METHODOLOGY - CARBON FOOTPRINT OF THE INVESTMENT PORTFOLIO

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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.

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. Because the latter is a less accurate metric than the former, we will prioritize market-based data over location-based data.

- 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 important, their calculation is complex and not very precise, so we have decided to exclude it at an early stage of the calculation.

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.

This attribution factor is the part that is attributable to the portfolio based on the stake we have in the company analyzed.

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

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

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

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

When defining the attribution factor for companies (corporate), which is defined in the regulation[1] as a calculation based on the enterprise value, it should be noted that, in the first stage, we will exclude financial companies from the calculations in absolute terms. The chosen magnitude will be the "Enterprise Value," which excludes cash on hand, as opposed to the EVIC.[2].

With regard to government bonds, when calculating absolute emissions, and as an equivalent variable to the one used in corporate (EV), but at the country level, we will place the total outstanding sovereign debt of each country in the denominator in order to calculate the attribution factor.

$$Attribution\ factor_{\ i} = \frac{value\ of\ the\ investment\ \ i}{Outstanding\ sovereign\ debt\ i}$$

While, in the first stage, we will use the most accessible emissions data from reliable sources (Eurostat, Global Carbon Atlas, IPCC), we will pay attention to any inconsistencies we may incur, as there are different methods for calculating a country's emissions. 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 end up counting the data more than once, as calculations based on this approach can include emissions generated in a territory, regardless of whether the responsible party is the public or the private sector.

Carbon footprint:

This consists of calculating the absolute emissions of the previous point, but relative to the size of the fund. The absolute figure of a fund's emissions by itself does not tell us much, as it is not comparable with other funds or with its benchmark. The solution is to calculate the total emissions per million invested, thus calculating relative to the size of the fund. To do this, we divide the data collected in the previous method by the size of the fund.

$$Carbon\ Footprint\ of\ the\ Fund = \frac{\sum_n^i((Scope\ 1 + Scope\ 2)_i\ \text{x (attribution factor}\ \ _i)}{\text{Fund assets (AUM)}}$$

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. Emissions data are reported with a time lag of around 1.5 years. On the other hand, the economic magnitudes we manipulate (e.g., EV, value of the different positions, or net assets) can be calculated in real time. The last available data rule will be applied. In other words, real-time data can be applied to the same formula, with the latest reported issues, even if these do not correspond to the current year.

[1] https://www.esma.europa.eu/sites/default/files/library/jc_2021_03_joint_esas_final_report_on_rts_under_sfdr.pdf

[2] https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf

Adjustment to calculations

Adjustment by percentage of data collected

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.

Data source

The data needed to calculate 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 data such as enterprise value, or market capitalization is needed. Lastly, we need access to the most updated data source possible for issues from private and government sources (such as sovereign debt).

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

- Vertical inventories with the most updated data possible with the investments.
- Access to financial data sources: Bloomberg.
- Access to the corporate emissions database: "Carbon Disclosure Project" (CDP). However, despite being the largest source of emissions data, there are still a large number of companies that do not report to CDP. Therefore, in some cases, it will be necessary to look directly at the companies' sustainability reports, as this is a mandatory reporting requirement for most of the companies in our universe. As a last resort, direct contact with companies may be used to complete the database manually.
- Access to the database of country emissions: as mentioned above, and aware of the limitations and inconsistency of the data and possible changes in reporting, we consider the data reported by Eurostat, IPCC, and Global Carbon Atlas to be reliable and adequate for the first stage.
- Access to outstanding sovereign debt database: at first, this data was collected from Eurostat, the statistical office of the European Union, and the list of countries analyzed contained only European countries. However, in order to broaden the universe of countries analyzed, the data on outstanding sovereign debt is now collected from statistical information from the World Bank and/or Bloomberg. Although the information from the World Bank and/or Bloomberg covers most of the exposure to the countries analyzed, there is still a set of countries for which data on outstanding sovereign debt is not available. In such cases, we have used an alternative source, Countryweb[3].

[3] https://countryeconomy.com/national-debt