5 Annex

Portfolio weighted average carbon intensity (WACI)

$$= \sum_{n}^{i} \left(\frac{current\ value\ of\ investment_i}{current\ portfolio\ value} \right) * \left(\frac{issuer's\ emissions_i}{issuer's\ economic\ activity_i} \right)$$

Total carbon emissions (TCE)

$$= \sum_{n}^{i} \left(\frac{current\ value\ of\ investment_i}{GDP_i} \right) * issuer's\ emissions_i$$

Carbon footprint (CF)

$$= \frac{\sum_{n}^{i} \left(\frac{current\ value\ of\ investment_i}{GDP_i} \right) * issuer's\ emissions_i}{current\ portfolio\ value}$$

Carbon intensity (CI)

$$= \frac{\sum_{n}^{i} \left(\frac{current\ value\ of\ investment_i}{GDP_i} \right) * issuer's\ emissions_i}{\sum_{n}^{i} \left(\frac{current\ value\ of\ investment_i}{GDP_i} \right) * issuer's\ economic\ activity_i}$$

The variables' current value of the investment and current portfolio value are based on nominal value, converted into US dollars. The issuer's emissions are expressed in the amount of tons of carbon dioxide equivalent[54] emissions per million US dollars. The indicator used for the economic activity of the issuer depends on the emissions on which the calculations are made: gross domestic product (GDP) for production emissions, population size for consumption emissions and government expenditure for public emissions. The lack of region-specific emission data is addressed by using the national data available. The lack of data for a year has been handled by taking the previous year's data. In the individual cases where data is missing for a specific year, the previous year's data has been used as a substitute.

[54] Carbon dioxide equivalents are a metric in which the warming potential of different greenhouse gases is translated into a standard unit. This is because emissions of a certain amount of greenhouse gas have different effects on the climate. This metric takes account of the varying extent to which different greenhouse gases affect the climate.

Table 2. Detailed explanation of the variables in the formulas above

Variable	Explanation	Unit	Source	Latest available data refers to
Production-related emissions	Emissions produced within a country's physical borders, including domestic consumption and exports. Production emissions are reported both excluding and including the effects of land use, land use change and forestry.	Tonnes of carbon dioxide equivalents, tCO_2e	ISS ESG (UNFCCC)	2021
Consumption-related emissions	Emissions linked to domestic demand, taking into account trade effects. This metric provides a broader picture of a country's emissions and addresses the problem of carbon leakage that occurs when production is moved from countries where the goods are later consumed.	Tonnes of carbon dioxide equivalents, tCO^2e	Carbon4 Finance	2021
Government emissions	Direct emissions (e.g. from buildings and vehicles) and indirect emissions (e.g. emissions linked to energy consumption and also expenditure, subsidies and investments) from the state.	Tonnes of carbon dioxide equivalents, tCO_2e	ISS ESG	2021
Gross domestic product, GDP	The Riksbank uses PPP-adjusted GDP at the 2021 price level. **GDP** is the sum of the total value added of all domestic producers plus any taxes on products and minus any subsidies not included in the value of the product. The **GDP deflator** is a metric used to adjust GDP for inflation. It shows how much the price level of all goods and services in a country has changed over time, compared to a base year. The conversion factor for **Purchasing Power Parity** (PPP) is a price deflator and currency converter that eliminates the effects of differences in price levels between countries.	USD million	The World Bank, the Australian Bureau of Statistics, Statistics Canada and the Riksbank's own calculations	2023
Population size	The total population of a country.	Number of people	The World Bank	2023
Final consumption expenditure	General government final consumption expenditure (formerly known as public consumption) includes all current expenditure on the purchase of goods and services (including employee benefits). It also includes most national defence and security expenditures but excludes military expenditures that form part of the state's capital formation.	USD million	The World Bank	2023