MAPFRE AM

METHODOLOGY - CARBON FOOTPRINT OF THE INVESTMENT PORTFOLIO

November 2024

VERSION CONTROL

Versión	Fecha	Descripción
1	May 2023	First version of *Carbon Footprint Calculation Methodology*
2	July 2023	Creation of public and simplified version
3	December 2023	Incorporation of IBE financial entities and update of government attribution factor with adjusted PPA-GDP
4	November 2024	Update new EVIC MSCI factors for companies where it was not available

CONTENTS:

1. Introduction

The carbon footprint (and other metrics associated with the CO2 emissions of investments) is an important concept that helps us to understand the environmental impact of different investments. Calculating and monitoring it helps us to parameterize the risks associated with climate change. Moreover, despite its complexity, it is a highly useful tool that has a major effect on investment analysis and decision-making.

In this way, decarbonization targets have been set for the investment portfolios as part of MAPFRE's Strategic Plan and as a commitment to a net zero economy. Interim greenhouse gas emission reduction targets have been published in 2024 following MAPFRE's accession in 2023 to the Net Zero Asset Owner Alliance (NZAOA).

Concept

The term carbon footprint can be defined as greenhouse gas (GHG) emissions caused by an individual, event, organization, service, place, or product, expressed as carbon dioxide equivalent. The Kyoto Protocol identifies six greenhouse gases, among which are CO2, methane, nitrous oxide, and fluorinated gases (HFCs, PFCs, SF6). However, all these gases can be expressed in CO2 equivalent by applying a conversion factor that standardizes the measurement and makes it easier to calculate the total carbon footprint. Hence, the magnitude we will use for calculations is the CO2 equivalent. The emissions produced can be measured in three scopes:

- Scope 1: emissions directly attributable to companies, e.g., emissions generated at the company's own facilities, by company vehicles, etc.

- Scope 2: indirect emissions generated by electricity consumption attributable to the companies. In other words, the electricity consumed by companies does not produce emissions directly, but its generation at the source does. Therefore, companies have to account for the emissions generated during the production of the energy they consume. Depending on the calculation, it can be considered as two sub-scopes:

    - Market based: if the company is able to identify the source of the energy it consumes, the emissions are calculated with accurate data based on the emissions generated by the technology used.

    - Location based: if, on the other hand, the company cannot identify the source, it will be calculated using the average emissions produced by the energy mix of the area in which it operates. We will prioritize Location based which is the one used by our external data provider MSCI.

- Scope 3: all indirect emissions associated in some way with the company's operations but are not directly under their control. These emissions affect the entire value chain of companies' operations. Although Scope 3 emissions are clearly and lack of homogenization, their calculation is complex and not very precise, so we have decided to exclude it at an early stage of the calculation.

Our calculations are based on the methodology developed by the Partnership for Carbon Accounting Financials (PCAF). It is today the reference for the calculation of GHG emissions and is used as the basis for building a strategy to neutralize the emissions of financial institutions in line with the Science Based Targets Initiative.

2. Different emissions metrics in asset portfolios

There are several calculation methods used to measure the emissions of an asset portfolio. In our case, we can calculate in absolute and relative terms. The information to be reported and the purpose of the information will depend on each case.

Emissions in absolute terms: "GHG emissions"

This consists of obtaining the total annual emissions generated (scope 1 + scope 2) of the assets in the portfolio and attributing the corresponding amount to the portfolio based on the attribution factor (af) for each asset.

Equity and corporate debt This attribution factor is the part that we can assume to be attributable based on our ownership interest in the company under analysis.

$$Absolute\ emissions_{\ i} = scope\ 1_{\ i} + scope\ 2_{\ i}$$

$$Attribution\ factor_{\ i} = \frac{value\ of\ the\ investment\ \ i}{enterprise\ value\ including\ cash\ i}$$

$$\text{Attributable emissions}_{\ i} = (Scope\ 1 + Scope\ 2)_i\ x\ \ attribution\ factor_{\ i}$$

$$Emissions\ attributable\ to\ the\ portfolio\ -\ \sum_n^i Attributable\ emissions$$

Regarding the definition of the attribution factor for the companies, it should be noted that the magnitude chosen to assign the equivalent CO2 emissions will be the "Enterprise Value including cash". Both CO2 equivalent emissions and EVIC information are obtained from MSCI ESG Manager, an external data provider with more than 40 years of experience in measuring and modeling ESG performance.

The EVIC calculation methodology in financial companies is the same as for the rest of listed corporations, with an adjustment being made to the information that feeds the "total debt" heading. The formula for this calculation is the following:

$$EVIC = Stock\ market\ capitalization\ at\ year\ end\ +\ Preferred\ stock$$
$$+ Minority\ interest\ +\ Total\ debt$$

Market capitalization is calculated by multiplying the price of the principal security at year-end by the total number of listed and unlisted common equivalent shares.

The underlying data used for the calculation of the EVIC is taken from the company's year-end annual data. Given the limitations around the availability of market capitalization, MSCI has included an update in its database including Book Value which allows coverage of a larger number of issuers, and also those that are not listed. The formula is as follows:

$$EVIC_{\ \text{Private Issuerss}} = Total\ Equity\ +\ Total\ Debt$$

$$Total\ Equity\ =\ Book\ value\ +\ Minority\ interest\ +\ Preferred\ Equity$$

The EVIC is updated and reflected once a year, as the data is obtained annually.

Government fixed income With regard to government fixed income, for the calculation of issues at the absolute level, and as a variable equivalent to that used in corporate (EVIC), but at the country level, we will use the GDP adjusted by

purchasing power parity (PPP), that is, the value of a country's production as an indicator of the "country value" adjusted by the PPP[1] factor, as the denominator to calculate the attribution factor.

$$Attribution\ factor\ i = \frac{Value\ of\ the\ equity\ (investment)\ i}{(\ PPP{-}GDP\ Adjusted\ i)}$$

For sovereigns, we will use the most accessible data from reliable sources such as (Eurostat - EDGAR (Emissions Database for Global Atmospheric Research[2]) for emissions and the World Bank[3] for GDP data adjusted for purchasing power parity (PPP - GDP Adjusted). Most governments report total emissions data with calculations based on the "territorial approach" and measure the total emissions produced in a country. This implies that we may incur in double counting of data, since calculations based on this approach may incorporate emissions generated in a territory, regardless of whether the responsible party is the public or private sector.

Funds and ETFs

The calculation of the transparency of the funds has been incorporated into the methodology, including the components and their weighting in real time of the internal funds. Thus, the methodology will be applied according to each of the underlying assets that make up the MAPFRE fund portfolio.

In the case of third-party fund managers and ETF's, transparency is performed at a lower level, having access to the weighting of Private Fixed Income, Public Fixed Income or Variable Income. Thus, the MSCI fund issues data will be obtained, and an allocation will be made according to the weight of each asset category in the fund/ETF.

Structured issues

In structured issues, such as SPV's, transparency has also been incorporated, thus having visibility of the components and their weighting, excluding SWAPs in the case of being included in the structure.

Derivatives

In the Carbon Footprint methodology, we will not consider this type of products.

Carbon footprint:

It consists of calculating the absolute emissions of the previous point but relativized by the size of the fund/portfolio. Once we have obtained the absolute number of issues of a fund/portfolio, it is a figure that by itself does not say much, as it is not comparable with other funds or with its benchmark. In order to make this absolute figure visible and allow it to be comparable, the solution is to relativize it by the size of the fund/portfolio to calculate the total emissions per million invested. To do this, we divide the data obtained in the previous method by the size of the fund or portfolio investment.

$$Carbon\ Footprint\ /_{Fund\ /\ Portfolio} = \frac{\sum_n^i((Scope\ 1 + Scope\ 2)_i\ \text{x}\ (\text{Attribution factor}_i)}{\text{Fund assets (AUM)}\ or\ Investment}$$

This gives us the total emissions per million euros invested, which makes it easier to compare funds of different sizes.

The magnitude used when making this relative calculation will be the fund's net assets, as liquidity is considered as an asset that can be deployed by fund managers as an additional investment decision.

The calculations performed combine a number of data that are not time-aligned. The issuance data are reported with a time lag of around 1 year, the EVIC of the companies provided by MSCI corresponds to the latest fiscal year available and the PPP-adjusted GDP data will be the latest published (usually with a one-year lag). On the other hand, the

[1] https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf
[2] https://edgar.jrc.ec.europa.eu/report_2023
[3] https://data,worldbank,org/indicator/NY,GDP,MKTP,PP,CD?locations=EU

economic magnitudes that we handle such as the value of the different positions or equity can be calculated in real time. Therefore, it is decided to apply the last available data rule. In other words, real time data can be applied to the same formula, with the latest reported issues, even if they do not correspond to the current year.

3. Adjustment to calculations

Adjustment for percentage of data obtained.

In many cases, we will be faced with incomplete databases. Not all assets report emissions data, or we are not able to find some of the magnitudes necessary for the calculations, as mentioned above. In order to more fairly compare the calculations made for a fund with other funds in the same category, we will make an adjustment based on the percentage of data collected out of the total possible data.

To do so, we will divide the results of the emissions by the percentage of data collected. This mathematical adjustment is the equivalent of assigning an emissions figure — in line with the average of the assets that do report — to any assets for which we do not collect data. This produces an emissions figure that is still inaccurate, but more in line with reality. To make this adjustment, we will calculate the percentage of data taking into account the weight of the assets for which there is data. In other words, if out of a portfolio of 30 securities, 20 report, but these 20 account for 90% of the fund's weight, the adjustment factor is made on that 90%. The aim of this method is to limit the negative impact of the lack of data (something unrelated to management) and to give priority to investment in assets that do report such data.

4. Data source

The data required for the calculation of the carbon footprint are the inventories of all positions of all assets of all funds/portfolios for which the calculation is to be made at a given date. In addition, access to financial information data such as IBSE, market capitalization is needed. Finally, you need access to the most up to date data source possible for issues from private and government sources (such as GDP adjusted for purchasing power parity).

In this case, the sources used for the calculation will be:

- Vertical inventories with the most up-to-date portfolio/fund data possible.
- Enterprise value including cash (EVIC): MSCI ESG Manager. Data for the latest fiscal year available.
- GHG emissions (CO2 equivalent) of companies (corporate): MSCI ESG Manager.
- GHG (CO2 equivalent) emissions of third-party funds: MSCI ESG Manager through its Fund Metrics module.
- GHG emissions (CO2 equivalent) of (sovereign) countries: as mentioned above, and aware of the limitations and inconsistency of the data and possible changes in the reporting thereof, we consider the data reported by Eurostat - EDAGR (Emissions Database for Global Atmospheric Research), information also reported through the European Commission's website, to be reliable and adequate.
- GDP adjusted for purchasing power parity: World Bank.