



CENTRAL BANK OF CYPRUS

EUROSYSTEM

Climate-related financial disclosures of the Central Bank of Cyprus EUR non-monetary policy portfolios

March 2023

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1. Introduction

The Central Bank of Cyprus (CBC) acknowledges the global challenge brought about by the increasing risks from climate change. In view of that, the CBC has taken steps, within its mandate, to address climate-related risks and to contribute to the transition to a green and low-carbon EU economy¹.

One of the CBC's first initiatives in this area was joining on 25 March 2020 the Network for Greening the Financial System (NGFS), a worldwide network of central banks and supervisors, whose purpose is to contribute to the development of environment and climate risk management in the financial sector, and to mobilize mainstream finance to support the transition toward a sustainable economy.

As a member of the Eurosystem, the CBC has been working, *inter alia*, towards the definition of a common framework for applying sustainable and responsible investment principles in its euro-denominated non-monetary policy portfolios (NMPPs)². This work culminated in the February 2021 commitment made by all Eurosystem NCBs to start making annual climate-related financial disclosures for their euro-denominated NMPPs.³

In line with the aforementioned commitment, this report presents the CBC's first climate-related financial disclosure for its euro-denominated portfolios under its own management. The disclosures 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 information across the four pillars, namely "Governance", "Strategy", "Risk management" and "Metrics and targets".

The disclosures presented in this note mark an important step towards increased transparency about the climate-related risks and the environmental/ carbon footprint of the CBC's NMPPs. Through improving transparency of its own activities and the sustainability profile of its investments, the CBC aims, at the same time, to foster its understanding of climate-related risks as well as to enhance its risk assessment capabilities and climate-related mitigation strategies.

The CBC is committed to publishing climate-related financial disclosures on an annual basis. These disclosures will be refined over time, in line with increasing availability and quality of climate-related data and growing expertise in assessing and managing climate-related risks.

¹ It is noted that governments and parliaments have the primary responsibility to act on climate change and the most effective tools to address this issue.

² In 2022 the Eurosystem also conducted the first climate stress test of its 'consolidated' balance sheet that provided a first estimate of the potential impact of climate related risks.

³ See [press release](#) "Eurosystem agrees on common stance for climate change-related sustainable investments in non-monetary policy portfolios", 4 February 2021. Moreover, on 8 July 2021, the Eurosystem presented an action plan to include climate change considerations into its monetary policy as well as operational and risk management frameworks, in order to enhance its analytical capacity to better monitor and assess the implications of climate change and related policies for the economy, the financial system and the transmission of monetary policy through financial markets and the banking system to households and firms.

2. Governance

The CBC's NMPPs comprise euro-denominated and foreign currency bond securities that are managed under its own responsibility and discretion.

The management of the CBC's NMPPs is governed by the CBC's Investment Policy & Risk Management Framework, which defines, *inter alia*, the applicable governance arrangements, the overarching investment principles and objectives, as well as the applicable risk management framework.

As regards governance arrangements, the CBC has integrated in 2022 the governance of climate-related risks into the existing governance structure and its Investment Policy & Risk Management Framework. As per the afore-mentioned Framework, the Governor and the CBC's Board of the Directors (BoD) have, *inter alia*, the ultimate responsibility for overseeing the effectiveness of investment-related operations and setting the objectives. The Governor and the BoD are, thus, responsible for defining the investment policy principles and objectives, including any climate-related targets. The CBC's Investment Committee advises the Board on these issues. These are ultimately incorporated in the CBC's Investment Policy & Risk Management Framework and implemented by the competent departments.

The overarching principle guiding the management of CBC investment assets is safety, namely the long-term preservation of the value of its investment assets. Subject to the fulfilment of the said principle, the management of CBC reserves aims at maximising long-term return on investment, within the acceptable risk tolerance levels. It is noted that income produced from investment operations constitutes a major source of financing of the CBC's operations, thereby contributing to the safeguarding of its financial autonomy and independence.

The investment of the CBC's reserve assets is subject to a comprehensive risk management and control framework. The CBC's Risk Management Department (RMD) develops and maintains the risk management and control framework as well as defines the strategic benchmarks that guide the active management of the investment portfolios. These are approved by the Governor and the BoD, following input by the CBC's Investment Committee. The Market Operations Department (MOD) is responsible for the day to day management of the CBC's investment assets within the parameters set by the approved frameworks considering, *inter alia*, climate-related risks and opportunities in its investment process.

The implementation of the investment strategy and the progress made towards the achievement of prescribed objectives and targets, are presented and discussed, at least on a quarterly basis, in the CBC's Investment Committee, and subsequently to the BoD. In this context, amendments to the followed strategy and targets can be proposed, if deemed necessary, by the MOD, the RMD and/ or the Investment Committee.

3. Strategy & Risk management

Subject to the overarching principle of safety, and consistent with the requirement for prudent risk management, the CBC's Investment Policy & Risk Management Framework stipulates, *inter alia*, that due consideration should also be given to climate-related risks as they can adversely affect the value and the risk profile of CBC's investments. For example, climate-related risks might lead to adverse outcomes in the event of climate shocks or a gradual worsening of the underlying risk factors, amplifying financial risks.

In 2022, Sustainable and Responsible Investment (SRI) considerations were incorporated in the CBC's Investment Policy & Risk Management Framework, with the objective of improving the sustainability profile of the CBC's investments via a progressive reduction of their carbon footprint. At the same time, the CBC is cognizant that decarbonisation of its investment portfolios, particularly in terms of absolute emissions, may not be feasible in the next 4-5 years, as the CBC is expected to significantly increase its investment holdings, an intention that this is connected to the financial independence requirement of euro central banks prescribed in the Treaty.

At the same time, the incorporation of SRI considerations seeks to mitigate sustainability risks in its investment portfolios as well as to pursue, where possible, sustainability-linked opportunities. Essentially, this facilitates a more holistic understanding, assessment and management of investment-financial risks, admittedly, from a different dimension. Overall, the CBC is of the view that sustainable-responsible investments-issuers are less likely to experience unforeseen losses due to climate-related factors, hence are more likely to offer higher value over the long-term, particularly on a risk-adjusted basis.

Against the above backdrop, and having regard to the CBC's investment universe⁴, the SRI objectives were translated into specific risk management and investment principles and strategies. These are consistent with the safety principle and the return requirement as well as with the objectives set for each portfolio in terms of liquidity and credit quality.

In particular, the CBC applies the following SRI approaches:

- An internally developed scoring system is employed to grade CBC-eligible countries based on a set of sustainability indicators, with climate action/environmental performance indicators carrying the highest weight. These indicators are linked to the corresponding UN Sustainable Development Goals (SDGs) and each country's progress towards achieving the Paris Agreement goals. Based on each country's weighted average score, the limits prescribed to the highest ranked (best-in-class) countries are adjusted upwards, whereas the limits of lagging countries in terms of climate action/environmental performance are reduced. In this way, the potential share of assets issued

⁴ The CBC does not invest in equities. Moreover, it has a small exposure to corporate bonds via a collective investment scheme (i.e. an investment fund). Consequently, there are limited possibilities to apply – in a meaningful way – certain sustainability investment strategies such as voting and engagement or industry or product-based exclusions.

by the countries with a higher score is tilted favourably compared with that of countries with a poorer climate performance and higher climate risk.

- To generate a quantifiable and targeted positive impact, the CBC's Investment Policy & Risk Management Framework also provides for investments in green bonds that fulfil specific labelling criteria⁵. This ensures that only issuers with credible green investment propositions that are beneficial to the environment are supported. To that end, in the fourth quarter of 2022, the CBC invested in a fund that invests in euro-denominated green bonds issued by highly rated sovereigns and sub-government issuers as well as in green covered bonds⁶. In addition, the CBC has explicitly expanded its scope in responsible investments by incorporating green bonds into its eligible universe as a standalone asset class. The CBC intends to review its targeted allocation to green bonds on a triennial basis.
- As part of its regular assessment of issuers for eligibility purposes, the CBC considers exclusions on the basis of criteria and indicators that signal sub-optimal governance foundations and/or conduct. For instance, countries considered as lacking basic political freedoms and civil rights or as corrupt, and non-sovereign issuers with poor governance scores are excluded outright. This also helps to address possible reputational risks.

Going-forward, the CBC will seek to further integrate climate-related risk considerations into its internal risk assessment and risk control frameworks, including the development of climate scoring tools for all approved government-related issuers and counterparties (i.e. financial institutions). Additionally, the CBC will examine ways to systematically apply SRI-related information into the portfolio management process. The latter will allow portfolio managers to factor in sustainability risks in their investment decision process. It is noted that the timing of the implementation of the above will largely depend on the availability of the required data sets and metrics, in a form that is sufficiently robust for the said purposes.

4. Metrics and targets

This section presents the CBC's first TCFD disclosures of climate-related metrics and targets for its EUR denominated NMPPs. In future reports, the CBC will gradually expand its disclosures to include NMPPs in foreign currency.

Calculation of the presented metrics follows recommendations of the TCFD and the Partnership for Carbon Accounting Financials (PCAF). The four main metrics discussed in this chapter are the "Weighted Average Carbon Intensity" (WACI), "Total absolute greenhouse gas (GHG) emissions", "Carbon footprint" and "Carbon intensity". The CBC is publishing

⁵ Namely, eligible green bonds should be issued and validated in line with the Climate Bonds Standards (of the Climate Bonds Initiative) or the Green Bond Principles (established by the International Capital Market Association, ICMA), or compliance with the EU Green Bond Standard for euro-denominated green bonds, when comes into force.

⁶ This is a green bond fund that is managed by the Bank for International Settlements (BIS) and is offered exclusively to central banks. For further information see the BIS [press release](#) on the launch of the said fund.

these metrics for all issuer types within its euro-denominated NMPPs alongside coverage data for each issuer type for the period 2020-2022. While coverage may not be 100% in all instances due to lack of data, the presented metrics render a fair historical representation of their carbon intensity.

The “**WACI**” is one of the most widespread metrics used to indicate the level of carbon emissions of an investment or portfolio. Specifically, it measures a portfolio’s (total) exposure to carbon-intensive issuers, expressed in tons of carbon dioxide (CO₂) equivalent⁷ per EUR million revenue. The carbon intensity of each issuer is computed by normalising their GHG emissions by a measure of economic activity (depending on issuer type). 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 delivers an “outside-in-perspective” (i.e. financial materiality), which serves as proxy for a portfolio’s exposure to climate change-related transition risks.

The “**Total absolute GHG emissions**” metrics quantifies the absolute level of emissions of a portfolio, expressed in tons of CO₂ equivalent, and serves as a foundation of related normalized metrics such as the “Carbon footprint” and the “Carbon intensity”. All in all, the said metric, provides an “inside-out-perspective” (i.e. environmental materiality), which serves as proxy for a portfolio’s environmental footprint and to perform portfolio attribution in terms of GHG emissions. It is noted that, due to its non-normalized nature, the metric’s comparability across portfolios and time is limited, as it is largely driven by a portfolio’s size. To overcome this shortcoming and to provide a more holistic and comparable views of a portfolio’s GHG emissions, the *Carbon footprint* metric is also employed.

The “**Carbon footprint**” normalizes the Total absolute GHG emissions associated with a portfolio by an issuer’s market value, expressed in tons of CO₂ equivalent per EUR million invested, thereby allowing for comparability across differently sized portfolios and across time.

In contrast, the “**Carbon intensity**” metric measures a portfolio’s Total absolute GHG emissions relative to the issuer’s revenue (and / or PPP GDP), expressed in tons of CO₂ equivalent per EUR million revenue (and / or PPP GDP).

The size and composition of the CBC’s euro-denominated NMPPs in the period 2020-2022 is depicted in Chart 1. In 2022, the portfolio size has grown due to the net purchases concluded over the said year that were facilitated by the positive bond yields after a protracted period of negative yields. As of 31.12.2022, the said portfolio was composed of sovereign bonds (73%), bonds of supranational and agency issuers (9%) and covered bonds (18%). This composition includes the CBC’s share in the BIS green bond fund.

⁷ Carbon dioxide equivalent (or CO₂ equivalent) is a metric measure used to compare the emissions from various greenhouse gases on the basis of their global-warming potential (GWP), by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential. For more information, see [Eurostat](#).

Chart 1

Portfolio size and composition in CBC's EUR NMPPs

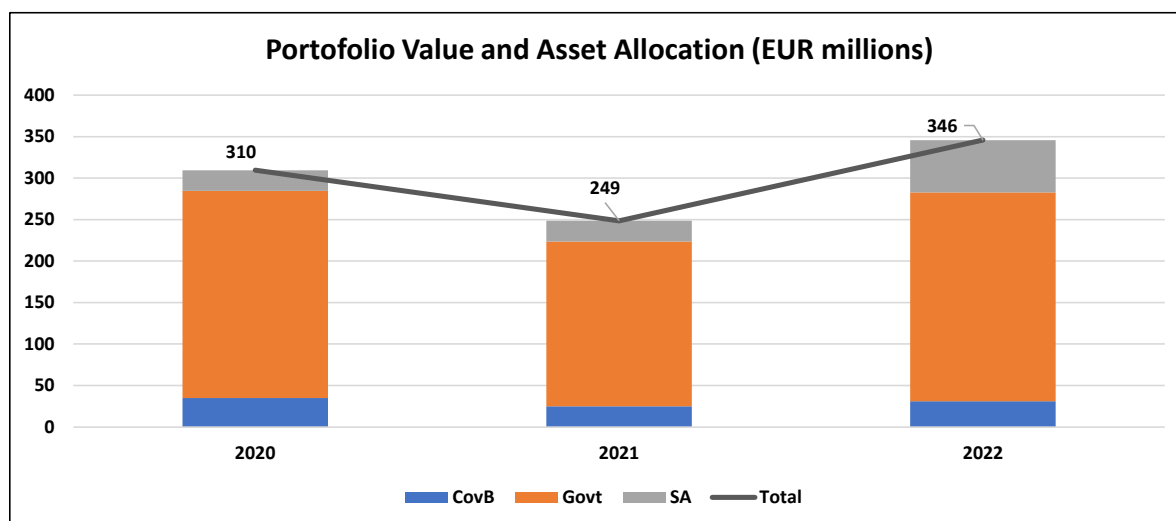


Table 1 shows the above-described metrics for the EUR-denominated NMPPs. Metrics are split by asset class and cover the most recent reporting period, namely, December 2022.

Table 1

Climate-related TCFD metrics in CBC's EUR NMPPs' for year end 2022⁸

	Reporting Year : 2022			Non-sovereign		
	Sovereign			TOTAL*	Supra and agency bonds	Covered bonds
	Production	Consumption	Government			
Portfolio Size (€ million)	252			94	63	31
WACI (tons of CO2 equivalent per € million revenue, GDP, consumption exp., or per capita)	231 (100%)	9 (100%)	118 (94%)	9 (79%)	13.4 (77%)	3.4 (100%)
Total carbon emissions (tons of CO2 equivalent)	58,169 (100%)	64,575 (100%)	6,246 (94%)	62 (67%)	47.3 (63%)	14.6 (100%)
Carbon footprint (tons of CO2 equivalent per € million invested)	231 (100%)	257 (100%)	25 (94%)	1 (67%)	1.3 (63%)	0.5 (100%)
Carbon intensity (tons of CO2 equivalent per € million revenue, GDP, consumption exp., or per capita)	231 (100%)	8 (100%)	115 (100%)	9 (67%)	17.6 (63%)	3.6 (100%)

*Non Sovereign positions only

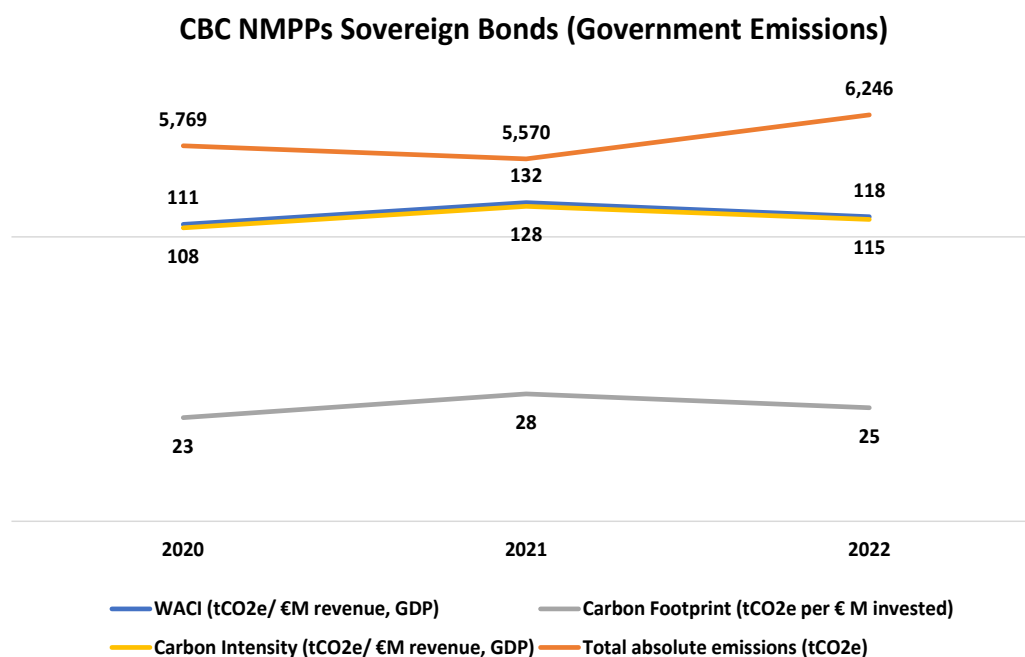
Sources: ISS, C4F, World Bank, Bloomberg and CBC calculations.

⁸ In all tables, percentages in below each metrics indicate data availability, calculated as the percentage of investments (i.e. market value of investments / market value of portfolio) for which all required data (i.e. emissions data and financial data) is available. Additionally, in all tables, the portfolio's "Total" size includes all assets, also the ones excluded from reporting such as cash and derivatives. As such, its value may deviate somewhat from the sum of the portfolio sizes of the reported asset classes.

Chart 2 shows a historical comparison of the sovereign bonds held in the EUR NMPPs, which comprise the vast majority of the assets held, for years 2020-2022. A detailed disclosure of the respective historical climate metrics is provided in the Table 2 in the Annex.

Chart 2

Evolution of climate-related TCFD metrics in CBC’s EUR NMPPs - Sovereign Bonds (Government Emissions) 2020-2022



Sources: ISS, C4F, World Bank, Bloomberg and CBC calculations.

The CBC’s carbon footprint metrics calculated on a relative-normalized basis, i.e. “WACI”, “carbon footprint” and “carbon intensity”, have been broadly stable over the reporting period, in line with the portfolio composition, which has remained broadly unchanged. In absolute terms (not normalized basis), total GHG emissions have been trending upwards, which is attributed to the increased portfolio size in 2022. At the same time, all normalized carbon footprint metrics improved in 2022 relative to 2021, largely due to CBC’s investment in the BIS green bond fund.

Targets

Subject to the overarching principle of safety, the CBC will aim to decarbonize its euro-denominated NMPPs in line with the goals of the Paris Agreement and EU climate neutrality objectives as defined in the European Climate Law. The Law’s goal is for Europe’s economy and society to become climate-neutral by 2050 and to limit the global temperature increase to well below 2°C and to pursue efforts to keep it to 1.5°C in line with the Paris Agreement.

In the interim, CBC intends to calibrate portfolio specific, intermediate decarbonisation targets for its NMPPs in line with each portfolio’s policy objectives and constraints. Such intermediate targets will aim to progressively reduce each portfolios’ carbon footprint by a

pre-defined amount compared to levels that will be defined accordingly as data availability and quality improves.

To facilitate the achievement of the above-mentioned targets, namely to significantly improve its carbon footprint over the long-run, the CBC has adopted a number of climate-related risk considerations and SRI strategies. These strategies include:

- A. Increasing the amount of 'green bonds' in its portfolios, which will have a positive and direct impact on the carbon footprint of its holdings.
- B. Limiting exposure to issuers that underperform in terms of climate-related/environmental performance.
- C. Increasing exposure to issuers that are considered “best-in-class” in terms of climate-related/environmental performance.

Annex

Table 1

Historical climate metrics for EUR NMPP's (2020-2022)

Reporting Year : 2022

	Sovereign			Non-sovereign		
	Sovereign and sub-sovereign bonds			TOTAL*	Supra and agency bonds	Covered bonds
	Production	Consumption	Government			
	Portfolio Size (€ million)	252			94	63
WACI (tons of CO2 equivalent per € million revenue, GDP, consumption exp., or per capita)	231 (100%)	9 (100%)	118 (94%)	9 (79%)	13.4 (77%)	3.4 (100%)
Total carbon emissions (tons of CO2 equivalent)	58,169 (100%)	64,575 (100%)	6,246 (94%)	62 (67%)	47.3 (63%)	14.6 (100%)
Carbon footprint (tons of CO2 equivalent per € million invested)	231 (100%)	257 (100%)	25 (94%)	1 (67%)	1.3 (63%)	0.5 (100%)
Carbon intensity (tons of CO2 equivalent per € million revenue, GDP, consumption exp., or per capita)	231 (100%)	8 (100%)	115 (100%)	9 (67%)	17.6 (63%)	3.6 (100%)

*Non Sovereign positions only

Sources: ISS, C4F, World Bank, Bloomberg and CBC calculations.

Reporting Year : 2021

	Sovereign			Non-sovereign		
	Sovereign and sub-sovereign bonds			TOTAL*	Supra and agency bonds	Covered bonds
	Production	Consumption	Government			
	Portfolio Size (€ million)	199			50	25
WACI (tons of CO2 equivalent per € million revenue, GDP, consumption exp., or per capita)	244 (100%)	8 (100%)	132 (100%)	2 (100%)	1.6 (100%)	3.3 (100%)
Total carbon emissions (tons of CO2 equivalent)	48,340 (100%)	51,893 (100%)	5,570 (100%)	12 (60%)	0.5 (33%)	11.8 (100%)
Carbon footprint (tons of CO2 equivalent per € million invested)	244 (100%)	261 (100%)	28 (100%)	0 (60%)	0.1 (33%)	0.5 (100%)
Carbon intensity (tons of CO2 equivalent per € million revenue, GDP, consumption exp., or per capita)	244 (100%)	8 (100%)	128 (100%)	3 (60%)	0.4 (33%)	3.7 (100%)

*Non Sovereign positions only

Sources: ISS, C4F, World Bank, Bloomberg and CBC calculations.

Reporting Year : 2020

	Sovereign			Non-sovereign		
	Sovereign and sub-sovereign bonds			TOTAL*	Supra and agency bonds	Covered bonds
	Production	Consumption	Government			
	Portfolio Size (€ million)	250			60	25
WACI (tons of CO2 equivalent per € million revenue, GDP, consumption exp., or per capita)	209 (100%)	8 (100%)	111 (100%)	2 (100%)	1.6 (100%)	2.6 (100%)
Total carbon emissions (tons of CO2 equivalent)	52,025 (100%)	60,185 (100%)	5,769 (100%)	12 (50%)	0.5 (33%)	11.8 (67%)
Carbon footprint (tons of CO2 equivalent per € million invested)	209 (100%)	241 (100%)	23 (100%)	0 (50%)	0.1 (33%)	0.5 (67%)
Carbon intensity (tons of CO2 equivalent per € million revenue, GDP, consumption exp., or per capita)	209 (100%)	8 (100%)	108 (100%)	3 (50%)	0.4 (33%)	3.7 (67%)

*Non Sovereign positions only

Sources: ISS, C4F, World Bank, Bloomberg and CBC calculations.

Table 2

Metrics: Calculation formulas

Weighted average carbon intensity (in tCO2e/€M revenue or PPP adj. GDP)	$= \sum_n^i \left(\frac{\text{current value of investment}_i}{\text{current portfolio value}} \right) \times \left(\frac{\text{issuer's GHG emissions}_i}{\text{issuer's €M revenue or PPP adj GDP, population, total consumption expenditure}_i} \right)$ <p>PPP adjusted GDP is used for sovereign/sub-sovereign issuers, whereas revenue is used for all other issuer types. The current value of investments has been calculated using nominal amounts for bond holdings.</p>
Total absolute emissions (Scope 1 and 2 in tCO2e)	$= \sum_n^i \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP adj GDP}_i} \times \text{issuer's GHG emissions}_i \right)$ <p>PPP adjusted GDP for sovereign/sub-sovereign issuers, EVIC for all other issuer types. The current value of investments has been calculated using nominal amounts for bond holdings.</p>
Carbon footprint (tCO2e per € M invested)	$= \frac{\sum_n^i \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP adj GDP}_i} \right) \times \text{issuer's GHG emissions}_i}{\text{current portfolio value (€M)}}$ <p>PPP adjusted GDP for sovereign/sub-sovereign, EVIC for all other issuer types. The current value of investments has been calculated using nominal amounts for bond holdings.</p>
Carbon intensity (tCO2e/€ M invested or PPP adj. GDP)	$= \frac{\sum_n^i \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP adj GDP}_i} \right) \times \text{issuer's GHG emissions}_i}{\sum_n^i \left(\frac{\text{current value of investment}_i}{\text{EVIC or PPP adj GDP}_i} \right) \times \text{issuer's €M revenue or PPP adj GDP, population, total consumption expenditure}_i}$ <p>PPP adjusted GDP for sovereign/sub-sovereign, EVIC for all other issuer types. The current value of investments has been calculated using nominal amounts for bond holdings.</p>