

Climate Related Portfolio Assessment

In line with TCFD Recommendations



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GENERAL

Portfolio Name	IVO Fixed Income Short Duration UCITS	
Benchmark Name	JPM CEMBI Broad Diversified 1-3 years	
Original Portfolio Size (millions)	20	
Portfolio Currency	EUR	
Analysis Date	16 December 2020	
Holding Date	30 October 2020	

COVERAGE

	Portfolio	Benchmark
Paris Alignment - Carbon	17%	32%

INTRODUCTION

The effects of climate change pose considerable and far-reaching risks to the global economy. Among those most directly affecting businesses include physical risks posed by increased climate variability and more frequent extreme weather events, which may result in property damage, challenges linked to business continuity, and the disruption to global supply chains. Businesses also face risks associated with the transition to a low-carbon economy, including policy changes designed to discourage carbon-intensive energy use or favour more resource-efficient industries and operations.

At the request of the G20, the Financial Stability Board (FSB) reviewed how the reporting on climate-related issues in financial reporting could be improved in order to better reflect the risks and opportunities facing financial institutions and non-financial businesses alike. In June 2017, the FSB Taskforce for Climate-Related Financial Disclosure (TCFD) published recommendations on the disclosure of “information needed by investors, lenders, and insurance underwriters to appropriately assess and price climate-related risks and opportunities.”

The TCFD provides a voluntary disclosure framework organized around four themes, designed to facilitate better disclosure. These are governance, strategy, risk management, and metrics and targets. In order for organizations to disclose in line with TCFD recommendations, they must be able to quantify or qualify the risks and opportunities facing them, linked to climate-related issues, and be able to describe policies, procedures and systems in place to monitor and address climate-related issues on an on-going basis. This report by Trucost provides both forward-looking and historical metrics that may be used by asset owners and/or asset managers to support their climate-related disclosures in line with TCFD recommendations, and inform internal processes for risk management and

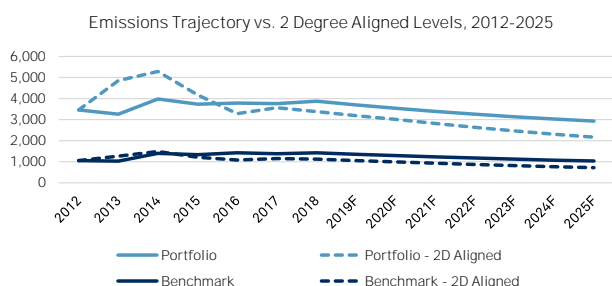
UNDERSTANDING PARIS ALIGNMENT

Trucost's 'Transition Pathway Assessment' enables investors to track their portfolios against the goal of limiting global warming to 2°C above pre-industrial levels. The assessment examines the adequacy of emissions reductions made over time, by investees, in meeting these targets. It incorporates both historical performance as well as forward-looking indicators (over a medium-term time horizon). This avoids the uncertainties of using only forward-looking data, and is of a sufficient time horizon to make the effect of any year-on-year volatility less significant. Historical data on greenhouse gas emissions and company activity levels is incorporated from a base year of 2012. Forward-looking data sources are used to track likely future transition pathways from the most recent year of disclosed data through to 2025.

Trucost's approach is adapted from two methodologies highlighted by the Science Based Targets Initiative (SBTi), these being the Sectoral Decarbonization Approach (SDA) and the Greenhouse gas Emissions per unit of Value Added (GEVA) approach. The SDA is applied to companies with high-emitting, homogeneous business activities, while GEVA is applied to those with lower emitting, heterogeneous business activities. For more information on the methodology please refer to Appendix 3.

EMISSIONS TRAJECTORY

The chart shows the portfolio and benchmark's 2012-2025 trajectory and compares that to its own 2 degree aligned trajectory.



LEVEL OF WARMING

The boxes below show the level of warming associated with the portfolio and benchmark, based on performance over the period assessed.

Portfolio (°C)



Benchmark (°C)



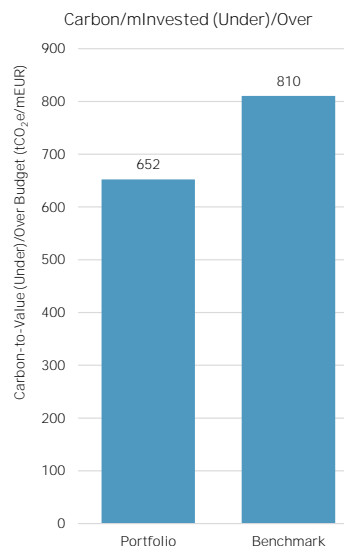
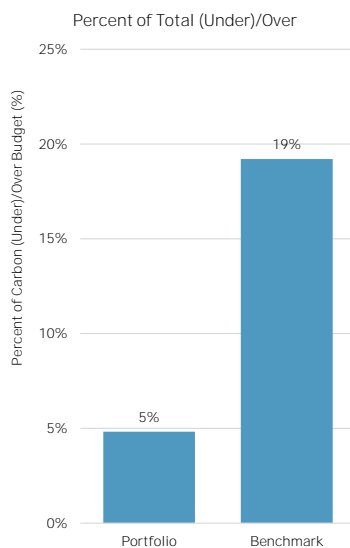
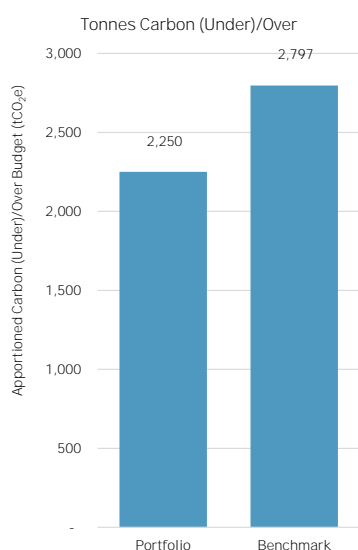
	Portfolio	Benchmark
Tonnes Carbon (Under)/Over	2,250	2,797
Percent of Total (Under)/Over	4.8%	19.2%
Carbon/mInvested (Under)/Over	652	810

SECTOR CONTRIBUTIONS

Companies with predominantly homogenous business activities that fall into one of the 5 sectors in the table below were assessed using the SDA approach. This means that the required carbon intensity reductions were calculated in sector specific units of production (for example tonnes of steel produced, or number passenger miles flown), and each company's share of the overall sector budget is calculated relative to its market share.

Companies with low emitting or heterogeneous business activities were assessed using the GEVA approach. This means that required carbon intensity reductions were calculated in carbon-per-dollar of value added (gross profit), and each company's share of the overall sector budget is calculated using its progress against required reduction rates.

Method	Sector	Contribution (tCO ₂ e)	Pathway (°C)
SDA	Power Generation	0	
	Cement	0	
	Steel	0	
	Airlines	0	
	Aluminum	0	
GEVA	Communication Services	376	>5
	Consumer Discretionary	-93	1.5 to 2
	Consumer Staples	24	2 to 3
	Energy	776	>5
	Financials	0	
	Health Care	0	
	Industrials	3,039	>5
	Information Technology	0	
	Materials	-1,418	1.5 to 2
	Real Estate	0	
	Utilities	0	



Paris Alignment

UNDERSTANDING PARIS ALIGNMENT

The tables below show the best (those emitting less than their 2 degree aligned carbon budget) and worst (those emitting more than their 2 degree aligned carbon budget).

BEST PERFORMERS

Name	Sub-Industry	2012 tCO ₂ e Intensity	2025E tCO ₂ e Intensity	Unit	Forecast Source	Total Carbon (tCO ₂ e)	App'd Carbon (tCO ₂ e)	Pathway
Sasol Limited	Materials	12,430.4	8867	US\$m infl	Sub-Industry trend	-37,415,495	-1,563	1.5-2°C
Carnival Corporation & Plc	Consumer Discretionary	2,228.3	1384	US\$m infl	Sub-Industry trend	-12,546,985	-93	1.5-2°C
Marfrig Global Foods S.A.	Consumer Staples	706.1	226	US\$m infl	Sub-Industry trend	-1,141,468	-91	1.5-2°C

WORST PERFORMERS

Name	Sub-Industry	2012 tCO ₂ e Intensity	2025E tCO ₂ e Intensity	Unit	Forecast Source	Total Carbon (tCO ₂ e)	App'd Carbon (tCO ₂ e)	Pathway
Türkiye Sise Cam Fabrik	Industrials	0	7512	US\$m infl	Sub-Industry trend	22,970,185	3,027	>5°C
Ecopetrol S.A.	Energy	457	1208	US\$m infl	Sub-Industry trend	77,654,508	574	>5°C
Tullow Oil plc	Energy	449	1,074	US\$m infl	Sub-Industry trend	9,147,747	202	>5°C
Oi S.A.	Communication Services	24	165	US\$m infl	Sub-Industry trend	2,199,534	200	>5°C
Türkcell İletişim Hizmetleri A.	Communication Services	0	492	US\$m infl	Sub-Industry trend	3,686,564	154	>5°C
First Quantum Minerals Ltd.	Materials	901	2,321	US\$m infl	Sub-Industry trend	11,946,412	145	>5°C
Anadolu Efes Biracılık ve Malt	Consumer Staples	168	264	US\$m infl	Sub-Industry trend	1,840,159	115	>5°C
Millicom International Cellula	Communication Services	54	94	US\$m infl	Sub-Industry trend	923,352	22	>5°C
VINCI SA	Industrials	402	216	US\$m infl	Sub-Industry trend	1,666,576	8	2-3°C
Embraer S.A.	Industrials	110	60	US\$m infl	Sub-Industry trend	32,865	4	2-3°C

APPENDIX 1a: CARBON DIOXIDE EQUIVALENT

Each greenhouse gas differs in its ability to absorb heat in the atmosphere. HFCs and PFCs are the most heat-absorbent. Calculations of greenhouse gas emissions are presented in units of millions of metric tons of carbon equivalents (MMTCE), which weights each gas by its GWP value, or Global Warming Potential. The Global Warming Potentials used in Trucost analysis are:

Carbon Dioxide - 1
Methane - 21
Nitrous Oxide - 310
Sulphur Hexafluoride - 23,900
Per Fluoro Carbons - 7,850
Hydro Fluoro Carbons - 5,920

These conversion figures are taken from the publically available 2006 Intergovernmental Panel on Climate Change's (IPCC) 'Guidelines for National Greenhouse Gas Inventories'.

APPENDIX 1c: APPORTIONING

Apportioning, as an approach, is built on the principle of ownership. That is, if an investor owns - or in the case of debt holdings, finances - 1% of a company, then they also 'own' 1% of the company's emissions.

For equity only portfolios the apportioning factor is usually obtained by dividing the value of holding by the company's market capitalisation on the date of analysis. For debt only, or mixed portfolios, the larger of enterprise value and market capitalization on the date of holding is used as the denominator. This approach is used to minimize the risk of apportioning 'spikes' when an enterprise value approaches zero (or is negative).

The company level emissions are then multiplied by the apportioning factor to arrive at emissions quantities specific to each holding. The portfolio level emissions are the sum of all of these quantities.

APPENDIX 1e: DATA COLLECTION & CARBON DISCLOSURE

Trucost's unique approach to environmental data collection and modelling enables near complete coverage of most investment universes, despite often low levels of reporting among investees. A four step process is used as part of our data gathering exercise.

1. Analyse Financial and Sector Data - **A company's financials are analysed, collecting consolidated revenues for all companies and specifying their reporting scopes and operational boundaries.**
2. Map Activities to Trucost's Environmentally Extended Input-Output (EE-IO) Model - Trucost's EE-IO model uses 450+ business activities (broadly aligned to the NAICS, with some additional sectors included to distinguish key activities with materially different physical impacts) to model a company's environmental impacts by assigning portions of each company's revenues to one or more of these activities. The EE-IO model then estimates the pollutant **emissions and resource use associated with each business activity, both directly (for a company's own operations) and across the supply chain**, using the revenue sector breakdown.
3. Incorporate Disclosures and Public Registry Data - Trucost searches all publically disclosed data sources of companies to find usable environmental data **that will be used to overwrite Trucost's modelled estimates. Trucost ensures the scope and time horizon of any environmental data found matches that of its financials.**
4. Company Engagement and Data Verification - Trucost analysts quality check the entire research process internally, then share the results with each company directly via a secure online portal. Companies are given one month to respond to Trucost to verify its data or directly engage to provide either refined, additional or non-public information. If appropriate and applicable data is provided, Trucost will integrate this into its analysis before publishing the data to our subscribers.

All data collected as part of the process described above will be assigned a 'disclosure flag', indicating the source of each specific data-point. These flags will fall into one of three possible 'disclosure categories', Full Disclosure, Partial Disclosure or Modelled.

- Full Disclosure - Trucost has used data disclosed by a company in an un-edited form as it matches the reporting scope and accuracy required by the research process.
- Partial Disclosure - Trucost has used data disclosed by a company but has made adjustments to match the reporting scope required by its research process (e.g. where a company discloses its emissions deriving from 85% of its operational sites, this data is used to model 100% of its emissions). Values may also **be derived from a previous year's disclosed data using changes in business activities and consolidated revenues.**
- Modelled - **In the absence of usable disclosures, the data has been modelled using Trucost's EE-IO model.**

At the portfolio level, disclosure may be evaluated using the the following three methods:

- VOH: The sum of the weights of each holding within each of the three disclosure categories.
- GHG: The sum of each holding's share of the total apportioned Scope 1 CO2e within each of the three disclosure categories.

APPENDIX 1b: CARBON SCOPES

- Direct (Scope 1): CO₂e emissions based on the Kyoto Protocol greenhouse gases generated by direct company operations.
- Direct (Other): Additional direct emissions, including those from CCl₄, C₂H₂Cl₃, CBrF₃, and CO₂ from Biomass.
- Purchased Electricity (Scope 2): CO₂e emissions generated by purchased electricity, heat or steam.
- Non-Electricity First Tier Supply Chain (Scope 3): CO₂e emissions generated by companies providing goods and services in the first tier of the supply chain.
- Other Supply Chain (Scope 3): CO₂e emissions generated by companies providing goods and services in the second to final tier of the supply chain.

APPENDIX 1d: CARBON INTENSITY

Portfolios with larger assets under management will typically also have larger absolute carbon footprints than smaller portfolios due to their size. In order to facilitate fair comparison between portfolios, benchmarks and across years, it is therefore important to normalize the totals, either by revenues or by value invested. The three most common approaches to normalization are:

- Carbon to Revenue (C/R): Dividing the apportioned CO₂e by the apportioned annual revenues.
- Carbon to Value Invested (C/V): Dividing the apportioned CO₂e by the value invested.
- Weighted Average Carbon Intensity (WACI): Summing the product of each holding's weight in the portfolio with the company level C/R intensity (no apportioning).

C/R gives an indication of carbon efficiency with respect to output (as revenues are closely linked to productivity). C/V gives an indication of efficiency with respect to shareholder value creation. The WACI approach circumvents the need for apportioning ownership of carbon or revenues to individual holdings. Whilst the first two methods act as indicators of an investor's contribution to climate change, the weighted average method seeks only to show an investor's exposure to carbon intensive companies, i.e. is not an additive in terms of carbon budgets.

APPENDIX 2: PARIS ALIGNMENT

Trucost's transition pathway analysis adapts two approaches prominent in literature produced and referenced by the Science-Based Targets Initiative (SBTI). These are the Sectoral Decarbonization Approach (SDA), and the Greenhouse Gas Emissions per unit of Value Added (GEVA) approach.

SDA Approach

The SDA is applied to companies with high-emitting, homogeneous business activities. Its core principle is that companies in each industry must converge toward emissions intensities consistent with a 2°C scenario by 2050 from their unique starting points. It uses industry-specific 2°C scenario pathways, with companies measured using industry-specific emissions intensities and physical production levels (eg. tCO2e per GWh or per tonne of steel). Industry-specific transition pathways may be faster (eg. power), or slower (eg. cement) depending on an industry's available technologies, specific mitigation potential and costs of mitigation. Within a given industry, companies with low base year emissions and low production growth can reduce emissions at a gradual rate. Companies with high emissions or high production growth must make faster reductions.

The scenarios used in SDA assessments are International Energy Agency (IEA) scenarios from Energy Technology Perspectives (ETP) 2017. These provide SDA assessment parameters consistent with 1.75°, 2°, and 2.7°C of warming.

GEVA Approach

GEVA is applied to companies with lower emitting or heterogeneous business activities. It recognizes that many companies have diverse business activities, most of which do not have distinct transition pathways defined in climate scenarios. For these companies, GEVA entails applying a contraction of carbon intensity principle under which a company should make emissions reductions consistent with rates required for the overall economy, from each company's unique base year emissions intensity. It uses a non-industry specific, economy-wide 2°C scenario, and emissions intensities with a financial, not physical or production denominator. Each company's transition pathway is measured as its GHG per unit of inflation-adjusted gross profit, representing its contribution to total global emissions and emissions intensity. This is compared with a global economy-wide emissions intensity pathway required for achieving below 2°C of warming.

The scenarios used in GEVA assessments are Representative Concentration Pathway (RCP) scenarios used in the AR5 report from the IPCC. These provide GEVA assessment parameters consistent with 2°, 3°, 4°, and 5°C of warming.

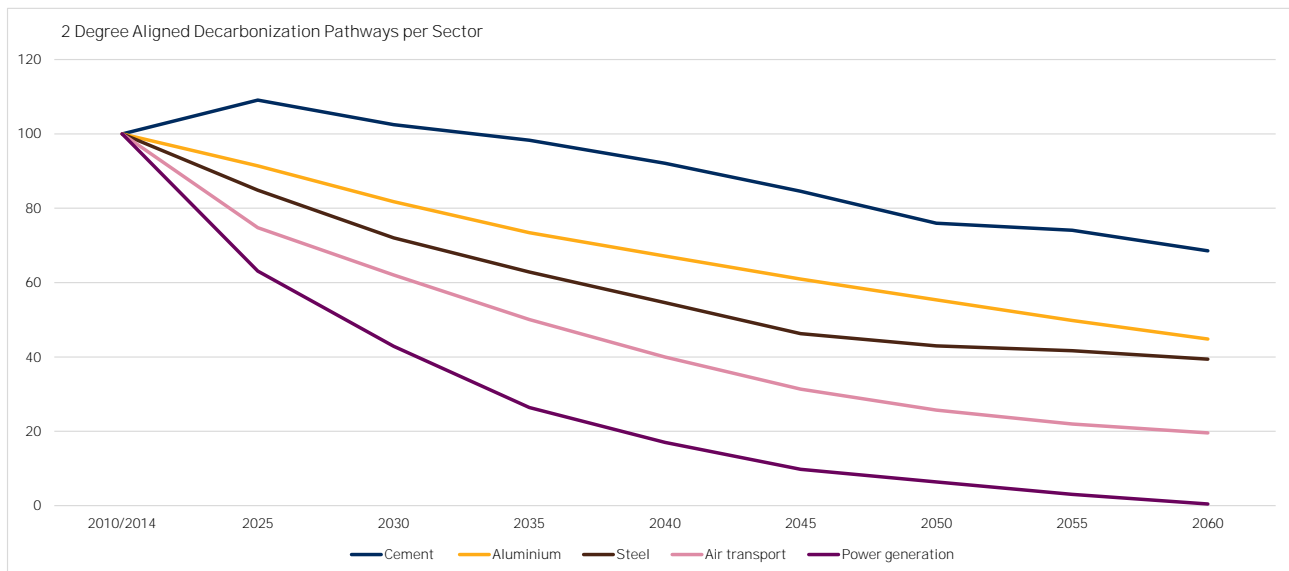
Assessment horizon and data sources

Transition pathways assessed incorporate both historical and forward-looking data in order to provide an assessment that has a medium term outlook. This minimizes the uncertainties involved in using only forward-looking data, and is of a sufficient time horizon to make the effect of any year-to-year volatility less significant. Historical data on greenhouse gas emissions and company activity levels is incorporated from a base year of 2012. Forward-looking data sources are used to track likely future transition pathways beyond the most recent year of disclosed data through to 2023. Forward-looking data is incorporated based on an established data hierarchy made up of the following sources:

1. Disclosed emissions reduction targets.
2. Asset-level data sources that provide signals of potential future changes in production from high-emitting sources.
3. Company-specific historical emissions trends for companies assessed on the basis of homogeneous business activities.
4. Subindustry-specific average historical emissions trends for companies assessed on the basis of heterogeneous business activities.
5. No change in emissions intensity beyond the latest year.

The portfolio assessments use combined Scope 1 and Scope 2 emissions as the assessment boundary.

The chart below illustrates the different decarbonization pathways for the five sectors covered in the SDA approach, as well as that used for the remaining sectors in the GEVA approach ('Global Economy' in the legend). Each sector's unique intensity unit has been indexed to 100 to allow for easy comparison. Sectors in which carbon saving technologies and/or processes are most cost effective are expected to decarbonize more rapidly, and terminate on a lower overall intensity, than sectors where such measures are not. For example, carbon intensity reductions are expected to be greater in the field of power generation than



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