF) (c)	Consumption			
<b>Main metrics</b>						
Portfolio size (€bn)		27.5		0.5	0.4	0.1
WACI (b)	128.8	110.9	7.5	2.4	2.6	1.1
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>73%</i>	<i>81%</i>	<i>41%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>				1,231.2	1,298.0	656.0
				<i>73%</i>	<i>81%</i>	<i>41%</i>
Total absolute emissions (scope 1 and 2 in tCO <sub>2</sub> e)	3,542,634	3,052,370	4,173,695	231	221	10
<i>(scope 3 in tCO<sub>2</sub>e)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>73%</i>	<i>81%</i>	<i>41%</i>
				16,479	10,131	6,348
				<i>73%</i>	<i>81%</i>	<i>41%</i>
Carbon footprint (scope 1 and 2 in tCO <sub>2</sub> e/€m invested)	128.8	110.9	151.7	0.7	0.7	0.3
<i>(scope 3 in tCO<sub>2</sub>e/€m invested)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>73%</i>	<i>81%</i>	<i>41%</i>
				46.6	32.0	172.5
				<i>73%</i>	<i>81%</i>	<i>41%</i>
<b>Additional metrics</b>						
Carbon intensity (scope 1 and 2 in tCO <sub>2</sub> e/€m GDP (PPP), revenues)	128.8	110.9	7.4	12.4	21.9	1.2
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>73%</i>	<i>81%</i>	<i>41%</i>
				885.6	1,001.4	747.6
				<i>73%</i>	<i>81%</i>	<i>41%</i>
Percentage of green bonds (%)		3.6%		87%	100%	30%
		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>
Percentage of social and sustainable bonds (%)		1.9%		0%	0%	0%
		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>

**SOURCE:** Banco de España calculations, drawing on ISS, World Bank, EEA and BIS data. Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report). The 2019 figure for the consumption approach has been estimated based on ISS data.

**NOTE:** The percentages in italics beneath the metrics denote the level of data availability. The metrics are calculated using nominal values. The holdings refer to the position at year-end. Holdings in the euro-denominated BISIP fund are included under their respective asset class.

**a** Includes sovereign and sub-sovereign bonds and bonds issued by public sector entities.

**b** Weighted average carbon intensity.

**c** Due to the mathematical construction of the formula for sovereign assets, and under the production approach, when GDP is used as an attribution and normalisation factor the WACI, carbon footprint and carbon intensity metrics yield the same outcome.

Table A3.1

## Main metrics of euro-denominated investment portfolios, 2019-24 (cont'd)

Holdings in euro-denominated own portfolios, 2021	Sovereigns (a)			Non-sovereigns		
	Approaches			Total	Supranationals and agencies	Covered bonds
	Country (excl. LULUCF) (c)	Country (incl. LULUCF) (c)	Consumption			
<b>Main metrics</b>						
Portfolio size (€bn)	27.8			0.5	0.2	0.3
WACI (b)	164.0	142.2	7.5	1.5	1.5	1.6
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	100%	100%	100%	44%	74%	22%
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>				500.5	298.0	1,027.2
				44%	74%	22%
Total absolute emissions (scope 1 and 2 in tCO <sub>2</sub> e)	4,553,172	3,949,123	5,376,172	32	5	27
<i>(scope 3 in tCO<sub>2</sub>e)</i>	100%	100%	100%	44%	74%	22%
				14,554	1,463	13,091
				44%	74%	22%
Carbon footprint (scope 1 and 2 in tCO <sub>2</sub> e/€m invested)	164.0	142.2	193.6	0.2	0.03	0.5
<i>(scope 3 in tCO<sub>2</sub>e/€m invested)</i>	100%	100%	100%	44%	74%	22%
				71.8	10.0	232.7
				44%	74%	22%
<b>Additional metrics</b>						
Carbon intensity (scope 1 and 2 in tCO <sub>2</sub> e/€m GDP (PPP), revenues)	164.0	142.2	7.4	1.7	1.1	1.9
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>	100%	100%	100%	44%	74%	22%
				770.0	322.1	911.7
				44%	74%	22%
Percentage of green bonds (%)	2.0%			43%	100%	0%
	100%			100%	100%	100%
Percentage of social and sustainable bonds (%)	1.9%			0%	0%	0%
	100%			100%	100%	100%

**SOURCE:** Banco de España calculations, drawing on ISS, World Bank, EEA and BIS data. Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report). The 2019 figure for the consumption approach has been estimated based on ISS data.

**NOTE:** The percentages in italics beneath the metrics denote the level of data availability. The metrics are calculated using nominal values. The holdings refer to the position at year-end. Holdings in the euro-denominated BISIP fund are included under their respective asset class.

**a** Includes sovereign and sub-sovereign bonds and bonds issued by public sector entities.

**b** Weighted average carbon intensity.

**c** Due to the mathematical construction of the formula for sovereign assets, and under the production approach, when GDP is used as an attribution and normalisation factor the WACI, carbon footprint and carbon intensity metrics yield the same outcome.

Table A3.1

## Main metrics of euro-denominated investment portfolios, 2019-24 (cont'd)

Holdings in euro-denominated own portfolios, 2020	Sovereigns (a)			Non-sovereigns		
	Approaches			Total	Supranationals and agencies	Covered bonds
	Country (excl. LULUCF) (c)	Country (incl. LULUCF) (c)	Consumption			
<b>Main metrics</b>						
Portfolio size (€bn)		23.0		1.7	0.5	1.2
WACI (b)	167.3	144.5	6.8	1.3	–	1.3
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>7%</i>	<i>0%</i>	<i>10%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>				334.7	–	334.7
				<i>7%</i>	<i>0%</i>	<i>10%</i>
Total absolute emissions (scope 1 and 2 in tCO <sub>2</sub> e)	3,847,069	3,322,115	4,325,359	39	–	39
<i>(scope 3 in tCO<sub>2</sub>e)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>7%</i>	<i>0%</i>	<i>10%</i>
				9,097	–	9,097
				<i>7%</i>	<i>0%</i>	<i>10%</i>
Carbon footprint (scope 1 and 2 in tCO <sub>2</sub> e/€m invested)	167.3	144.5	188.1	0.3	–	0.3
<i>(scope 3 in tCO<sub>2</sub>e/€m invested)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>7%</i>	<i>0%</i>	<i>10%</i>
				81.6	–	81.6
				<i>7%</i>	<i>0%</i>	<i>10%</i>
<b>Additional metrics</b>						
Carbon intensity (scope 1 and 2 in tCO <sub>2</sub> e/€m GDP (PPP), revenues)	167.3	144.5	6.7	1.4	–	1.4
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>7%</i>	<i>0%</i>	<i>10%</i>
				335.1	–	335.1
				<i>7%</i>	<i>0%</i>	<i>10%</i>
Percentage of green bonds (%)		0.0%		0%	0%	0%
		100%		100%	100%	100%
Percentage of social and sustainable bonds (%)		–		0%	0%	0%
		100%		100%	100%	100%

**SOURCE:** Banco de España calculations, drawing on ISS, World Bank, EEA and BIS data. Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report). The 2019 figure for the consumption approach has been estimated based on ISS data.

**NOTE:** The percentages in italics beneath the metrics denote the level of data availability. The metrics are calculated using nominal values. The holdings refer to the position at year-end. Holdings in the euro-denominated BISIP fund are included under their respective asset class.

**a** Includes sovereign and sub-sovereign bonds and bonds issued by public sector entities.

**b** Weighted average carbon intensity.

**c** Due to the mathematical construction of the formula for sovereign assets, and under the production approach, when GDP is used as an attribution and normalisation factor the WACI, carbon footprint and carbon intensity metrics yield the same outcome.

Table A3.1

## Main metrics of euro-denominated investment portfolios, 2019-24 (cont'd)

Holdings in euro-denominated own portfolios, 2019	Sovereigns (a)			Non-sovereigns		
	Approaches			Total	Supranationals and agencies	Covered bonds
	Country (excl. LULUCF) (c)	Country (incl. LULUCF) (c)	Consumption			
<b>Main metrics</b>						
Portfolio size (€bn)		23.8		2.2	0.7	1.5
WACI (b)	169.2	147.1	7.6	5.0	–	5.0
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>7%</i>	<i>0%</i>	<i>11%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>				19.8	–	19.8
				<i>7%</i>	<i>0%</i>	<i>11%</i>
Total absolute emissions (scope 1 and 2 in tCO <sub>2</sub> e)	4,019,337	3,494,503	4,509,874	249	–	249
<i>(scope 3 in tCO<sub>2</sub>e)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>7%</i>	<i>0%</i>	<i>11%</i>
				991	–	991
				<i>7%</i>	<i>0%</i>	<i>11%</i>
Carbon footprint (scope 1 and 2 in tCO <sub>2</sub> e/€m invested)	169.2	147.1	189.8	1.5	–	1.5
<i>(scope 3 in tCO<sub>2</sub>e/€m invested)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>7%</i>	<i>0%</i>	<i>11%</i>
				6.1	–	6.1
				<i>7%</i>	<i>0%</i>	<i>11%</i>
<b>Additional metrics</b>						
Carbon intensity (scope 1 and 2 in tCO <sub>2</sub> e/€m GDP (PPP), revenues)	169.2	147.1	7.6	5.1	–	5.1
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>7%</i>	<i>0%</i>	<i>11%</i>
				20.4	–	20.4
				<i>7%</i>	<i>0%</i>	<i>11%</i>
Percentage of green bonds (%)		0.02%		0%	0%	0%
		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>
Percentage of social and sustainable bonds (%)		–		0%	0%	0%
		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>

**SOURCE:** Banco de España calculations, drawing on ISS, World Bank, EEA and BIS data. Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report). The 2019 figure for the consumption approach has been estimated based on ISS data.

**NOTE:** The percentages in italics beneath the metrics denote the level of data availability. The metrics are calculated using nominal values. The holdings refer to the position at year-end. Holdings in the euro-denominated BISIP fund are included under their respective asset class.

**a** Includes sovereign and sub-sovereign bonds and bonds issued by public sector entities.

**b** Weighted average carbon intensity.

**c** Due to the mathematical construction of the formula for sovereign assets, and under the production approach, when GDP is used as an attribution and normalisation factor the WACI, carbon footprint and carbon intensity metrics yield the same outcome.

## Annex 4 Main metrics of non-euro-denominated investment portfolios, 2019-24

Table A4.1  
Main metrics of non-euro-denominated investment portfolios, 2019-24

Holdings in non-euro-denominated own portfolios, 2024	Sovereigns (a)			Non-sovereigns		
	Approaches			Total	Supranationals and agencies	Covered bonds
	Country (excl. LULUCF) (c)	Country (incl. LULUCF) (c)	Consumption			
<b>Main metrics</b>						
Portfolio size (€bn eq)		49.3		6.6	6.6	0.001
WACI (b)	229.7	203.6	18.3	0.7	0.7	0.2
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>87%</i>	<i>87%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>				1,772.8	1,772.5	3,013.7
				<i>87%</i>	<i>87%</i>	<i>100%</i>
Total absolute emissions	11,321,208	10,032,121	11,905,829	699	699	0.1
<i>(scope 1 and 2 in tCO<sub>2</sub>e)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>86%</i>	<i>86%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e)</i>				516,383	515,652	730
				<i>86%</i>	<i>86%</i>	<i>100%</i>
Carbon footprint	229.7	203.6	241.6	0.1	0.1	0.1
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m eq invested)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>86%</i>	<i>86%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m eq invested)</i>				90.1	89.9	660.9
				<i>86%</i>	<i>86%</i>	<i>100%</i>
<b>Additional metrics</b>						
Carbon intensity	229.7	203.6	17.6	1.4	1.4	0.2
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>86%</i>	<i>86%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>				1,029.4	1,028.5	3,013.7
				<i>86%</i>	<i>86%</i>	<i>100%</i>
Percentage of green bonds		1%		27%	27%	100%
(%)		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>
Percentage of social and sustainable bonds		–		15%	15%	–
(%)		<i>0%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>

**SOURCE:** Banco de España calculations, drawing on ISS, World Bank and BIS data. Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report). The 2019 figure for the consumption approach has been estimated based on ISS data.

**NOTE:** The percentages in italics beneath the metrics denote the level of data availability. The metrics are calculated using nominal values. The holdings refer to the position at year-end. Holdings in the US dollar-denominated BISIP fund are included under their respective asset class.

**a** Includes sovereign and sub-sovereign bonds and bonds issued by public sector entities.

**b** Weighted average carbon intensity.

**c** Due to the mathematical construction of the formula for sovereign assets, and under the production approach, when GDP is used as an attribution and normalisation factor the WACI, carbon footprint and carbon intensity metrics yield the same outcome.

Table A4.1

## Main metrics of non-euro-denominated investment portfolios, 2019-24 (cont'd)

Holdings in non-euro-denominated own portfolios, 2023	Sovereigns (a)			Non-sovereigns		
	Approaches			Total	Supranational and agencies	Covered bonds
	Country (excl. LULUCF) (c)	Country (incl. LULUCF) (c)	Consumption			
<b>Main metrics</b>						
Portfolio size (€bn eq)	50.7			5.1	5.1	0.001
WACI (b)	244.2	216.8	18.5	0.4	0.4	0.3
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>84%</i>	<i>84%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>				1,600.9	1,600.9	1,489.6
				<i>84%</i>	<i>84%</i>	<i>100%</i>
Total absolute emissions (scope 1 and 2 in tCO <sub>2</sub> e)	12,368,813	10,983,160	12,926,043	106	106	0.1
<i>(scope 3 in tCO<sub>2</sub>e)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>84%</i>	<i>84%</i>	<i>100%</i>
				369,141	368,844	297
				<i>84%</i>	<i>84%</i>	<i>100%</i>
Carbon footprint (scope 1 and 2 in tCO <sub>2</sub> e/€m eq invested)	244.2	216.8	255.2	0.0	0.0	0.1
<i>(scope 3 in tCO<sub>2</sub>e/€m eq invested)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>84%</i>	<i>84%</i>	<i>100%</i>
				85.6	85.5	448.8
				<i>84%</i>	<i>84%</i>	<i>100%</i>
<b>Additional metrics</b>						
Carbon intensity (scope 1 and 2 in tCO <sub>2</sub> e/€m GDP (PPP), revenues)	244.2	216.8	17.9	0.5	0.5	0.3
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>84%</i>	<i>84%</i>	<i>100%</i>
				1,637.2	1,637.3	1,489.6
				<i>84%</i>	<i>84%</i>	<i>100%</i>
Percentage of green bonds (%)	1%			27%	27%	100%
	<i>100%</i>			<i>100%</i>	<i>100%</i>	<i>100%</i>
Percentage of social and sustainable bonds (%)	—			16%	16%	—
	<i>100%</i>			<i>100%</i>	<i>100%</i>	<i>100%</i>

**SOURCE:** Banco de España calculations, drawing on ISS, World Bank and BIS data. Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report). The 2019 figure for the consumption approach has been estimated based on ISS data.

**NOTE:** The percentages in italics beneath the metrics denote the level of data availability. The metrics are calculated using nominal values. The holdings refer to the position at year-end. Holdings in the US dollar-denominated BISIP fund are included under their respective asset class.

**a** Includes sovereign and sub-sovereign bonds and bonds issued by public sector entities.

**b** Weighted average carbon intensity.

**c** Due to the mathematical construction of the formula for sovereign assets, and under the production approach, when GDP is used as an attribution and normalisation factor the WACI, carbon footprint and carbon intensity metrics yield the same outcome.

Table A4.1

## Main metrics of non-euro-denominated investment portfolios, 2019-24 (cont'd)

Holdings in non-euro-denominated own portfolios, 2022	Sovereigns (a)			Non-sovereigns		
	Approaches			Total	Supranationals and agencies	Covered bonds
	Country (excl. LULUCF) (c)	Country (incl. LULUCF) (c)	Consumption			
<b>Main metrics</b>						
Portfolio size (€bn eq)		31.9		10.5	10.5	0.001
WACI (b)	263.5	234.9	18.8	0.4	0.4	0.6
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>93%</i>	<i>93%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>				1,607.4	1,607.4	1,540.8
				<i>93%</i>	<i>93%</i>	<i>100%</i>
Total absolute emissions (scope 1 and 2 in tCO <sub>2</sub> e)	8,402,315	7,490,922	8,640,396	88	88	0.1
	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>93%</i>	<i>93%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e)</i>				139,298	139,121	178
				<i>93%</i>	<i>93%</i>	<i>100%</i>
Carbon footprint (scope 1 and 2 in tCO <sub>2</sub> e/€m eq invested)	263.5	234.9	270.9	0.01	0.01	0.1
	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>93%</i>	<i>93%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m eq invested)</i>				14.3	14.3	216.8
				<i>93%</i>	<i>93%</i>	<i>100%</i>
<b>Additional metrics</b>						
Carbon intensity	263.5	234.9	18.2	0.9	0.9	0.6
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>93%</i>	<i>93%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>				1,418.8	1,418.7	1,540.8
				<i>93%</i>	<i>93%</i>	<i>100%</i>
Percentage of green bonds (%)		1%		8%	8%	100%
		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>
Percentage of social and sustainable bonds (%)		—		1%	1%	—
		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>

**SOURCE:** Banco de España calculations, drawing on ISS, World Bank and BIS data. Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report). The 2019 figure for the consumption approach has been estimated based on ISS data.

**NOTE:** The percentages in italics beneath the metrics denote the level of data availability. The metrics are calculated using nominal values. The holdings refer to the position at year-end. Holdings in the US dollar-denominated BISIP fund are included under their respective asset class.

**a** Includes sovereign and sub-sovereign bonds and bonds issued by public sector entities.

**b** Weighted average carbon intensity.

**c** Due to the mathematical construction of the formula for sovereign assets, and under the production approach, when GDP is used as an attribution and normalisation factor the WACI, carbon footprint and carbon intensity metrics yield the same outcome.

Table A4.1

## Main metrics of non-euro-denominated investment portfolios, 2019-24 (cont'd)

Holdings in non-euro-denominated own portfolios, 2021	Sovereigns (a)			Non-sovereigns		
	Approaches			Total	Supranationals and agencies	Covered bonds
	Country (excl. LULUCF) (c)	Country (incl. LULUCF) (c)	Consumption			
<b>Main metrics</b>						
Portfolio size (€bn eq)		22.9		12.6	12.6	0.003
WACI (b)	325.9	293.7	19.4	3.0	3.0	0.6
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>50%</i>	<i>50%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>				304.2	304.0	903.3
				<i>50%</i>	<i>50%</i>	<i>100%</i>
Total absolute emissions	7,447,803	6,711,458	7,958,755	681	680	0.2
<i>(scope 1 and 2 in tCO<sub>2</sub>e)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>49%</i>	<i>49%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e)</i>				50,359	50,088	271
				<i>49%</i>	<i>49%</i>	<i>100%</i>
Carbon footprint	325.9	293.7	348.3	0.1	0.1	0.1
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m eq invested)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>49%</i>	<i>49%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m eq invested)</i>				8.1	8.1	96.5
				<i>49%</i>	<i>49%</i>	<i>100%</i>
<b>Additional metrics</b>						
Carbon intensity	325.9	293.7	18.4	4.1	4.1	0.6
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>49%</i>	<i>49%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>				303.7	302.6	903.3
				<i>49%</i>	<i>49%</i>	<i>100%</i>
Percentage of green bonds		1%		3%	3%	100%
(%)		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>
Percentage of social and sustainable bonds		–		1%	1%	–
(%)		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>

**SOURCE:** Banco de España calculations, drawing on ISS, World Bank and BIS data. Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report). The 2019 figure for the consumption approach has been estimated based on ISS data.

**NOTE:** The percentages in italics beneath the metrics denote the level of data availability. The metrics are calculated using nominal values. The holdings refer to the position at year-end. Holdings in the US dollar-denominated BISIP fund are included under their respective asset class.

**a** Includes sovereign and sub-sovereign bonds and bonds issued by public sector entities.

**b** Weighted average carbon intensity.

**c** Due to the mathematical construction of the formula for sovereign assets, and under the production approach, when GDP is used as an attribution and normalisation factor the WACI, carbon footprint and carbon intensity metrics yield the same outcome.

Table A4.1

## Main metrics of non-euro-denominated investment portfolios, 2019-24 (cont'd)

Holdings in non-euro-denominated own portfolios, 2020	Sovereigns (a)			Non-sovereigns		
	Approaches			Total	Supranationals and agencies	Covered bonds
	Country (excl. LULUCF) (c)	Country (incl. LULUCF) (c)	Consumption			
<b>Main metrics</b>						
Portfolio size (€bn eq)		26.2		9.3	9.3	0.01
WACI (b)	343.2	307.9	19.4	2.4	2.4	0.6
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>47%</i>	<i>47%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>				313.3	313.2	354.2
				<i>47%</i>	<i>47%</i>	<i>100%</i>
Total absolute emissions (scope 1 and 2 in tCO <sub>2</sub> e)	8,990,028	8,064,836	9,698,219	330	330	0.4
	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>47%</i>	<i>47%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e)</i>				46,689	46,413	276
				<i>47%</i>	<i>47%</i>	<i>100%</i>
Carbon footprint (scope 1 and 2 in tCO <sub>2</sub> e/€m eq invested)	343.2	307.9	370.2	0.1	0.1	0.1
	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>47%</i>	<i>47%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m eq invested)</i>				10.7	10.6	54.2
				<i>47%</i>	<i>47%</i>	<i>100%</i>
<b>Additional metrics</b>						
Carbon intensity	343.2	307.9	18.9	2.1	2.1	0.6
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>47%</i>	<i>47%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>				290.9	290.6	354.2
				<i>47%</i>	<i>47%</i>	<i>100%</i>
Percentage of green bonds (%)		0.2%		2%	2%	100%
		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>
Percentage of social and sustainable bonds (%)		—		2%	2%	-
		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>

**SOURCE:** Banco de España calculations, drawing on ISS, World Bank and BIS data. Previous years' figures have been updated per the data revisions and the latest information available (see Box 2 of the 2024 report). The 2019 figure for the consumption approach has been estimated based on ISS data.

**NOTE:** The percentages in italics beneath the metrics denote the level of data availability. The metrics are calculated using nominal values. The holdings refer to the position at year-end. Holdings in the US dollar-denominated BISIP fund are included under their respective asset class.

**a** Includes sovereign and sub-sovereign bonds and bonds issued by public sector entities.

**b** Weighted average carbon intensity.

**c** Due to the mathematical construction of the formula for sovereign assets, and under the production approach, when GDP is used as an attribution and normalisation factor the WACI, carbon footprint and carbon intensity metrics yield the same outcome.

Table A4.1

## Main metrics of non-euro-denominated investment portfolios, 2019-24 (cont'd)

Holdings in non-euro-denominated own portfolios, 2019	Sovereigns (a)			Non-sovereigns		
	Approaches			Total	Supranationals and agencies	Covered bonds
	Country (excl. LULUCF) (c)	Country (incl. LULUCF) (c)	Consumption			
<b>Main metrics</b>						
Portfolio size (€bn eq)		35.0		5.6	5.5	0.01
WACI (b)	356.4	324.0	21.3	1.7	1.7	0.7
<i>(scope 1 and 2 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>78%</i>	<i>78%</i>	<i>100%</i>
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), population, €m revenues)</i>				6.7	6.7	2.9
				<i>78%</i>	<i>78%</i>	<i>100%</i>
Total absolute emissions (scope 1 and 2 in tCO <sub>2</sub> e)	12,486,310	11,350,462	13,588,247	355	354	1
<i>(scope 3 in tCO<sub>2</sub>e)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>78%</i>	<i>78%</i>	<i>100%</i>
				1,414	1,412	2
				<i>78%</i>	<i>78%</i>	<i>100%</i>
Carbon footprint (scope 1 and 2 in tCO <sub>2</sub> e/€m eq invested)	356.4	324.0	387.9	0.1	0.1	0.1
<i>(scope 3 in tCO<sub>2</sub>e/€m eq invested)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>78%</i>	<i>78%</i>	<i>100%</i>
				0.3	0.3	0.3
				<i>78%</i>	<i>78%</i>	<i>100%</i>
<b>Additional metrics</b>						
Carbon intensity (scope 1 and 2 in tCO <sub>2</sub> e/€m GDP (PPP), revenues)	356.4	324.0	20.7	1.2	1.2	0.7
<i>(scope 3 in tCO<sub>2</sub>e/€m GDP (PPP), revenues)</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>78%</i>	<i>78%</i>	<i>100%</i>
				4.8	4.8	2.9
				<i>78%</i>	<i>78%</i>	<i>100%</i>
Percentage of green bonds (%)		0.1%		2%	2%	100%
		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>
Percentage of social and sustainable bonds (%)		–		1%	1%	–
		<i>100%</i>		<i>100%</i>	<i>100%</i>	<i>100%</i>

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**b** Weighted average carbon intensity.

**c** Due to the mathematical construction of the formula for sovereign assets, and under the production approach, when GDP is used as an attribution and normalisation factor the WACI, carbon footprint and carbon intensity metrics yield the same outcome.

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Box 1

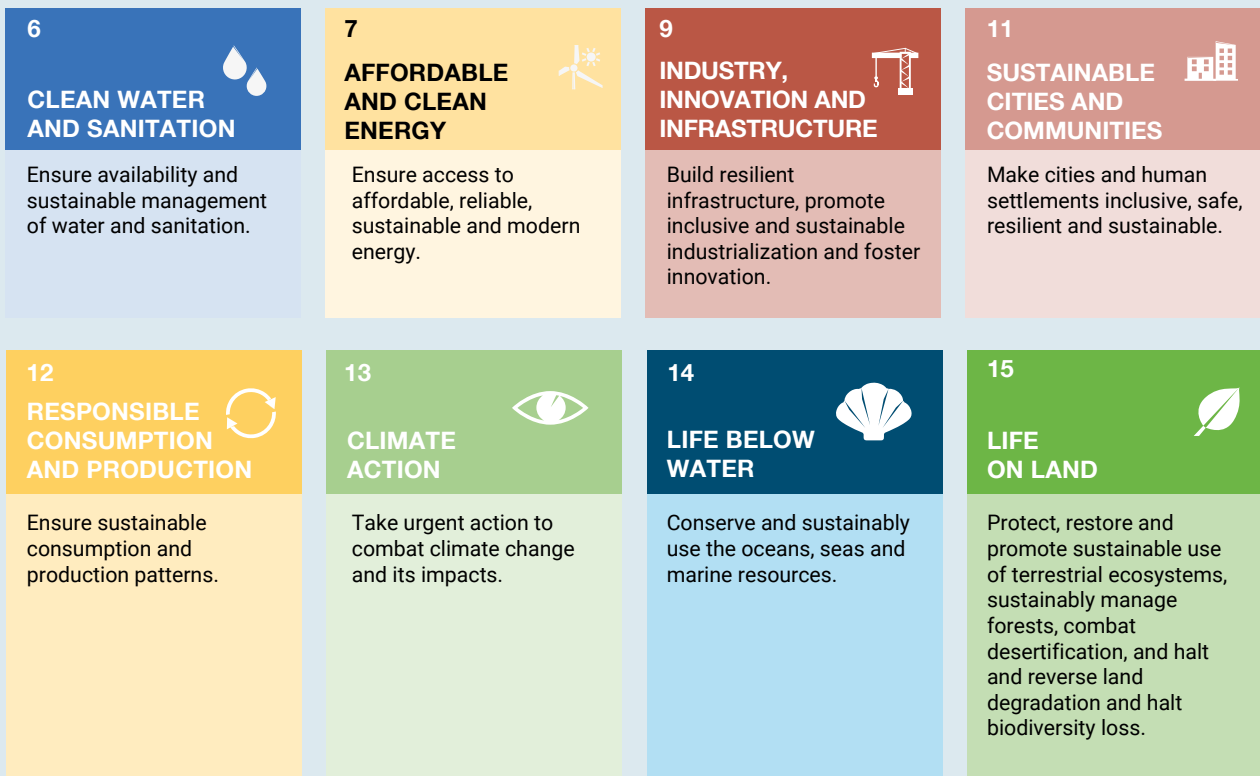
**CONTRIBUTION TO THE UNITED NATIONS' SUSTAINABLE DEVELOPMENT GOALS**

Sustainable development is defined as that which meets present needs without compromising the ability of future generations to meet their needs. Achieving sustainable development requires a balance between three fundamental dimensions: economic growth, social inclusion and environmental protection. In 2015, the United Nations' member states enshrined this vision in the 2030 Agenda for Sustainable Development, which includes the Sustainable Development Goals (SDGs). The 17 SDGs represent a universal call to eradicate poverty, protect the planet and ensure prosperity, leaving no one behind. These goals are interrelated, so that action carried out in one area affects the results in the others. Each of the 17 goals has specific targets – 169 in total – to be achieved by 2030. However, the achievement of the SDGs is being

jeopardised by the escalation in conflicts, climate chaos, growing inequalities and the rising weight of debt.<sup>1</sup>

Climate change is closely linked to sustainable development, as it impacts areas such as public health, food and water security, migration, peace and security. Investment in sustainable development is vital to address climate change, as it helps to reduce GHG emissions and strengthen climate resilience. In particular, projects financed by green bonds, such as those targeting climate mitigation and adaptation, play a significant role in achieving the SDGs. The specific goals they contribute to may differ depending on the project category, but some SDGs benefit more significantly from green bonds than others. Specifically, Figure 1 shows the eight SDGs that benefit most from projects financed through direct

Figure 1  
SDGs most aligned with the projects financed through direct investment in green bonds held in the Banco de España's SRI portfolio



SOURCE: Banco de España, drawing on data from the Luxembourg Green Exchange (LGX) by the Luxembourg Stock Exchange.

1 United Nations. (2025). Progress towards the Sustainable Development Goals (Report of the Secretary-General).

Box 1

**CONTRIBUTION TO THE UNITED NATIONS' SUSTAINABLE DEVELOPMENT GOALS (cont'd)**

investment in green bonds held in the Banco de España's SRI portfolio. As can be seen, the impact investment strategy aligns with the SDGs related to essential resources

and services (SDGs 6 and 7), infrastructure and urban development (SDGs 9 and 11) and the environment and climate action (SDGs 12, 13, 14 and 15).

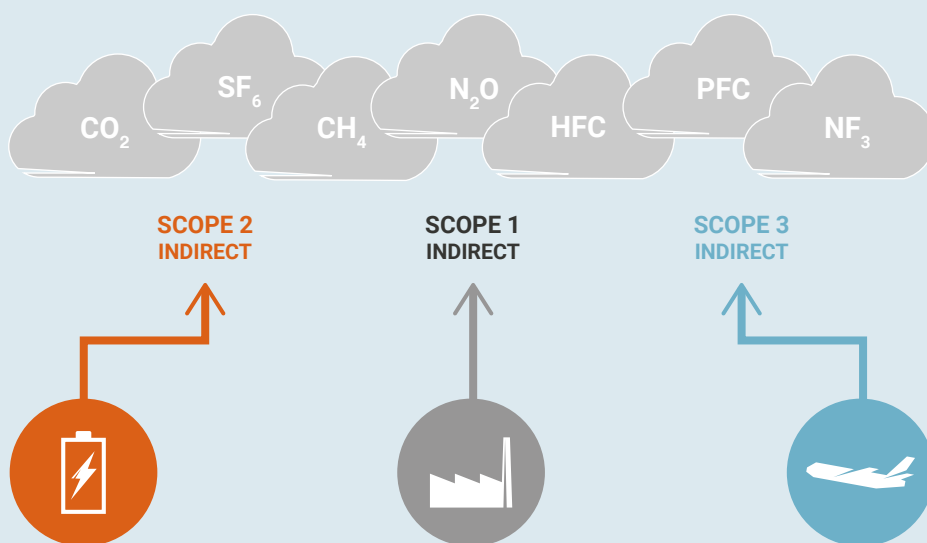
Box 2

**SCOPE 3 GREENHOUSE GAS EMISSIONS<sup>1</sup>**

To identify whether the emissions associated with an entity's activities are direct or indirect,<sup>2</sup> the GHG Protocol distinguishes<sup>3</sup> between three categories of emissions: scope 1, scope 2 and scope 3. This classification helps determine the origin of emissions and improve climate-related transparency and analysis. Specifically, scope 1 emissions are direct emissions from sources that are owned or controlled by the company;<sup>4</sup> scope 2 emissions are indirect greenhouse gas (GHG) emissions associated with the generation of purchased and consumed electricity; and, lastly, scope 3 emissions include all other indirect emissions related to the company's activities but originating from sources that it does not own or control, such as those across its value chain (Figure 1).

Scope 3 GHG emissions, especially those related to financing and financial intermediation, pose methodological challenges that have so far limited their systematic use in climate reports. These limitations are linked to estimation uncertainty and to differences across data providers – particularly in attribution methods and methodological adjustments – which may affect reliability and comparability over time. However, significant progress has been made in recent years, helping to gradually overcome these limitations. Furthermore, scope 3 emissions account for the bulk of total carbon emissions for certain issuers such as supranationals and agencies, which – due to the nature of their activities – generate low scope 1 and scope 2 emissions but relatively high scope 3 emissions stemming from the projects they finance.

Figure 1  
Scopes and emissions across the value chain



SOURCE: Banco de España, drawing on GHG Protocol (2015).

1 For more information, see Arranz Gozalo, Fernando, Clara I. González Martínez and Mercedes de Luis López. (2025). "Sovereign assets and sustainable and responsible investment: the importance of climate metric". Documentos Ocasionales, 2512, Banco de España.  
 2 The terms "direct" and "indirect" as used here should not be confused with their use in national GHG inventories, where "direct emissions" refers to the six Kyoto gases and "indirect emissions" refers to the precursors of other gases.  
 3 Typically, analyses of sovereigns' GHG emissions do not distinguish between scopes.  
 4 Direct CO<sub>2</sub> emissions from biomass combustion should not be counted as scope 1 emissions; they should be reported separately. Similarly, GHG emissions not covered by the Kyoto Protocol should not be included.

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