ESG Data Signals

Trucost Paris Alignment Dataset

Highlights

- Using the Trucost Paris Alignment dataset, investors can track a company's actual and forecasted carbon intensity and how this intensity needs to be reduced by 2025 to meet the Paris Agreement Goal (to keep global temperature rise well below 2°C).
- Investors can calculate whether a company's actual and forecasted carbon intensity is aligning/not aligning with the Paris Agreement Goal. Within the S&P 500®, equities with the highest alignment (Quantile 1) outperform those with the lowest (Quantile 2) by +1.04% on average annually.
- Constructing a Paris Agreement Goal portfolio from the S&P 500 results in an active return over the time period of +11% and an average carbon footprint reduction of 39%.

Author

Liam Hynes

EMEA Head,
Capital Markets
Product Specialists

S&P Global
Market Intelligence

S&P Global
Market Intelligence

Paris Agreement

In December 2015, 195 parties to the United Nations Framework Convention on Climate Change (UNFCCC) reached consensus on the Paris Agreement whose aim is to keep global temperature rise well below 2°C above pre-industrial levels by 2100, and pursue efforts to limit warming to 1.5°C.[1] Approximately 97% of these parties have communicated their intended Nationally Determined Contributions (NDCs) to combat the impacts of climate change and to increase capital flows towards a low-carbon and more resilient economy.[2]

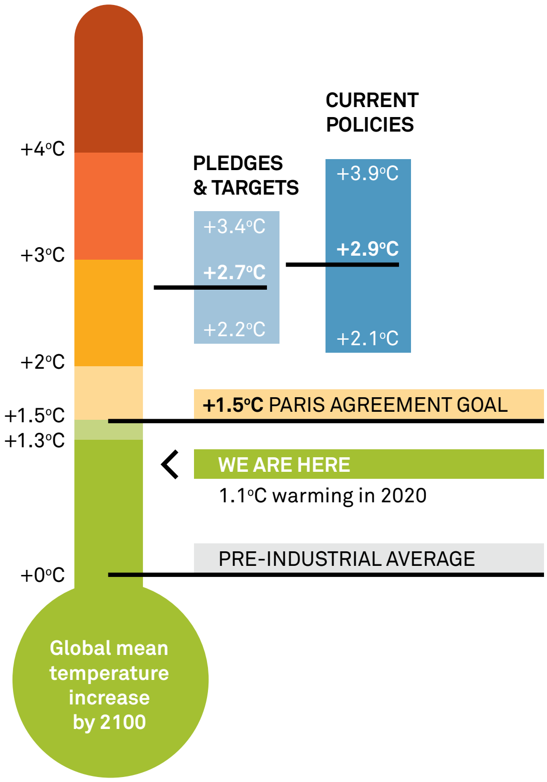
A call to action to the financial market

Yet according to recent data from Climate Action Tracker, even if all governments achieved their pledges and targets, the world will still likely warm 2.7°C or higher by 2100 — well above the 2°C limit agreed upon.[3] This is a call to action to the financial market to help facilitate an adequate flow of capital toward a low carbon economy. Scenario analysis is an aid to facilitate the transition by allowing investors to determine which companies and sectors are compatible with a below 2°C world and better positioned to withstand potential risks as a result of climate change.

Figure 1: Climate Action Tracker Warming Projections

CAT warming projections Global temperature increase by 2100

September 2020 Update



Source: Climate Action Tracker, September 2020.

1 See References on page 7.
2 See References on page 7.
3 See References on page 7.

The Trucost Paris Alignment Dataset

The Trucost Paris Alignment dataset enables investors to track their portfolios and benchmarks against the goal of limiting global warming to well below 2°C from pre-industrial levels, as well as other climate change scenario outcomes. The approach taken by Trucost can be described as a transition pathway assessment, which examines the adequacy of emissions reductions over time in meeting a below 2°C carbon budget. It tracks company emissions and activity levels, including forward-looking indicators over a medium-term time horizon (more than five years of historical data and more than five years of projected future emissions).

This approach is one of several key approaches to Paris Alignment assessments in growing usage today. It allows for the identification of industry leaders and laggards when it comes to decarbonization. A key advantage of a transition pathway approach is its ability to be applied across a wide variety of portfolio holdings and aggregated to portfolio-level results, not limited to assessment of one or a small number of sectors or business activities.

Trucost's transition pathway approach uses two key methodologies highlighted by the Science Based Targets Initiative (SBTI):

1. **The Sectoral Decarbonization Approach (SDA)** — applied to companies with high-emitting, homogenous business activities. Its core principle is that companies in each industry must converge toward emissions intensities consistent with a below 2°C scenario by 2050 from their unique starting points. It uses industry-specific climate scenario pathways, with companies measured using industry specific emissions intensities and physical production levels (e.g. tCO^2e per GWh or per tonne of steel)
2. **The Greenhouse Gas Emissions per Unit of Value Added (GEVA) approach** — applied to companies with lower emitting or heterogenous 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. It uses non-industry specific, economy-wide climate scenarios, and emissions intensities with a financial rather than physical or production denominator.

Creating a Paris Alignment Factor

The Paris Alignment dataset tracks a number of pathway metrics including a company's actual Carbon Intensity and its aligned Carbon Intensity to achieve the Paris Agreement goal. Investors can now calculate the delta between the aligned and actual intensity and track this through time. A positive delta indicates a company is more than on track to meet its share of the Paris Agreement goal, a zero delta indicates it is on track and a negative delta indicates it is not on track.

This 'Carbon Intensity Delta' can now serve multiple purposes, including:

Identifying companies that are positioned for achieving the Paris Agreement goal

Back testing the Carbon Intensity Delta as a Factor

Carbon Intensity Delta **Backtest**

Is there any outperformance/underperformance within equities that exhibit positive/negative deltas in aligned Carbon Intensity & actual Carbon Intensity?

We ran a Backtest on the S&P 500 Index from May 2015 to August 2020 using the following criteria:

Independent/Dependent Variable: Carbon Intensity Delta (Aligned minus Actual)/Forward Returns

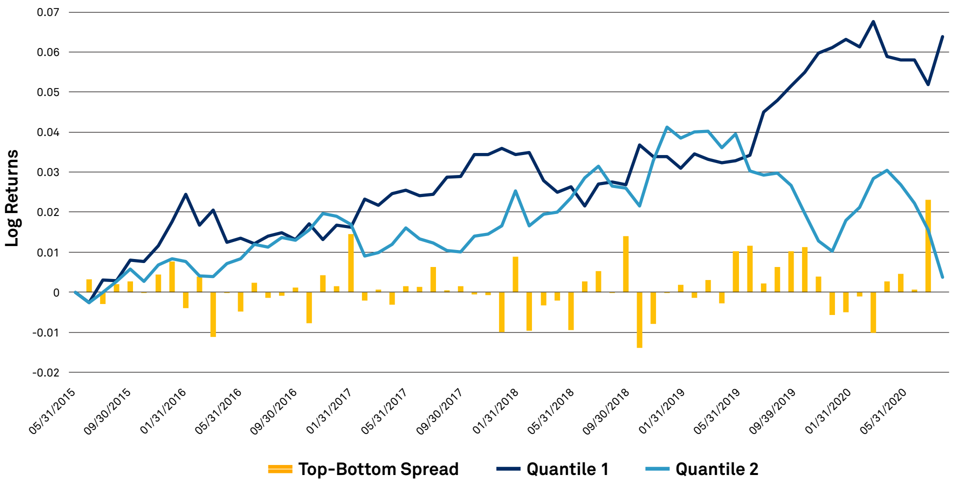
Carbon Intensity Delta bucketed into 2 Quantiles (Highest Carbon Intensity Delta in Quantile 1[4]) End of Month Rebalancing

Sector Neutral with 1 Month Forward Active Market Cap Weighted Quantile Return

S&P 500

Quantile 1 outperforms Quantile 2 on average by 9bps/month, or an average Active Top/Bottom Spread of +1.04% annually[5]. Between March and August 2020, that average monthly spread has widened to 0.328%. Quantile 1 contains the companies that have the highest Carbon Intensity Delta (A positive delta indicates a company is more than on track to meet its share of the Paris Agreement goal).

Figure 2: S&P 500 Carbon Intensity Delta – Quantile Cumulative Active Returns



Source: Trucost analysis. Current as at October 2020.

Backtested performance has inherent limitations. The returns shown are hypothetical, do not represent the results of actual trading of investor assets, and are constructed with the benefit of hindsight. Thus, the performance shown does not reflect the impact that material economic and market factors had or might have had on decision making if actual investor money had been managed. Returns do not include payments of any sales charges or fees. Such costs would lower performance. Past performance is not a guarantee of future results.

4 Quantile 2 is the S&P 500 Index ex Quantile 1
5 T-Stat 1.11 Monthly Active Top-Bottom Spread: +0.9%, Active return above the S&P 500

Aligning portfolios with the 1.5° Paris Agreement goal

After analyzing the carbon intensity delta within the S&P 500, we can see that the Top Quantile outperforms.

Using these results how would a portfolio constructed from the Top quantile equities compare against its underlying benchmark?

We constructed a long only portfolio from May 2015 to August 2020 based on the S&P 500 using the following parameters:

Top Quantile of equities from Carbon Intensity Delta rebalanced monthly

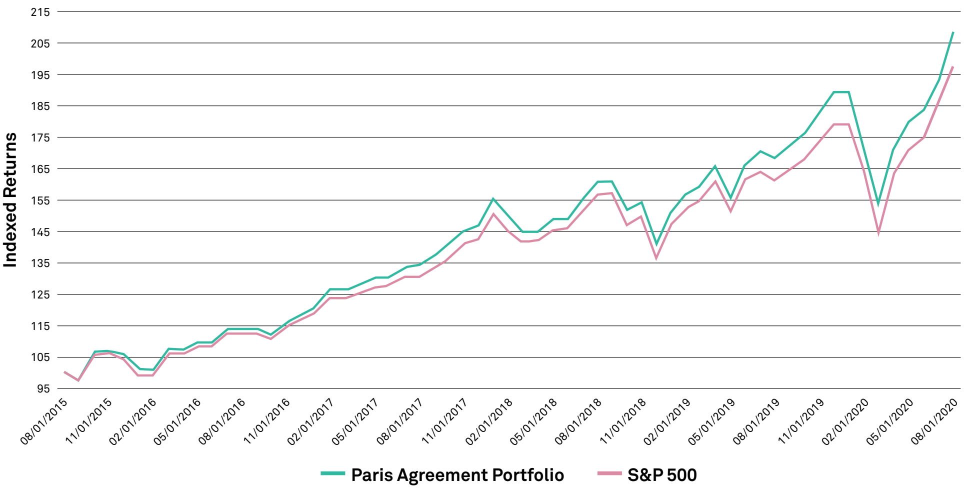
Sector Neutral

Market Cap weighted positions

Paris Agreement Goal Portfolio Characteristics

Between May 2015 and August 2020 the S&P 500 went up +97.4%, in the same period the Paris Agreement Goal Portfolio[6] went up 108.4%, a difference of +11% over the course of the analysis. The realized tracking error of the portfolio is just 1.56%, with a Sharpe of 0.72 versus 0.67 for the S&P 500.

Figure 3: Paris Agreement Goal Portfolio vs S&P 500® Returns



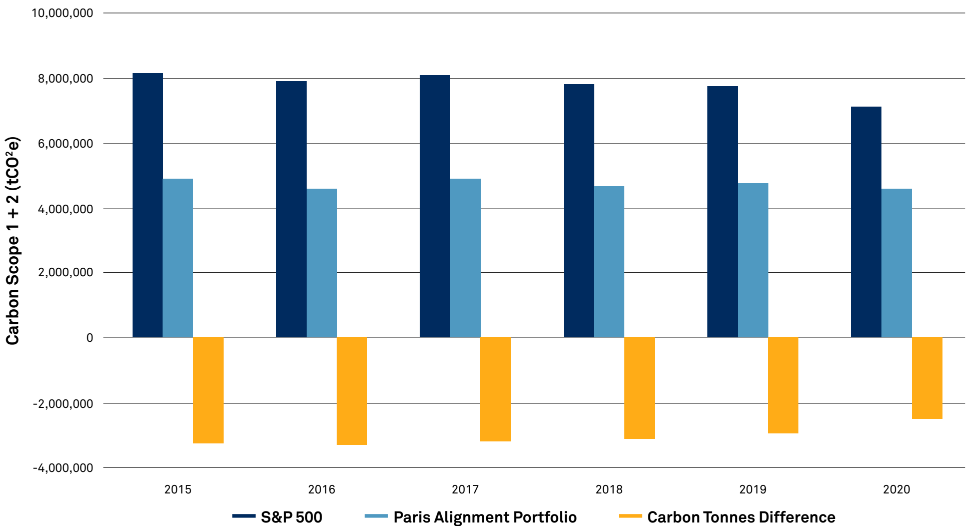
Source: Trucost analysis. Current as at October 2020.

Backtested performance has inherent limitations. The returns shown are hypothetical, do not represent the results of actual trading of investor assets, and are constructed with the benefit of hindsight. Thus, the performance shown does not reflect the impact that material economic and market factors had or might have had on decision making if actual investor money had been managed. Returns do not include payments of any sales charges or fees. Such costs would lower performance. Past performance is not a guarantee of future results.

6 Average Constituents 226, Realized Std Dev 19.69% (vs S&P 500 of 19.25%)

The environmental footprint of the Paris Agreement Goal Portfolio improved versus the S&P 500. The average weighted carbon footprint[7] of the S&P 500 over the time period is 7.8 Mln Tonnes, versus 4.7 Mln Tonnes for the Paris Agreement Goal Portfolio, 3.1 Mln Tonnes or 39% lower on average.

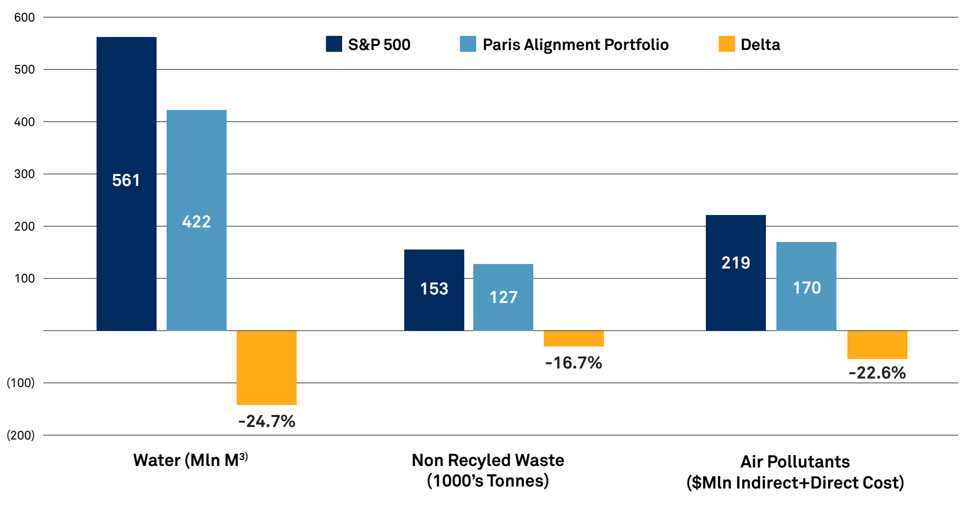
Figure 4: Carbon Footprint — Paris Agreement Goal Portfolio vs S&P 500®



Source: Trucost analysis. Current as at October 2020.

As well as the improvement in the carbon footprint, the footprint of the portfolio improved on water use, non-recycled waste and air pollutants. In total[8] between May 2015 and August 2020 the portfolio uses 24.7% less water[9], produces 16.7% less waste[10] and 22.6% less Air Pollutants[11].

Figure 5: Environmental Impact — Paris Agreement Goal Portfolio vs S&P 500®



Source: Trucost analysis. Current as at October 2020.

7 Trucost Environmental data, Carbon Scope 1 + 2 (tCO²e)
8 From May 2015 to August 2020 on a weighted basis, calculated monthly for both the portfolio and the S&P 500 Index.
9 Trucost data — Water Direct and Purchased (m³)
10 Trucost data — Nucelar Waste (tonnes) + Landfill Waste (tonnes) + Incineration Waste (tonnes)
11 Trucost data — Air Pollutants Direct & Indirect Cost ($Mln)

Summary

The Paris Alignment dataset can position investors to help facilitate an adequate flow of capital toward a low carbon economy. Investors can determine which companies and sectors are compatible/incompatible with the Paris Agreement goal and are better/worse positioned to withstand potential risks as a result of climate change. In doing so, investors can assess the overall impact their portfolios make on the environment versus their benchmarks and can align themselves with the low carbon transition.

References

1. UNFCC, "What is the Paris Agreement?"
   https://unfccc.int/process/the-paris-agreement/what-is-the-paris-agreement

2. UNFCC, "Nationally Determined Contributions (NDCs)".
   https://unfccc.int/process/the-paris-agreement/nationally-determined-contributions/ndc-registry#eq-4

3. Climate Action Tracker, "The CAT Thermometer". 2020.
   Retrieved from: https://climateactiontracker.org/global/cat-thermometer/

For more information visit
www.spglobal.com/marketintelligence/esg

CONTACTS

The Americas
+1 800 402 8774
Trucostnorthamerica@spglobal.com

Europe,
Middle East
& Africa
+44 (0) 20 7160 9800
Trucostinfo@spglobal.com
TrucostEMEA@spglobal.com

Asia-Pacific
+65 6597 6158
Trucostasiapacific@spglobal.com

www.spglobal.com/marketintelligence