Carbon Footprint

December 2019

INTRODUCTION

A necessary step towards measuring the environmental impact of our investments, as well as to assess their associated climate risks, is to measure the quantity of greenhouse gas emissions embedded in them, i.e. their carbon footprints. We have been measuring the carbon footprint of all our equity "Sustainable +" funds and mandates since 2011. We are now measuring the carbon footprint of both equity and fixed income portfolios. In May 2015, we were one of the first signatories of the Montreal Carbon Pledge. By signing it, we committed to progressively measuring and publicly reporting the carbon footprint of our open-ended funds in an informative and explanatory way. In December 2018, we measured and reported the carbon footprint on more than €50 billion of assets under management on open-ended fixed-income and equity funds. As part of our Global Sustainability Strategy (GSS) we have commited to reportong the carbon footprint of all our portfolios. This document is intended to present the methodology BNPP AM will follow in order to do so.

PART I. METHODOLOGY

I.1 DATA PROVIDER

In March 2019, BNPP AM announced its Global Sustainability Strategy (GSS)[1]. One of the commitments in the GSS is that portfolios will need to have a carbon footprint measured, disclosed, and compared against the benchmark's carbon footprint. The need to measure a carbon footprint for all portfolios and benchmarks means BNPP AM will need to cover 14 000 debt or equity issuers. A majority of companies worldwide do not disclose information on their carbon emissions. Over the 6 937 companies disclosing information on their carbon emissions to the Carbon Disclosure Project (CDP), 2514 only disclose their direct emissions.

The main carbon-data providers usually rely on companies' disclosures and develop their proprietary estimation methodology to plug the gap or to check data disclosed by companies.

After having reviewed the offer from different data providers, BNPP AM has decided to use data provided by Trucost as the source of data for calculating companies' carbon emissions and portfolios as well as benchmarks' carbon footprints. Trucost offers data on more than 14,500 entities worldwide. Trucost estimates Sccope-1 & Scope-2 emissions using Trucost's Environmentally-Extended Input-Output (EEIO) model and the multi-sector (NAICS) approach. Input-output analysis is an economic model that quantifies in monetary terms the flow of goods and services between all sectors of the economy. Trucost's proprietary model is based on the United States' Bureau of Economic Analysis I-O accounts and has been extended to 464 sectors to enable more detailed analysis. Each NAICS sector has a carbon intensity in terms of quantity of GHG per $ of sales attributed based on the EEIO model. Companies' revenues are broken down based on the 464 NAICS sector. At company level, carbon emissions estimated are the weighted average carbon intensity given by the EEIO and the breakdown of turnover by NAICS sectors.

[1] RAJOUTER LIEN VERS LA GSS

I.2 CALCULATION

The GHG Protocol has settled up the standards to measure Greenhouse gases (GHG) emissions and is widely used by corporates. In 2016, 92% of Fortune 500 companies responding to the CDP used GHG Protocol to measure and report their GHG emissions[2]. A credible measure of GHG emissions should cover the seven GHG covered by the Kyoto protocol: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PCFs), Sulphur hexafluoride (SF6) and nitrogen trifluoride (NF3). GHG should be measured all along the operational boundaries of the company and should take into account all the emissions associated directly or indirectly with the operations of the company. Three "scopes" of emissions are defined for GHG accounting to categorize direct and indirect emissions. Scope-1 emissions are the direct GHG emissions that "occur from sources that are owned or controlled by the company like emissions from combustion in owned or controlled boilers, furnaces, vehicles, emissions from chemical production in owned or controlled process equipment".[3] Scope-2 emissions are those linked to the generation of purchased electricity consumed by the company. Scope - emissions are all the other indirect emissions that "occur from sources not owned or controlled by the company like the one linked to extraction and production of purchased materials; transportation of purchased fuels; and use of sold products and services".

BNPP AM uses GHG emissions that are provided by Trucost, a carbon data provider. Trucost models greenhouse gases for up to nine different gases (carbon dioxide, methane, nitrous oxide, carbon tetrachloride, sulfur hexafluoride, methyl chloroform and several different hydrochlorofluorocarbons (HCFCs) and perfluorocarbons (PFCs)) and for more than 14,500 companies worldwide. BNPP AM only uses Scope-1 & 2 emissions to calculate companies' carbon intensities and Portfolios' carbon footprints. Scope-3 emissions are not yet taken into account in the calculation as BNP Paribas AM does not consider the quality of data as being good enough. The main issue being the lack of consistency on perimeters of measurement or the lack of coverage.

For BNPP AM a fund's carbon footprint is the sum of companies' carbon emissions weighted by the simplified Enterprise Value[4] and by the weight of companies' in portfolios where carbon emissions are the sum of Scope 1&2 emissions:

$$\sum_{i}^{I} \frac{W_{Ptf,i} \times \left(\frac{CO2\ Emissions_i}{Enterprise\ Value_i}\right)}{100}$$

With:

Wptf,i: Portfolio weight in company *i*

CO2 Emissions i: sum of Scope 1 & 2 CO2e emissions expressed in tons for company *i*

Enterprise value i: Market Capitalization + Total debt for company *i*

[2] GHG Protocol
[3] The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard, revised Edition
[4] Simplified Enterprise Value is provided through BNPP AM's Back to Front office tool, BlackRock Alladin, and is the sum of Market cap and Total Debt.

I.3 WHY DO WE USE ENTREPRISE VALUE AS A CARBON-INTENSITY SCALING FACTOR?

Historically speaking, BNPP AM has calculated portfolios' carbon footprint only for equity portfolios. For equities the most rational financial indicator to scale an issuer magnitude is Market Capitalization. The rationale being that as an equity investor, being the owner of all the Market Capitalization is equivalent to being responsible for all of the company's carbon emissions. We have decided to take the asset-manager point of view and therefore our ownership of companies rather than companies' carbon intensities which can only been measured through physical metrics and is sector specific (tCO_2 per KWh produced for electricity producers, tCO_2 per tonne of clinker produced for cement companies and so forth).

As BNPP AM wants to expand the coverage of carbon footprints to corporate Fixed Income funds, Market Capitalisation is no longer appropriate. Enterprise Value becomes the simplest financial indicator to scale the same magnitude integrating fixed income debt. From an investor point of view, being the owner of all the equity and all the fixed income debt issuances is quite equivalent to being responsible for all companies' carbon emissions. By summing the ratio of companies' carbon emissions by companies' Enterprise Value multiplied by the weight of companies in the portfolio we calculate the average carbon emissions that can be attributed to the portfolio based on its ownership of the different companies that are included in the portfolio.

There is currently not a single standard for a given portfolio's carbon-footprint calculation. Some investors can use Sales/Revenues as a denominator.. When using Sales/Revenues, it is the carbon intensity of the company from an operational point of view that is measured. This approach tends to consider that there is a link between Sales/Revenues and GHG emissions. BNPP AM considers Sales/Revenues as (1) too volatile and (2) too influenced by non-climate related factors to be considered a good proxy for operational excellence. Sales/Revenues depends on pricing power or pricing strategies which implies massive discrepancies in the same industry with no direct link to the climate impact of the activity. Another example is inventories which vary massively between companies, which have induced GHG emissions to be built and that are not factored in the Sales/Revenues.

Capital employed, the addition of fixed assets and working capital, could also be used as a denominator but again just like for Sales/Revenues it is not an investor-oriented indicator as it is not an ownership approach but an operational/balance-sheet approach, where you measure how carbon intensive the company is to build its assets that will generate its future profits.

Therefore, we argue that EV is the most appropriate from an ownership perspective, and can be consistently applied to Equity and Corporate Fixed Income.

I.4 SCOPE OF CALCULATION

At this stage, the calculation of a carbon footprint is done for funds which are only invested in corporate bonds or equities. Funds investing in external funds of funds, funds using derivatives or which invest in Sovereign bonds are excluded from the Scope of calculation. Private Debt funds are also not included in the scope of the funds using this methodology to calculate the carbon footprint because of coverage or asset class issues (infra and real estate debt are covered through a different methodology). Green bonds are also excluded from the calculation as it would not make sense to allocate them the full emissions of the company emitting them.

I.5 HOW DO WE TREAT CASH & DERIVATIVES?

BNPP AM has decided to exclude from the portfolio's carbon-footprint calculation derivatives. Concretely, the weight of the portfolio on non-covered instruments is deactivated and equally-weight rebalanced on the other lines of the portfolio. At the same time, the rationale for not integrating cash is quite straightforward as there are no carbon emissions associated with cash. By doing so, we de-skew the carbon footprint from cash. For derivatives the rationale is less straightforward and BNPP AM is aware of methodologies for portfolio carbon footprints that take into account those instruments. From a practical and philosophical perspective, we have decided to exclude those instruments from the calculation. Derivatives' carbon emissions are hard to calculate (need to re-calculate the number of underlying shares for each derivative) and BNPP AM is not using derivatives as a direct investment but as a hedging tool.

I.6 WHAT ABOUT THE PROBLEM OF DOUBLE COUNTING AT THE PORTFOLIO LEVEL

When adding Scope-1 & 2 emissions by company, we end up double counting emissions at portfolio level as for example Scope 1 emissions for an electricity producer will be counted as Scope-2 emissions for the industrial company using this electricity. We do not think this is an issue for the overall meaning of our calculation. The intention is not to measure the contribution of the fund to overall global emissions, which would require us to compare apples with apples and therefore make a comparison between portfolio and global emissions. Rather, the aim is to compare one fund with another and to give an overview of the emissions linked to an investment across different funds. What matters is the direct and indirect carbon emissions linked to the investment in the companies included in the portfolio to assess stock selection and the sector attribution made by the portfolio manager relative to the benchmark. In the end, by taking Scope-1 & 2 emissions into account in the calculation we are assessing how carbon intensive a given portfolio is both in absolute terms and relative to its benchmark, but not relative to global carbon emissions. As a result, double counting is not really a material issue.

PART II. DISSEMINATION & CONTROL

II.1 COMMUNICATION TO CLIENTS

Starting in April 2020, BNPP AM will communicate the carbon footprint of the portfolio and benchmark of its funds, including the percentage of the portfolio covered, on a quarterly basis. The carbon footprint is the calculation of the portfolio's carbon intensity focusing on Scope-1 (direct emissions from a company's facilities) and Scope-2 (indirect emissions linked to a company's energy-consumption) emissions. Companies' CO2e emissions are added up and asset-weighted by enterprise value (EV) and the companies' weight in the portfolios. The footprint is expressed in tonnes of CO2e per million euros of EV.

Example of the carbon footprint reporting that will be done by April 2020:

Carbon footprint and coverage

	Carbon footprint	% stock covered
Portfolio		
Benchmark		
Difference		

In order to facilitate the understanding and the comparability of its portfolios' carbon footprints for retail clients, BNPP AM will also communicate "Portfolio Carbon Impact". Portfolio Carbon Impact is calculated by multiplying the carbon footprint of a portfolio by its AuM expressed in m€ divided by 1m€. The results gives the tCO2e per € invested in the portfolio.

II.2 CHECKS AND CONTROLS

BNPP AM is working on the implementation of first level internal controls of the data provided by its main suppliers of ESG data. This is also done for carbon-related data. The control focusses on the following elements:

- Check data Coverage and Scope to ensure they are consistent with the investment universe of the funds
- Sample reconciliation tests for data provided by external providers with data collected directly from other sources (official company publications / publications made on other platforms such as Bloomberg, Reuters, CDP)
- Verification of the quality of the operating system put in place by the service provider to respond effectively to BNPP AM's requests
- Analysis of descriptive statistics (central trends - average, median and dispersions) of data reported by sub-groups of companies (by sector classification, by geographical area, etc.), to detect potential errors in distribution tails
- Correlation analysis of certain indicators by emitter samples corresponding to identified subgroups, in order to validate the understanding of the data provider's methodology

BNPP AM's IT and Sustainability Centre teams will be jointly in charge of the operational implementation of these Level-1 controls. The IT team will be in charge of the data coverage and scope control, and the Sustainability Centre will be in charge of the other checks.

In order to inform BNPP AM's porfolio managers, dedicated views are designed in the investment management tool so that portfolio construction can integrate carbon emissions.

Level-2 controls will also be implemented by Investment Compliance teams in order to perform pre- and post-trade checks regarding the carbon footprint of the fund against the carbon footprint relative to its benchmark.

II.3 DISSEMINATION OF PORTFOLIOS' CARBON FOOTPRINTS

Since May 2019, BNP Paribas Asset Management has been using BlackRock Solutions' tool (Aladdin) for handling its front-to-back office operations. BlackRock Aladdin is BNPP AM's unique solution for trading, compliance, and risks control. ESG and carbon-related information are also integrated into the tool.

All ESG-related data, at company level is sourced by Aladdin from an in-house solution called ESG Research Manager (ESGRM). The tool allows our internal ESG Research Team integrating ESG data from market vendors, and inputting ESG research data, company by company.

Aladdin is responsible then to calculate the carbon footprint indicator at portfolio level, by implementing the calculation rule discussed above (I.2 calculation). As an investment management system, Aladdin allows our investment teams calculating both the live carbon footprint exposure of the fund, and then simulating the target one, pre-trade, and then factoring ESG-related indicators into decision-making process. Aladdin will also communicate, on a daily basis, funds' carbon footprints to our reporting team, for institutional clients reporting and mutual fund regulatory reporting.

Current scope of client reportings (fact sheet and institutional reporting) will be updated by April 2020 with the carbon footprint.

PART III. LIMITATIONS & NEXT STEPS

The main weakness of BNPP AM's current approach for calculating portfolios' carbon footprints lies in the fact that only Scope-1 & 2 emissions are taken into account. Scope-3 emissions are of paramount importance for many sectors like the oil & gas industry or auto manufacturers for which the main climate impact is due to the use of the product they sell to their clients and not so much on their direct emissions. For those Sectors, Scope-3 emissions can represents more than 80% of their total Scope-1, 2 & 3 emissions. Not taking Scope-3 emissions into account in the calculation therefore gives an incomplete view of a portfolio's carbon and climate impact as well as creating an important sector bias. BNPP AM acknowledge this weakness and is working on integrating Scope-3 emissions into the portfolio carbon-footprint calculation, with 2021 as the envisioned timeframe to publish these numbers.

Apart from integrating Scope-3 emissions into the calculation, BNPP AM is working on its own methodology to estimate company emissions in order to improve data quality and in order to be able to expand our coverage to other asset classes and a wider range of companies. We also have the ambition to develop relevant carbon-footprint methodologies for funds that are curently not covered by this approach (funds of funds, funds using derivaties, Sovereign funds, etc). The methodologies and the meaning of the results will be different for those funds, and will therefore not be comparable with the results of the methodology discribed in this document.

DISCLAIMER