



Banc Ceannais na hÉireann
Central Bank of Ireland

Eurosystem

Central Bank of Ireland's climate-related financial disclosures 2023

March 2023

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Foreword

“There is a rapidly closing window of opportunity to secure a liveable and sustainable future for all.”¹

This is the stark conclusion of the latest report from the Intergovernmental Panel on Climate Change (IPCC), which summarises the scientific data on global temperature rises, fossil fuel emissions and the impact of the climate emergency. It is evident that climate change is already having profound effects on the world's societies and economies, but the global community can alter its future path if we start taking action immediately. This requires a coordinated global policy response, across countries and governments, across social, economic, public and private bodies. The Central Bank of Ireland (the Bank) is committed to playing its part.

We believe that being a socially responsible and sustainable organisation is core to us achieving our vision: Trusted by the public, Respected by our peers and a Fulfilling workplace for our people. We are also conscious of our ability to be a positive influence on the behaviour of others by leading on important issues such as climate change. Incorporating climate change considerations across our own operations is a strategic priority for us and we have embedded this commitment in our multi-year Strategy.

This report covers the Bank's inaugural climate-related financial disclosures. It forms part of a concerted effort by all Eurosystem central banks to publish climate-related information on our respective non-monetary policy portfolios, in line with a common framework developed by the Eurosystem. The report marks an important step towards increased transparency on the climate-related risks and the environmental footprint related to our Investment Assets.

We approach this work with both *humility*, acknowledging that there remain limitations with the measurement of climate-related financial risks, and *ambition*, reflecting both our leadership role and the significance of the challenge ahead. By improving transparency on our own activities, the Bank aims to strengthen awareness and understanding of climate-related risks and play a catalyst role in terms of promoting climate-related disclosures.

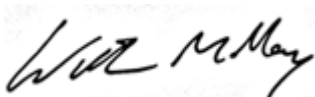
As articulated in the latest IPCC report, finance is one of the critical enablers for accelerated climate action. If climate goals are to be achieved, both adaptation and mitigation financing would need to increase many-fold. This involves moving

¹ Synthesis Report of the IPCC Sixth Assessment Report (AR6), March 2023.

away from financing projects that are environmentally damaging and moving towards financing actions that support the transition to a more sustainable economic model. Central banks, such as ours, can support this transition within the limits of their mandates.

The Bank has already implemented sustainable investment measures in recent years, most notably with the establishment of our Sustainable Investment Charter in 2022. We also implemented an expanded Exclusion Policy in 2022, while we continue to increase our investments in green bonds that support the green transition. In 2023, we will begin to replace our conventional equity benchmark with the EU Paris-aligned or Climate Transition benchmark.

Nevertheless, there is still much work to do in order to contribute to accelerated climate action and the transition towards a net-zero economy. In line with our Eurosystem peers, we aim to align our Investment Assets with a decarbonisation path that is consistent with the Paris Agreement and the EU's climate neutrality objectives. We will disclose climate-related financial information on an annual basis, and will regularly review our approach to ensure, within our mandate, that we continue to support the transition to net-zero economy.



William Molloy

Director of Financial Operations

27 March 2023

Introduction

We are Ireland's Central Bank, responsible for maintaining monetary and financial stability and ensuring the financial system works in the interests of the community. We are part of Europe's monetary and banking unions, and of the world's network of financial regulators. Our values underpin how we interact with each other and reflect our aspirations, for ourselves and for our community. We believe in the importance of an independent central bank that is transparent, accountable and connected across all public policy domains, in Ireland, in Europe and across the world. As part of our overall mission, we are committed to being a socially responsible and sustainable organisation, which we believe will help us achieve our vision: trusted by the public, respected by our peers and a fulfilling workplace for our people. We are also conscious of our ability to be a positive influence on the behaviour of others by leading on and by promoting important sustainability issues such as climate change.

This report represents the Bank's first climate-related financial disclosures for its non-monetary policy portfolio ('NMPP'² hereafter referred to as 'Investment Assets'). In February 2021, the Eurosystem announced that it would start making annual climate-related financial disclosures for its euro-denominated NMPPs within the next two years. The disclosures will initially follow the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) of the Financial Stability Board (FSB) for the initial framework and report, as a minimum, information in the category of 'Metrics and Targets'.

This disclosure marks an important step towards increased transparency about the climate-related risks and the environmental footprint related to the Bank's Investment Assets. Through improving transparency of its own activities, the Bank aims to strengthen awareness and understanding of climate-related risks and promote climate-related disclosures. The Bank has decided to disclose climate-related information under all four TCFD categories 'Governance', 'Strategy', 'Risk management' and 'Metrics and Targets', whenever feasible.

² The Bank's NMPP is more commonly referred to as its 'Investment Assets' in Central Bank of Ireland publications.

The incorporation of sustainable investment principles into the Investment Assets is a priority for the Bank. The Bank's Strategic Plan 2022-2026 emphasises the importance of understanding, anticipating and adapting to far-reaching changes taking place across the economy and financial system, including those associated with climate change and the transition towards a more sustainable economy. Further, the Bank is committed to act as a socially responsible and sustainable organisation. As a member of the Eurosystem, the Bank is implementing shared Eurosystem initiatives and efforts that contribute to the transition to a low-carbon economy and to EU climate goals, including the common Eurosystem stance for disclosures in NMPPs.

As an integral part of the Bank's culture of acting sustainably, we aim to invest our financial assets in a sustainable manner in accordance with the Board's (Commission's) approved risk appetite and consistent with the Bank's discretionary Investment Policy Framework. The Bank is also conscious of our ability to be a positive influence on the behaviour of others by leading on, and by promoting, important sustainability issues, such as climate change.

The Bank established its Sustainable Investment Charter in 2022. The purpose of the Charter is to guide the Bank in considering how sustainable investment principles will apply to our own investment practices. The effects of climate change will be a strategic focus in the first iteration of the Charter as it represents a systemic risk that the Bank must consider as part of its approach to managing its discretionary Investment Assets. Climate change, and associated efforts by global policymakers to transition to a carbon neutral economy, is likely to be one of the main structural forces shaping the investment landscape in which we will operate over the next few years and decades. The Bank takes seriously the imperative to play its part in mitigating and acting on climate change.

Governance

The Bank's Commission has ultimate responsibility for the strategic decision-making relating to the Investment Assets, approving the discretionary Investment Policy Framework, of which the Sustainable Investment Charter is an element.

The Financial Markets Division is responsible for the day-to-day management of the Bank's Investment Assets within the risk management frameworks that have been approved by the Commission. The Organisational Risk Division maintains

the Bank's investment benchmarks and reports on the performance of the Bank's Investment Assets to the Commission's Risk Committee. The Organisational Risk Division also monitors and reports on the level of risk exposure in the investment portfolios and compliance with the Commission-approved prudential limits and policies.

The Bank will strive to adopt an integrated approach for the governance of climate-related risks and opportunities for the Investment Assets; that is, climate change-related considerations will be addressed within its existing governance structures. Further, this envisaged integrated approach will be informed by the wider organisation's strategic approach to addressing the effects of climate change and the transition towards a more sustainable economy.

Strategy

The Bank's Strategic Plan 2022-2026 emphasises the importance of understanding, anticipating and adapting to the broad implications for economic and financial outcomes in the future associated with climate change and the transition towards a more sustainable economy. While remaining steadfast in fulfilling its mandate, the Bank will continue to seek to deliver long-term, sustainable investment returns, while safeguarding its stock of financial assets.

The adoption of a Sustainable Investment Charter in June 2022 was the first formal step on the Bank's evolving journey towards integrating sustainability in the investment and risk management frameworks of the Investment Assets. Incorporating sustainable investment principles supports the existing policy objectives of the Bank's Investment Assets. The effects of climate change will be a strategic focus in the first iteration of the Charter as it represents a systemic risk that the Bank must consider as part of its approach to managing the Investment Assets.

The Bank has already implemented some ESG measures in recent years that have supported the sustainable investment agenda. The establishment in 2018 of an equities portfolio included the stipulation that the external asset manager was a signatory of the UN-supported Principles for Responsible Investment (UN PRI). This equities portfolio is also screened to exclude Tobacco companies. The Bank implemented an expanded Exclusion Policy in 2022 that added the following to the existing screening of Tobacco companies:

- Coal companies based on a threshold of those that derive 1% or more of their revenues from coal mining, extraction, distribution or refining.
- Companies that violate, repeatedly and seriously, one or more of the ten principles of corporate sustainability defined in the United Nations Global Compact (UNGC), without credible corrective action.
- Companies involved in the manufacture of prohibited/controversial weapons as defined in relevant international treaties.

The Bank invests in green, social and sustainable bonds directly as part of its day-to-day portfolio management. The Bank also participates in the Bank for International Settlements' (BIS) green bond funds for central banks. In May 2021 and December 2021 respectively, allocations of 100mn (nominal) were each made to the BIS' US dollar-denominated green bond investment fund and to the BIS' euro-denominated green bond investment fund.

Risk Management

A strategic priority for the Bank is to proactively identify, assess, and manage the exposure of its Investment Assets to long term climate-related risks. A first step in that journey is strengthening our understanding of climate-related financial exposures. For that purpose, the Eurosystem has jointly identified common data sources and the Bank is using these sources to integrate climate risks into the overall risk management process.

As a prominent public institution operating in the European financial system, the Bank recognises the importance of developing a thorough understanding of the climate risks that its Investment Assets are exposed to. The Bank is continuously working on improving this knowledge and exploring ways to best quantify the impact of these risks.

The Bank's Investment Assets are exposed to climate risks, which might lead to adverse outcomes in the event of a gradual change in risk factors or a climate shock. The Bank takes a holistic view in managing the potential quantitative impact of climate-related risks via the Investment Assets on its balance sheet. In this regard, climate-related risks do not form a new risk category within this process, but rather an amplifying factor of existing categories such as credit and market risks, which are managed as part of the Bank's financial risk management framework.

The Bank will aim to invest its non-monetary policy portfolios in a sustainable manner in accordance with the Central Bank Commission's approved risk appetite and consistent with the Bank's discretionary Investment Policy Framework. The Bank's Sustainable Investment Charter is also guiding the integration of sustainable investment principles to the management of the investment assets.

Metrics and Targets

Metrics

Description of Metrics

In line with the Open & Engaged theme of the Bank's strategy and to increase transparency, the Bank has decided to go beyond the Eurosystem's common minimum disclosure framework by reporting climate-related metrics on both our EUR-denominated Investment Assets and our combined EUR/foreign exchange (FX)-denominated Investment Assets. Furthermore, the Bank is reporting on certain additional metrics outside of the common minimum disclosure framework. To aid assessment of trends over time, the Bank has also decided to publish a time series of these metrics.

Greenhouse Gas (GHG) emissions are measured and expressed as tonnes of CO₂ equivalent (tCO₂e)³ and usually reported under three 'scopes' as defined by the most commonly used global standard GHG Protocol (see Box 1). Our calculations are based on the sum of scope 1 and 2 GHG emissions, as agreed within the Eurosystem, and also following TCFD recommendations for climate-related metrics calculations.

Box 1: Scopes of GHG emissions

Scope 1: Direct emissions from owned or controlled sources (e.g. emissions in the manufacturing process of goods, use of company vehicles, etc.).

Scope 2: Indirect emissions from the generation of purchased and consumed energy (e.g. electricity, steam, heating, cooling).

Scope 3: All other indirect emissions not included in scope 2 that occur in the value chain of the reporting company, including both upstream and downstream emissions (e.g. business travel, waste disposal, consumption of goods, investments).

³ Carbon dioxide equivalent (or CO₂e) is a metric measure used to compare the emissions from various greenhouse gases on the basis of their global-warming potential, by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential. For more information, see [Eurostat](#).

The three main metrics, which together form the basis of the Eurosystem's common minimum disclosure framework for NMPPs discussed in this chapter are: the 'Weighted Average Carbon Intensity', 'Total Carbon Emissions' and 'Carbon Footprint'. 'Carbon Intensity' is an additional metric reported by the Bank, beyond the common minimum disclosure framework. Calculation of the subsequently presented metrics follows recommendations of the TCFD and the Partnership for Carbon Accounting Financials (PCAF). Annex 1 sets out the precise definitions of each of these metrics, and the conceptual rationale behind each is set out below.

The *Weighted Average Carbon Intensity (WACI)* measures a portfolio's exposure to carbon-intensive issuers, expressed in tCO₂e per EUR million

revenue/GDP. The carbon intensity of each issuer is computed by normalising their GHG emissions by a measure of economic activity. The portfolio WACI is then calculated by weighting the carbon intensity of each issuer by their respective share of holdings in the portfolio. The WACI is a central element of the Eurosystem's climate-related financial disclosures. High data availability, data normalisation, and the widespread application of the metric across the financial industry ensure comparability across portfolios and time. The WACI delivers an "outside-in-perspective" (i.e. financial materiality), which serves as a proxy for a portfolio's exposure to climate change-related transition risks.

The *Total Carbon Emissions (TCE)* metric quantifies the total absolute emissions associated with a portfolio, expressed in tCO₂e.

GHG emissions are weighted by the investor's contribution to the issuer's total capital structure (e.g. enterprise value, GDP) and summed up to determine the portfolio's total carbon emissions. The metric serves as a foundation of related normalised metrics such as the "Carbon Footprint" and the "Carbon Intensity" (see below). It provides an "inside-out-perspective" (i.e. environmental materiality), which serves as a proxy for a portfolio's environmental footprint. Due to its non-normalised nature, the metric's comparability across portfolios and time is limited, with the size of the portfolio being the main driver of the level of TCE. To overcome this shortcoming, and to provide a more holistic view of a portfolio's emissions, complementary disclosure of the Carbon Footprint – TCE normalised by portfolio size – is essential.

As mentioned above, the *Carbon Footprint (CF)* normalises the TCE associated with a portfolio by its market value, expressed in tCO₂e per EUR million

invested. This complementary metric allows for comparability of the footprint across differently sized portfolios and across time.

By contrast, the *Carbon Intensity (CI)* metric measures a portfolio's associated TCE relative to its associated underlying issuer revenue/GDP, expressed in tCO₂e per EUR million revenue/GDP. In other words, the CI measures the carbon efficiency of a portfolio in financing economic activity.

Box 2: Data limitations

The measurement of climate-related financial risks is gradually improving, but there remains both analytical and data gaps. This should be borne in mind when reading, and interpreting, the contents of this report. As measurement approaches advance, including in terms of data availability and quality, the Bank will seek to incorporate these in its regular reporting in future. This box outlines some of the data limitations that can affect the interpretation of the climate-related financial metrics used in this report, especially in making comparisons over time. The disclosure of climate-related financial risks will, in and of itself, act as an important catalyst to improve the availability of climate data and accelerate the development of robust metrics and risk assessment methodologies. This is why it is important that organisations such as the Bank make early progress in disclosing their climate-related financial risks, even recognising gaps in data and measurement techniques, with a view to build on this experience to improve the quality of disclosures in future reports.

The metrics in this report draw on published data and on data and methodologies from external data providers used by the Eurosystem. The Eurosystem relies on climate data from two specialised providers: Institutional Shareholder Services (ISS) and Carbon4 Finance (C4F). Financial data are gathered from various internal and external public and non-public data sources.

The lagged nature of data: When performing calculations of selected climate-related metrics, it is important to note that, aside from the year-end holdings of the Bank's Investment Assets, which are up to date as of end-2022, a significant amount of input data are only available with time lags. The calculation of sovereign climate metrics is based, for the most part, on 2020 emissions data, while non-sovereign climate metrics are based on emissions data that are available for 2020 and 2021. Similarly, for other inputs into the calculation of the metrics, World Bank country-level data (e.g. ppp-adjusted GDP, population and government consumption expenditure) are available up to year-end 2021, while financial data for non-sovereign entities are matched to the relevant emissions data year, i.e. 2020 and 2021. Given the lagged nature of the data, disclosures of the Bank's climate metrics made in any given year (such as 2023) will be revised and restated in light of updated data becoming available.

Impact of Covid-19 and data lags: As mentioned, the emissions data used for the calculation of climate-related metrics for sovereign assets is based on year-end 2020 emissions. As such, the effects of the Covid-19 pandemic on emissions are reflected in the metrics in this disclosure for year-end 2020. However, the metrics for 2021 and 2022 do not yet incorporate any rebound effects in sovereign emissions that is likely to have been associated with the general re-opening of world economies following the conclusion of the acute phase of the pandemic. Therefore, any such impact is expected to feed into the Bank's disclosures from 2024 onwards.

Coverage: In calculating portfolio-level climate metrics, data coverage is an essential element to consider when comparing metrics across portfolios and across time. As such, where there is less availability of inputs to each metric calculation, the comparability of each metric is reduced. The coverage percentage denoted alongside each metric in this report indicates data availability, which is calculated as the percentage of investments (i.e. the value of investments/the value of the portfolio) for which all required data (i.e. emissions and financial data) are available. In general, for the data providers used for the purposes of this report, the availability of all required information is high for Sovereign and Corporate issuers, while coverage is less broad for Supranational and Agency issuers.

Notwithstanding the data limitations outlined in Box 2, the disclosures presented in this report mark an important step towards increased transparency about the climate-related risks and the environmental footprint related to the Bank's Investment Assets. The information provided in this report will be refined over time, in line with evolving market standards/frameworks for assessing climate risk, increasing availability of climate-related data and growing expertise in handling climate-related risks.

Box 3: Emissions allocation for Sovereign bonds

While the method of allocation of emissions to corporates is standardised (and classified into scope 1, scope 2 and scope 3), there is currently no standardised allocation method for sovereigns. In order to provide a high degree of transparency, the Eurosystem's common disclosure framework reports on the three different methods of allocating emissions to sovereigns: production-, consumption- or government based.

Production emissions: emissions produced domestically within a country's physical borders, including domestic consumption and exports. This definition follows the territorial emissions approach adopted by United Nations Framework Convention on Climate Change (UNFCCC) for annual national inventories.

Consumption emissions: emissions related to domestic demand, accounting for trade effects. This metric provides a broader view of a sovereign's emissions and tackles the issue of carbon leakage that arises due to production shifts from countries where goods are consumed later.

Government emissions: direct emissions (e.g. from buildings, vehicles) and indirect emissions (e.g. emissions related to energy consumption, but also expenditures, subsidies, and investments) of the central government.

Reported Metrics, Trends and Commentary

The Bank's investment approach, alongside that of our central bank peers in the euro area, is a conservative one founded on a primary allocation to highly liquid, high quality financial instruments such as sovereign, sub-sovereign, supranational and agency fixed income bonds (Chart 1). As at end-2022⁴, the Bank's Investment Assets are comprised of approximately 72 per cent of assets denominated in euro and 28 per cent denominated in foreign currency. The amount of the Bank's holdings in scope⁵ of the climate-related metrics is EUR

⁴ Please note that the Bank's 2022 holdings data in this report contain preliminary figures. Final holdings data will be published in the Bank's Annual Report for 2022.

⁵ Gold, Cash and Cash-like instruments are not in scope for emissions reporting.

9.9bn for the EUR-denominated assets⁶ and EUR 13.3bn for the combined EUR/FX-denominated assets (Table 1).

Table 1 | Total value and value in scope of the Investment Assets

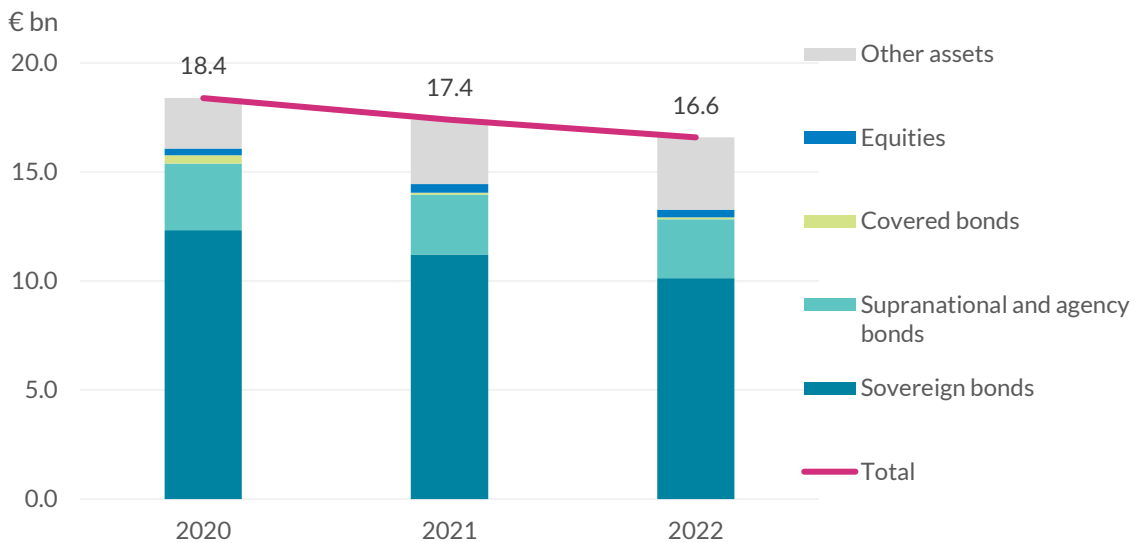
	2020	2021	2022
Investment Assets (EUR) Total:	€15.2bn	€13.0bn	€12.0bn
Investment Assets (EUR) Total In Scope:	€13.4bn	€11.3bn	€9.9bn
Investment Assets (EUR/FX) Total:	€18.4bn	€17.4bn	€16.6bn
Investment Assets (EUR/FX) Total In Scope:	€16.1bn	€14.5bn	€13.3bn

Source: CBI calculations.

Notes: Total In Scope excludes the value of instruments held in the Investment Assets that are not in scope for emissions reporting (i.e. Gold, Cash and Cash-like instruments).

Chart 1 | Total value and asset allocation of the Investment Assets

Combined EUR/FX



Source: CBI calculations.

Sovereign bonds make up the largest proportion of the holdings in each case while Supranational and Agency bonds comprise the largest portion of the non-Sovereign holdings.

The coverage (data availability) for Sovereign holdings is high at approximately 100 per cent while coverage across non-sovereign bonds is less comprehensive,

⁶ For the purposes of this report, EUR-denominated assets include those financial instruments held in the Bank's EUR Hold-to-Maturity (HTM) portfolio, the EUR Marked-to-Market (MTM) portfolio, the Bank's investments in the BIS EUR-denominated Green Bond funds and the Bank's Equities portfolio.

in the range of 67-85 per cent on an aggregated basis over the years considered. It is noted that within the non-sovereign portion of the Investment Assets, the reduced level of coverage (as explained in Box 2) is driven by data availability issues for Supranational and Agency issuers. For holdings of equities and covered bonds, coverage is high at 99-100 per cent.

Table 2 below shows the climate-related metrics, split by asset class, for the Bank's EUR-denominated Investments Assets, as at end-2022.

Table 2 | Climate metrics of the Bank's EUR-denominated Investment Assets 2022

	Sovereign issuers			Non-sovereign issuers			Total
	Sovereign and sub-sovereign bonds			Supra and agency bonds	Covered bonds	Equities	
	Production	Consumption	Government				
Portfolio value (in scope, € bn)							
	6.9			2.5	0.1	0.4	3.0
WACI (tCO₂e per € mn revenue, GDP, consumption exp., or per capita)							
	184	10	83	12	2	101	24
	100	100	100	79	100	99	82
Total Carbon Emissions (Scope 1 and 2 in tCO₂e)							
	1,275,029	1,639,718	128,465	5,746	20	15,185	20,951
	100	100	100	70	100	99	74
Carbon Footprint (tCO₂e per € mn invested)							
	184	237	19	3	0	44	10
	100	100	100	70	100	99	74
Carbon Intensity (tCO₂e per € mn revenue, GDP, consumption exp., or per capita)							
	184	10	82	55	2	139	94
	100	100	100	70	100	99	74
Thematic Bonds (€ mn)							
	679	Green: 465					

Sources: ISS, C4F, World Bank, Bloomberg, CBI calculations.

Notes: **Scope:** Gold, Cash and Cash-like instruments are not in scope for emissions reporting. **Sovereign Metrics:** For sovereign bonds, the attribution factor applied is PPP-adjusted GDP. As a result, the levels of the metrics WACI, Carbon Footprint and Carbon Intensity equate to the same figure when sovereign emissions are allocated on a production basis. Please see Annex 1 for further information on the relevant calculations. **Coverage:** The coverage percentage denoted below each metric indicates data availability, calculated as the percentage of investments (i.e. value of investments / value of portfolio) for which all required data for the calculation (i.e. emissions and financial data) are available.

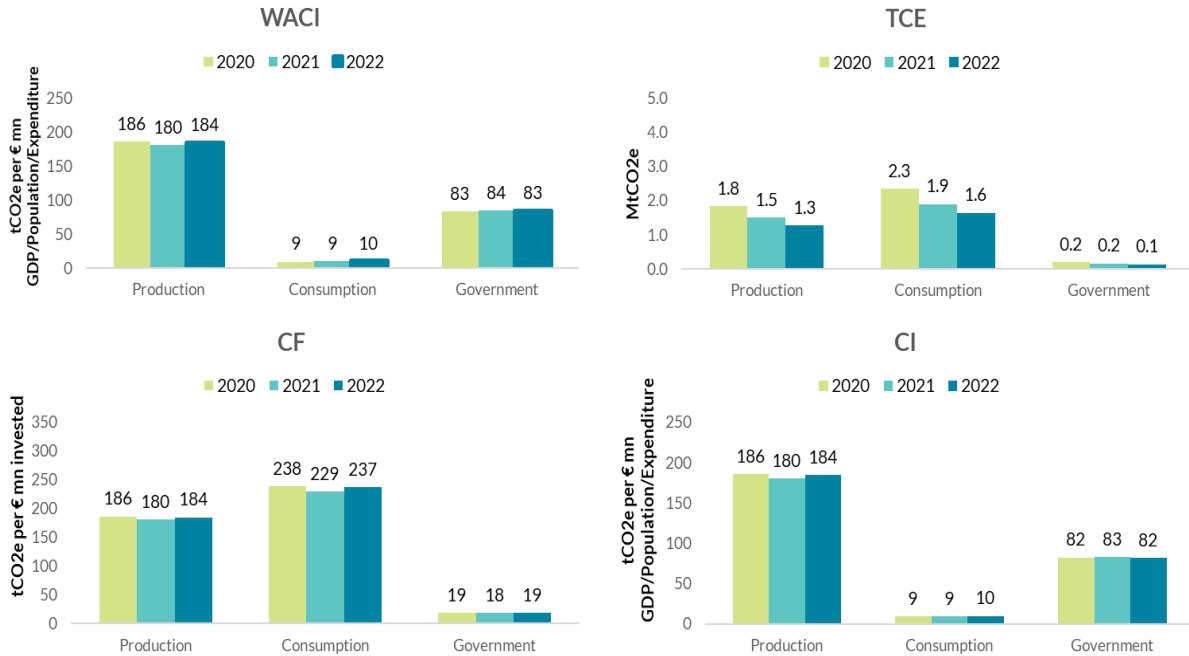
A historical comparison of the metrics, for our EUR-denominated Investment Assets is shown in Charts 2A and 2B for the period 2020-2022⁷. It must be noted that time-series comparisons are complicated by the fact that the coverage percentages vary over time (Annex 3). These metrics will also include the period of re-opening of the global economy following the most acute phases of the pandemic. The **TCE** of the Sovereign portion of the Bank's Investment Assets has decreased over the period, driven by the reduction in the absolute size of the Investment Assets following redemptions of EUR-denominated hold-to-maturity bonds. The Sovereign **CF** meanwhile, which normalises the TCE by portfolio size, stays relatively stable over the period between 2020 and 2022, as notwithstanding the portfolio valuation effect of the hold-to-maturity redemptions, the composition of issuers in the portfolio (and the overall associated emissions profile thereof) has remained relatively constant. The **WACI** of the Bank's sovereign holdings (i.e. exposure to carbon intensive issuers) has also stayed relatively stable over the period as the composition of the portfolio in terms of carbon intensity has remained broadly similar across each year despite the hold-to-maturity redemptions. A similar trend is also observed for **CI** as the carbon profile of issuers in the portfolio has remained relatively constant over the period. It must be noted that the observed trends in all metrics relating to Sovereigns are affected by the data lags discussed in Box 2. Given that the latest available emissions data for Sovereigns is for year-end 2020, post-pandemic effects on the metrics will begin to feed into disclosure reports subsequent to this one.

For the non-sovereign part of the Bank's Investment Assets, the picture is slightly more mixed. **TCE** has fluctuated over the period in line with fluctuations in the valuation of the equity portfolio, which is the largest driver of absolute emissions, while the **CF** has increased over the period due to small absolute increases in the CF of Supranational and Agency bonds, which comprise the bulk of the non-sovereign portion of the Investment Assets (approximately 85%). The **WACI** of non-sovereign assets has also fluctuated over the period due to the movements in absolute emissions in the equity portfolio and the uptick in emissions associated with the comparatively large holdings of Supranational and Agency issuers. **CI** has remained relatively stable over the period. However, all metrics should be considered in tandem with the coverage percentages given that data availability (or lack thereof) – in particular in the case of the Bank's exposure to Supranational and Agency issuers – has a material impact on the aggregated metrics given that these issuers represent the majority of the non-

⁷ Please see Annex 3 for a more detailed disclosure of these historical climate-related metrics.

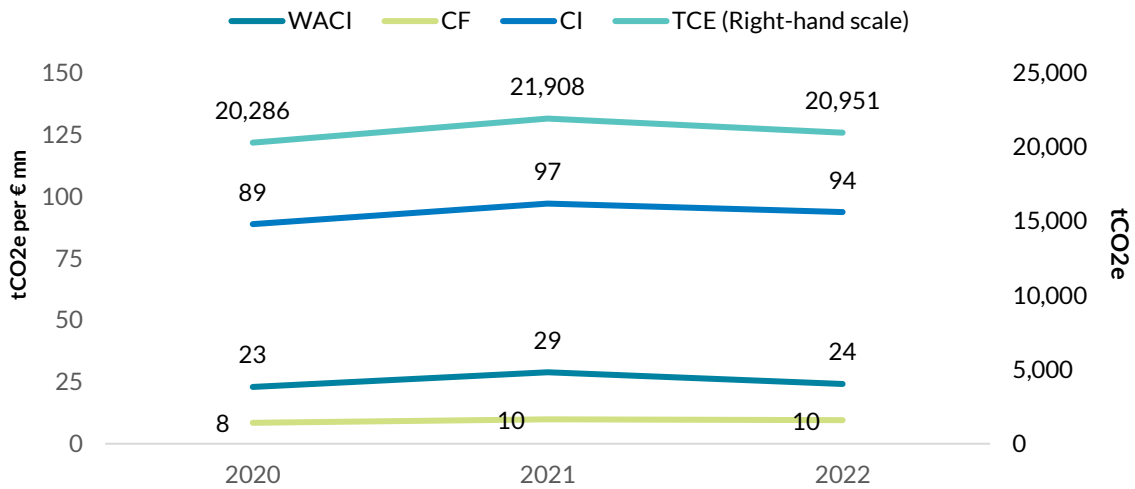
sovereign portion of the Bank's EUR-denominated holdings. Please see the tables in Annex 3 for further information.

Chart 2A | Trends in climate metrics for EUR-denominated Sovereign assets:



Sources: ISS, C4F, World Bank, Bloomberg, CBI calculations.

Chart 2B | Trends in climate metrics for EUR-denominated non-Sovereign assets:



Sources: ISS, C4F, World Bank, Bloomberg, CBI calculations.

To increase transparency, climate metrics were also calculated for our entire Investment Assets. Table 3 below shows the climate-related metrics, split by asset class, for the Bank’s combined EUR/FX-denominated Investments Assets, as at end-2022.

Table 3 | Climate metrics of the Bank’s combined EUR/FX-denominated Investment Assets 2022

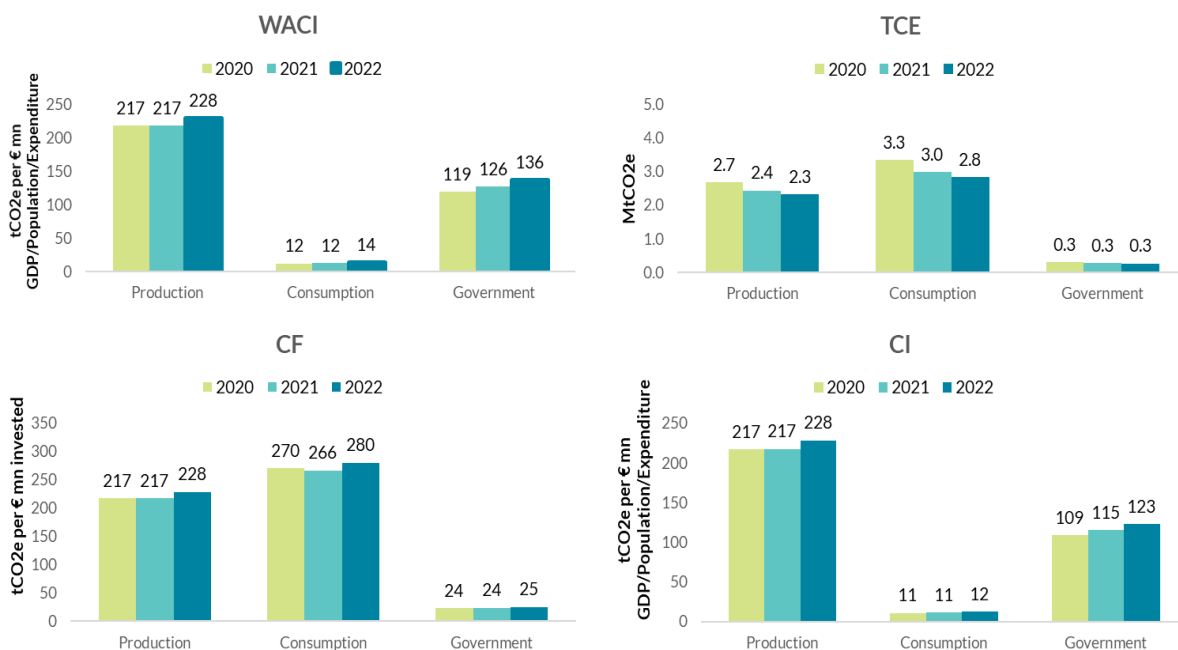
	Sovereign issuers			Non-sovereign issuers			Total
	Sovereign and sub-sovereign bonds			Supra and agency bonds	Covered bonds	Equities	
	Production	Consumption	Government				
Portfolio value (in scope, € bn)							
		10.1		2.7	0.1	0.4	3.1
WACI (tCO2e per € mn revenue, GDP, consumption exp., or per capita)							
	228	14	136	12	2	101	24
	100	100	100	79	100	99	82
Total Carbon Emissions (Scope 1 and 2 in tCO2e)							
	2,311,633	2,836,520	255,034	5,750	20	15,185	20,956
	100	100	100	70	100	99	74
Carbon Footprint (tCO2e per € mn invested)							
	228	280	25	3	0	44	9
	100	100	100	70	100	99	74
Carbon Intensity (tCO2e per € mn revenue, GDP, consumption exp., or per capita)							
	228	12	123	54	2	139	92
	100	100	100	70	100	99	74
Thematic Bonds (€ mn)							
	781	Green: 554					

Sources: ISS, C4F, World Bank, Bloomberg, CBI calculations.

Notes: **Scope:** Gold, Cash and Cash-like instruments are not in scope for emissions reporting. **Sovereign Metrics:** For sovereign bonds, the attribution factor applied is PPP-adjusted GDP. As a result, the levels of the metrics WACI, Carbon Footprint and Carbon Intensity equate to the same figure when sovereign emissions are allocated on a production basis. Please see Annex 1 for further information on the relevant calculations. **Coverage:** The coverage percentage denoted below metric indicates data availability, calculated as the percentage of investments (i.e. value of investments / value of portfolio) for which all required data for the calculation (i.e. emissions and financial data) are available.

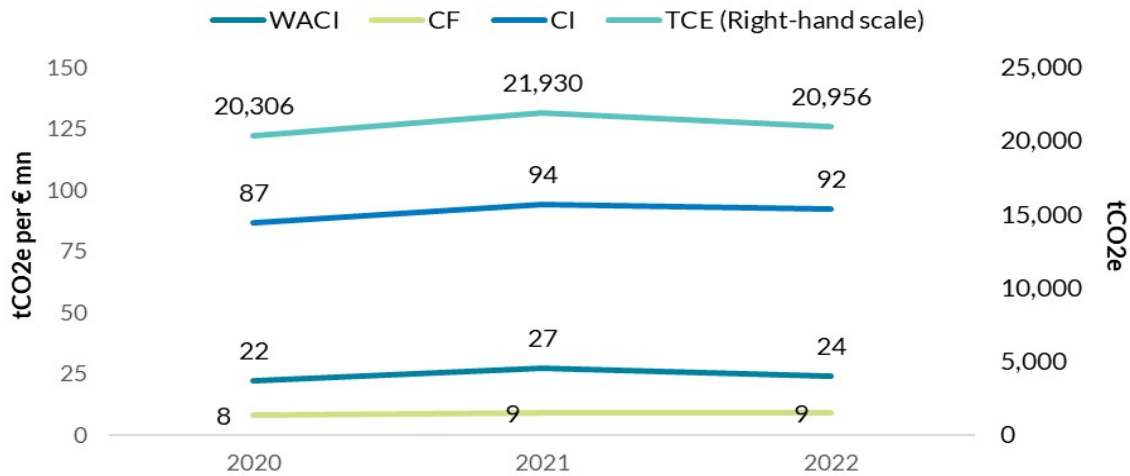
A historical comparison of the metrics, for our combined EUR/FX-denominated Investment Assets is shown in Charts 3A and 3B for the period 2020-2022. In general, for the period, the Sovereign and non-Sovereign metrics follow similar trends as described under the EUR-denominated portfolio. While the trends associated with the EUR- and combined EUR/FX-denominated portfolios are similar, the absolute levels of the metrics are generally higher for the combined EUR/FX-denominated Sovereign assets. This is due to the nature of FX-denominated Sovereign holdings being associated with higher emitting countries such as the US, in the form of US Treasury investments. Therefore, the Sovereign metrics in the combined EUR/FX-denominated portfolio show a slight uptick in 2022 versus 2020-2021. This is the result not only of the hold-to-maturity redemptions in the EUR-denominated portfolio, but also due to the Bank's exposure to higher carbon emitting countries, via the FX-denominated portfolio, which increases in share across the period. Notably, in recent years, the Bank has diversified some of its Investment Assets as a result of a longer-term investment strategy aimed at improving balance sheet resilience. With regard to non-sovereigns, the majority of the Bank's non-sovereign Investment Assets are EUR-denominated. Therefore, the metrics and trends associated with this portion of the combined EUR/FX denominated portfolio are very similar to those of the EUR-denominated portfolio.

Chart 3A | Trends in climate metrics for combined EUR/FX-denominated Sovereign assets 2020-2022



Sources: ISS, C4F, World Bank, Bloomberg, CBI calculations.

Chart 3B | Trends in climate metrics for combined EUR/FX-denominated non-Sovereign assets 2020-2022



Sources: ISS, C4F, World Bank, Bloomberg, CBI calculations.

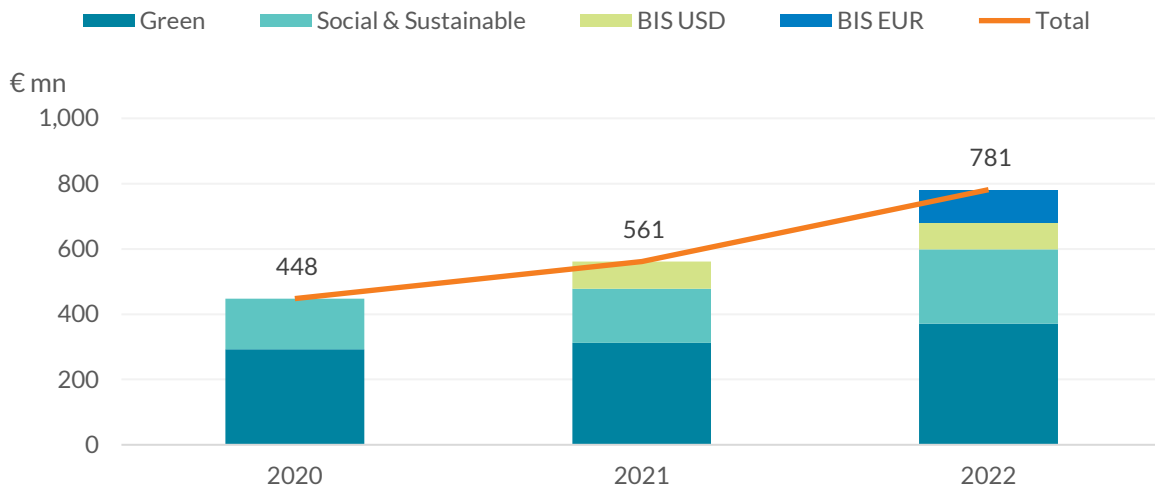
Additional Metrics

In pursuit of increasing transparency beyond the common minimum disclosures, the Bank has decided to additionally include the **Thematic Bond Share**⁸ of our Investment Assets and **Green Bond Avoided Emissions**⁹ (solely relating to our BIS green bond fund investments), in this disclosure. Over the period under review, the amount of Thematic Bonds in the Bank’s Investment Assets increased from approximately EUR 448mn nominal at end-2020 to EUR 781mn nominal at end-2022, as shown in Chart 4.

⁸ Thematic Bond Share: a portfolio’s exposure to green/social/sustainable or sustainability-linked bonds falls in the ESG strategy ‘Impact Investing’

⁹ Avoided emissions related to investments in green bonds, whose proceeds finance green projects that “avoid” emissions.

Chart 4 | Increase in Thematic Bonds share of combined EUR/FX-denominated assets 2020-2022



Sources: BIS, Bloomberg, CBI calculations.

The Bank invests in green bonds directly as part of its day-to-day portfolio management. As at the end of December 2022, the Bank directly held 14 green bonds (nominal €371 million) issued by multilateral development banks, supranational organisations and sovereign-linked agencies in our Investment Assets. The Bank also invests in social and sustainable bonds issued by the aforementioned organisations. As at end 2022, the Bank directly held €228m social and sustainable bonds.

The Bank also participates in the Bank for International Settlements (BIS) green bond funds for central banks. At end-September 2022, the **BISIP G1 (USD fund)** invested in green bonds, the proceeds of which are used to fund projects in the following main categories: 30% in clean transportation, 27% in renewable energy and 21% in green buildings. The environmental impact attributable to the Bank’s share in the USD fund is an estimated level of “avoided emissions” of 50,396 tCO₂e per year. At end-September investment levels, 78% of this estimated impact is accounted for by projects in renewable energy. At end-September 2022 the **BISIP G2 (EUR fund)** invested in green bonds, the proceeds of which are used to fund projects in the following main categories: 29% in renewable energy, 27% in clean transportation and 16% in green buildings. The environmental impact attributable to the Bank’s share in the G2 fund is an estimated emissions avoided of 121,144 tCO₂e per year. At end-September investment levels, 57% of this estimated impact is accounted for by projects in renewable energy.

Targets

The Bank is setting its long-term target to align its euro-denominated Investment Assets with the EU and the Irish State's decarbonisation objectives in support of the Paris Agreement. The EU's objectives stated in its 2050 long-term strategy targets EU climate neutrality by year 2050. This is in line with the Paris Agreement's objective to keep the global temperature increase to well below 2°C and pursue efforts to keep it to 1.5°C.

A full roadmap from the three metrics above (Total Carbon Emissions, Weighted Average Carbon Intensity and Carbon Footprint) to the long-term target is not yet established. Work is ongoing on how the Bank will use these, and other relevant climate-related metrics, to work towards our medium and long-term sustainability targets.

Achievement of the Bank's long term target will depend, amongst other factors, on the degree to which governments succeed in meeting the objectives defined in the Paris Agreement, as due to the Bank's conservative investment approach outlined above, the majority of the Bank's Investment Assets is invested in sovereign/public sector bonds.

In order to improve the carbon metrics of our equities portfolio and support the Paris Agreement objectives, the Bank will replace its conventional equity benchmark with an EU Paris-aligned or Climate Transition benchmark. The Bank has set a target to achieve full alignment with the EU climate benchmark for our equities portfolio in a progressive fashion and by no later than 2026.

Annexes

Annex 1

Elements of the Eurosystem disclosure framework for the TCFD category 'Metrics and Targets'¹⁰

Element	Details
Weighted average carbon intensity (WACI)	$= \sum_n^i \left(\frac{\text{current value of investment}_i}{\text{current portfolio value}} \right) \times \left(\frac{\text{issuer's carbon emissions}_i}{\text{issuer's revenue, PPP adj. GDP, population, or final consumption expenditure}_i} \right)$
Total carbon emissions (TCE)	$= \sum_n^i \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP adj. GDP}_i} \times \text{issuer's carbon emissions}_i \right)$
Carbon footprint (CF)	$= \frac{\sum_n^i \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP adj. GDP}_i} \right) \times \text{issuer's carbon emissions}_i}{\text{current portfolio value}}$
Portfolio size	Expressed in € billions.
Asset classes	All asset classes of the portfolio, with metrics to be shown per asset class.
Data availability	Indicated as a percentage for each metric and asset class.
Data sources	Such as the names of the (climate) data providers.
Target	At least one broadly defined long-term target covering all euro-denominated non-monetary policy portfolios under management control of the central bank that is aligned with the objectives of the Paris Agreement and the EU's climate neutrality objectives. Targets can be set at portfolio level, central bank level, or a combination of both. Targets should ideally be quantitative, and long-term targets should ideally be enriched by intermediate targets.

¹⁰ TCFD formulas are provided here. For the Eurosystem disclosure framework, they have been adjusted where necessary to reflect latest PCAF guidance and cover additional asset classes.

Annex 2

Carbon emissions allocation methods, normalisation factors and attribution factors

Allocation			
Issuer type	Factor	Remarks	Unit
Corporate Supra & Agency	Scope 1 & 2 emissions	Scope 1 comprises direct GHG emissions that occur from sources that are controlled or owned by an organisation (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles). Scope 2 comprises indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling.	tCO ₂ e
	Production emissions	Emissions produced domestically within a country's physical borders, including domestic consumption and exports. This definition follows the territorial emissions approach adopted by United Nations Framework Convention on Climate Change (UNFCCC) for annual national inventories.	
Sovereign	Consumption emissions	Emissions related to domestic demand, accounting for trade effects. This metric provides a broader view of a sovereign's emissions and tackles the issue of carbon leakage that arises due to production shifts from countries where goods are consumed later.	
	Government emissions	Direct emissions (e.g. from buildings, vehicles) and indirect emissions (e.g. emissions related to energy consumption, but also expenditures, subsidies, and investments) of the central government.	

Normalisation			
Issuer type	Factor	Remarks	Unit
Corporate Supra & Agency	Revenue	The total amount of income generated by the sale of goods and services related to the primary operations of the business. Commercial revenue may also be referred to as sales or as turnover.	EUR million
	Production: PPP adj. GDP	GDP is the sum of gross value added by all resident producers plus any product taxes and minus any subsidies not included in the value of the products. The Purchasing Power Parity (PPP) conversion factor is a spatial price deflator and currency converter that eliminates effects of differences in countries' price levels.	EUR million
Sovereign	Consumption: Population	Total population of a country.	People
	Government: Final consumption expenditure	General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defence and security but excludes government military expenditures that are part of government capital formation.	EUR million

Attribution			
Asset class	Factor	Remarks	Unit
Sovereign bonds	PPP adj. GDP	See description of "PPP adj. GDP" in normalization factor.	EUR
Equities			
Supra & Agency bonds	EVIC	The sum of the market capitalisation of ordinary shares at fiscal year-end, the market capitalisation of preferred shares at fiscal year-end, and the book values of total debt and minorities' interests.	
Corporate bonds			
Covered bonds			

Annex 3

Historical Climate Metrics for the EUR-denominated Investment Assets

	Sovereign issuers			Non-sovereign issuers			Total
	Sovereign and sub-sovereign bonds			Supra and agency bonds	Covered bonds	Equities	
	Production	Consumption	Government				
Portfolio value (in scope, € bn)							
2022		6.9		2.5	0.1	0.4	3.0
2021		8.3		2.5	0.1	0.4	2.9
2020		9.9		2.9	0.4	0.3	3.6
WACI (tCO₂e per € mn revenue, GDP, consumption exp., or per capita)							
2022	184	10	83	12	2	101	24
	100	100	100	79	100	99	82
2021	180	9	84	11	2	124	29
	100	100	100	81	100	99	84
2020	186	9	83	10	1	149	23
	100	100	100	79	100	99	83
Total Carbon Emissions (Scope 1 and 2 in tCO₂e)							
2022	1,275,029	1,639,718	128,465	5,746	20	15,185	20,951
	100	100	100	70	100	99	74
2021	1,497,046	1,898,105	153,419	5,457	20	16,431	21,908
	100	100	100	71	100	99	75
2020	1,829,969	2,342,667	186,102	4,775	41	15,470	20,286
	100	100	100	60	100	99	67
Carbon Footprint (tCO₂e per € mn invested)							
2022	184	237	19	3	0	44	10
	100	100	100	70	100	99	74
2021	180	229	18	3	0	41	10
	100	100	100	71	100	99	75
2020	186	238	19	3	0	52	8
	100	100	100	60	100	99	67
Carbon Intensity (tCO₂e per € mn revenue, GDP, consumption exp., or per capita)							
2022	184	10	82	55	2	139	94

	100	100	100	70	100	99	74
2021	180	9	83	55	2	142	97
	100	100	100	71	100	99	75
2020	186	9	82	48	1	157	89
	100	100	100	60	100	99	67
Thematic Bonds (€ mn)							
2022	679	Green: 465					
2021	462	Green: 313					
2020	442	Green: 293					

Sources: ISS, C4F, World Bank, Bloomberg, CBI calculations.

Notes: Gold, Cash and Cash-like instruments are not in scope for emissions reporting. The coverage percentage, included in italic below each metric value, indicate data availability, calculated as the percentage of investments (i.e. value of investments / value of portfolio) for which all required data for the calculation (i.e. emissions and financial data) are available.

Historical Climate Metrics for the Combined EUR/FX-denominated Investment Assets

	Sovereign issuers			Non-sovereign issuers			Total
	Sovereign and sub-sovereign bonds			Supra and agency bonds	Covered bonds	Equities	
	Production	Consumption	Government				
Portfolio value (in scope, € bn)							
2022		10.1		2.7	0.1	0.4	3.1
2021		11.2		2.7	0.1	0.4	3.2
2020		12.3		3.0	0.4	0.3	3.7
WACI (tCO₂e per € mn revenue, GDP, consumption exp., or per capita)							
2022	228	14	136	12	2	101	24
	100	100	100	79	100	99	82
2021	217	12	126	11	2	124	27
	100	100	100	83	100	99	85
2020	217	12	119	9	1	149	22
	100	100	100	79	100	99	83
Total Carbon Emissions (Scope 1 and 2 in tCO₂e)							
2022	2,311,633	2,836,520	255,034	5,750	20	15,185	20,956
	100	100	100	70	100	99	74

2021	2,439,271	2,989,029	267,165	5,478	20	16,431	21,930
	100	100	100	72	100	99	76
2020	2,677,351	3,336,419	290,312	4,795	41	15,470	20,306
	100	100	100	62	100	99	69

Carbon Footprint (tCO₂e per € mn invested)

2022	228	280	25	3	0	44	9
	100	100	100	70	100	99	74
2021	217	266	24	3	0	41	9
	100	100	100	72	100	99	76
2020	217	270	24	3	0	52	8
	100	100	100	62	100	99	69

Carbon Intensity (tCO₂e per € mn revenue, GDP, consumption exp., or per capita)

2022	228	12	123	54	2	139	92
	100	100	100	70	100	99	74
2021	217	11	115	51	2	142	94
	100	100	100	72	100	99	76
2020	217	11	109	46	1	157	87
	100	100	100	62	100	99	69

Thematic Bonds (€ mn)

2022	781	Green: 554
2021	561	Green: 396
2020	448	Green: 293

Sources: ISS, C4F, World Bank, Bloomberg, CBI calculations.

Notes: Gold, Cash and Cash-like instruments are not in scope for emissions reporting. The coverage percentage, included in italic below each metric value, indicate data availability, calculated as the percentage of investments (i.e. value of investments / value of portfolio) for which all required data for the calculation (i.e. emissions and financial data) are available.



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