



**S&P Dow Jones Indices**  
ESG Analysis

# Carbon Footprint

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## PORTFOLIO 21 - Global Equity Fund

**Carbon footprint analysis quantifies greenhouse gas emissions (GHG) embedded within the portfolio presenting these as tonnes of carbon dioxide equivalents (tCO<sub>2</sub>e). Comparing the total GHG emissions of each holding relative to annual revenue, gives a measure of carbon intensity that enables comparison between companies, irrespective of size or geography.**

The carbon footprint is an analysis of the GHG embedded within the portfolio. This is achieved by carrying out a carbon footprint for each individual holding encapsulating both direct and first tier indirect impacts.

Direct emissions result from a company's own operations and include GHG emissions from boilers and company

owned vehicles, emissions from any manufacturing operations and waste produced.

First tier indirect impacts, also termed supply chain impacts, occur because of the goods or services a company procures. This includes purchased electricity, business travel and logistics.

<b>PORTFOLIO:</b>	<b>PORTFOLIO 21 - Global Equity Fund</b>
<b>BENCHMARK:</b>	<b>MSCI ACWI</b>
<b>DATE OF HOLDINGS:</b>	<b>December 29, 2017</b>
<b>DATE OF ANALYSIS:</b>	<b>January 23, 2018</b>

Each holding's contribution to the carbon footprint of the portfolio is calculated on an equity ownership basis. The carbon footprint of the fund is the sum of these contributions, normalized by revenue owned.



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## CARBON FOOTPRINT

Carbon Footprint analysis measures the carbon risks and opportunities not captured by standard portfolio analysis and presents a systematic assessment of carbon impacts relative to your benchmark

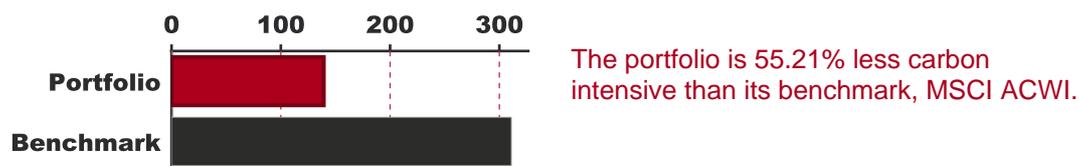
## PORTFOLIO 21 - Global Equity Fund

### 1 Summary Information

Carbon footprint analysis was carried out on 23 January 2018 for holdings data as at 29 December 2017. The benchmark used for this analysis was the MSCI ACWI.

	Number of Companies	Value of Holdings (\$ mn)	Total Carbon Emissions (tCO <sub>2</sub> e)	Total Footprint (tCO <sub>2</sub> e/\$mn)
Portfolio	118	495.30	31,330	139.28
Benchmark	2,088	495.30	87,537	310.93

The carbon footprint of the portfolio is 139.28 compared to the benchmark which is 310.93.



### KEY FINDINGS

The portfolio is 55.21% less carbon intensive than MSCI ACWI benchmark.

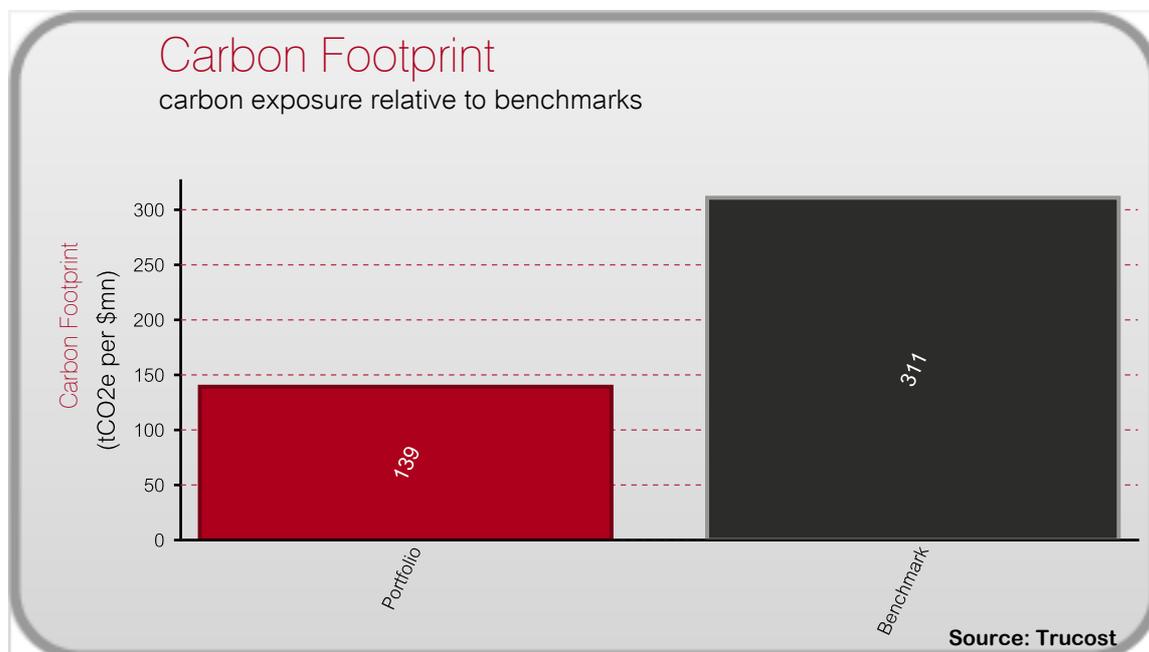
This efficiency is due to a combination of 33.95% positive sector allocation effects and 21.26% positive stock selection effects.

In aggregate the carbon exposure of the fund is equivalent to 0.43% of the aggregate turnover of the fund.

To give context to the carbon performance, the portfolio has been compared to some key indices.

Carbon has been assessed based on an average annual price of \$37

The price of carbon used in the Trucost model is based on academic research into the external damage costs of carbon emissions.





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## 2 Detailed Findings

The two principal reasons why the carbon exposure of the portfolio may differ from the benchmark are due to sector allocation decisions and stock allocation decisions.

Sector allocation decisions will cause the carbon intensity of the portfolio to diverge markedly from the benchmark where the sector/s are either carbon intensive or low carbon. If the portfolio is overweight in carbon intensive sectors the portfolio is likely to be more carbon intensive than the benchmark.

However, if the stocks within a carbon intensive sector are the most carbon efficient companies, it is possible that the portfolio may still have a lower carbon footprint than the benchmark.

Trucost has developed a carbon optimisation product that can help minimise the carbon footprint associated with a portfolio. For more information, please go to <http://www.trucost.com/investments>

## Summary of Stock and Sector Allocation Effects

### Portfolio

	Sector Weighting		Carbon Intensity (tCO <sub>2</sub> e/\$mn revenue)		Carbon Footprint Attribution		
	Portfolio	Benchmark	Portfolio	Benchmark	Sector Allocation	Stock Selection	Total Effect
Consumer Discretionary	11.00 %	12.23 %	97.36	86.02	-1.68 %	-0.47 %	-2.15 %
Consumer Staples	9.05 %	8.78 %	200.48	195.23	2.27 %	-0.29 %	1.98 %
Energy		6.40 %		781.16	12.26 %	0.00 %	12.26 %
Financials	17.78 %	18.83 %	8.32	25.27	-1.70 %	1.07 %	-0.63 %
Health Care	12.10 %	10.44 %	48.45	39.42	-1.57 %	-0.19 %	-1.76 %
Industrials	15.84 %	10.85 %	232.85	202.73	2.86 %	-2.03 %	0.83 %
Information Technology	19.52 %	18.06 %	74.13	79.79	-0.89 %	0.14 %	-0.75 %
Materials	5.91 %	5.46 %	414.34	1,268.30	-1.29 %	17.78 %	16.49 %
Real Estate	3.69 %	2.98 %	43.29	104.96	2.34 %	0.93 %	3.28 %
Telecommunication Services	3.45 %	3.06 %	77.45	60.08	0.24 %	-0.21 %	0.03 %
Utilities	1.66 %	2.91 %	273.69	2,295.87	21.10 %	4.52 %	25.62 %
<b>Total</b>	<b>100.00 %</b>	<b>100.00 %</b>	<b>139.28</b>	<b>310.93</b>	<b>33.95 %</b>	<b>21.26 %</b>	<b>55.21 %</b>

The portfolio is 55.21% less carbon intensive than the benchmark.

- The sector allocation of the portfolio is responsible for 33.95% of the higher carbon efficiency.
- The stock selection is responsible for 21.26% of the higher carbon efficiency.
- In aggregate, the two sectors that have the greatest positive effect on carbon efficiency are Utilities and Materials, which together contribute 42.11% of the increased carbon efficiency. The two worst performing sectors in the portfolio are Consumer Discretionary and Health Care, which contribute to 3.91% of reduced carbon efficiency.



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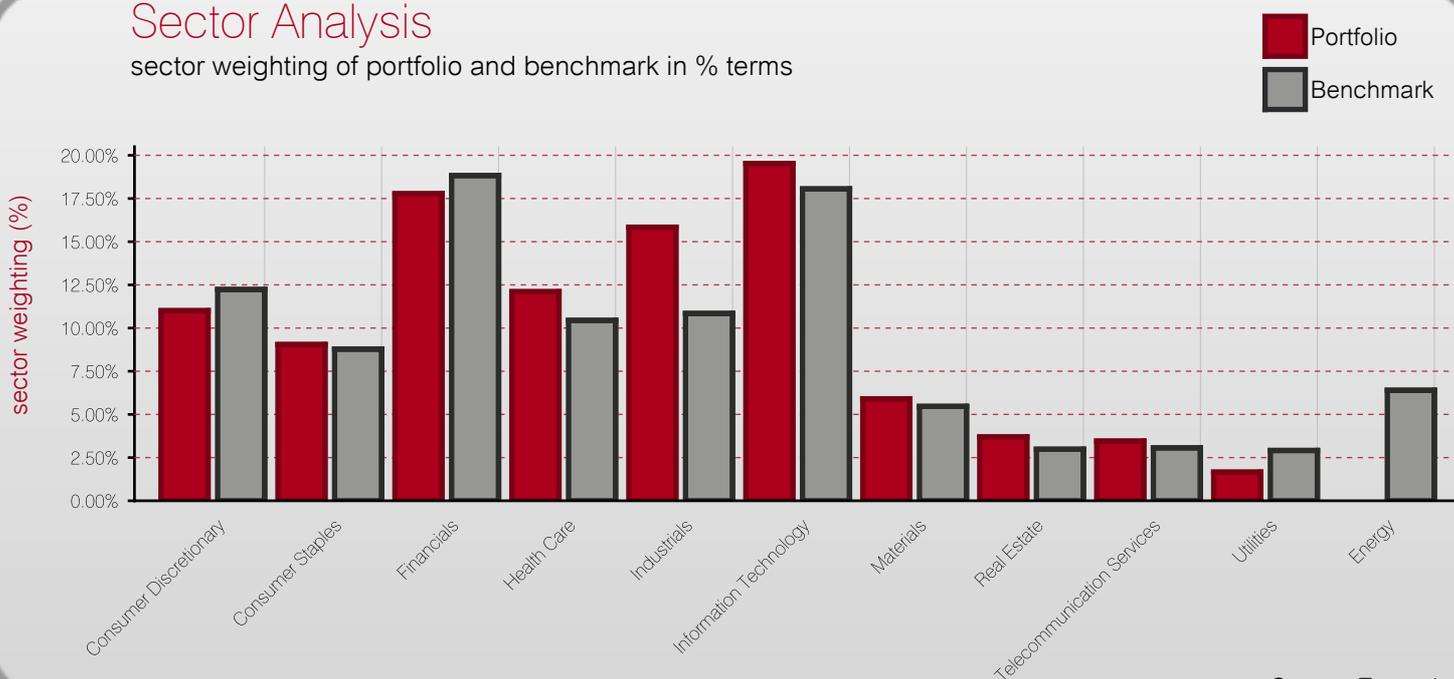
# Carbon Footprint

## 3 Sector Analysis

The graphs below show how the sector allocation in the portfolio differs from that in the benchmark and the effect on the Carbon Footprint of the fund. The four sectors that contribute the highest levels of carbon intensity to the portfolio are Materials (414 tCO<sub>2</sub>e/\$mn), Utilities (274 tCO<sub>2</sub>e/\$mn), Industrials (233 tCO<sub>2</sub>e/\$mn), and Consumer Staples (200 tCO<sub>2</sub>e/\$mn). Sectors have been defined using the Global Industry Classification Standard (GICS) system.

### Sector Analysis

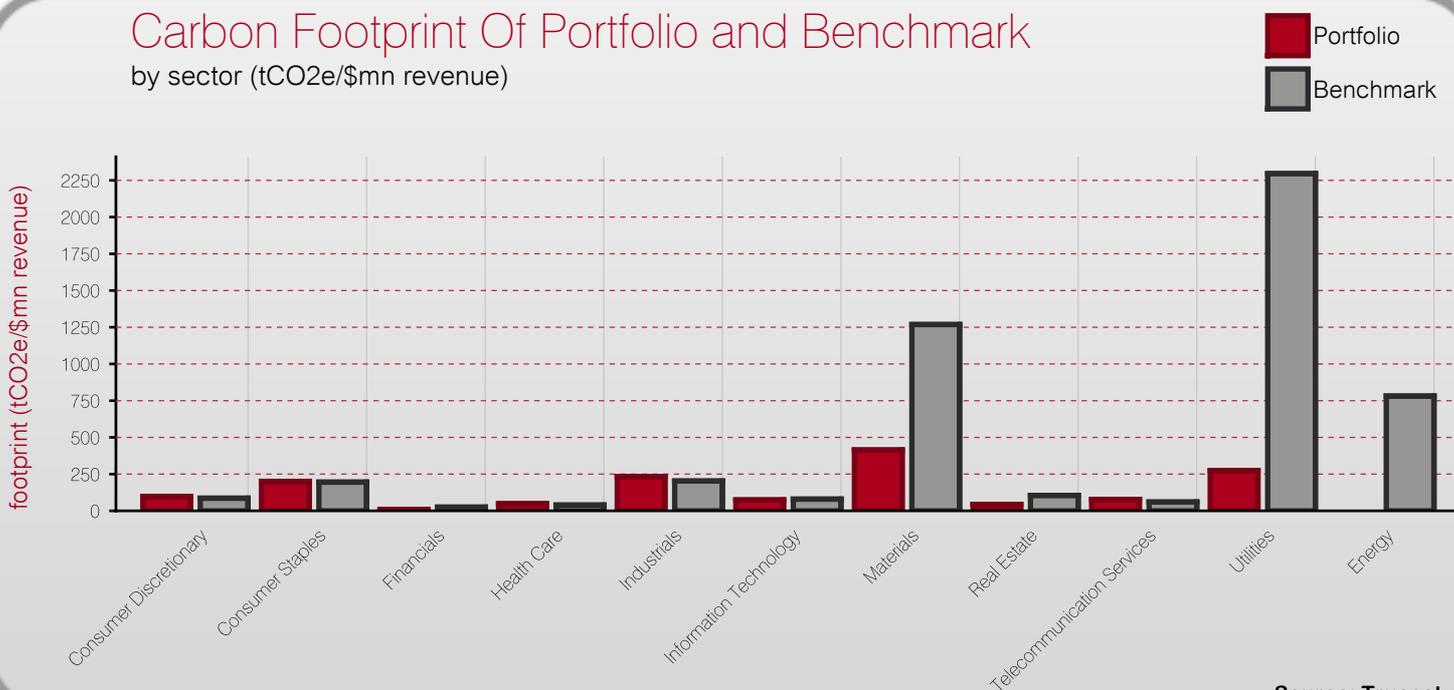
sector weighting of portfolio and benchmark in % terms



Source: Trucost

### Carbon Footprint Of Portfolio and Benchmark

by sector (tCO<sub>2</sub>e/\$mn revenue)



Source: Trucost



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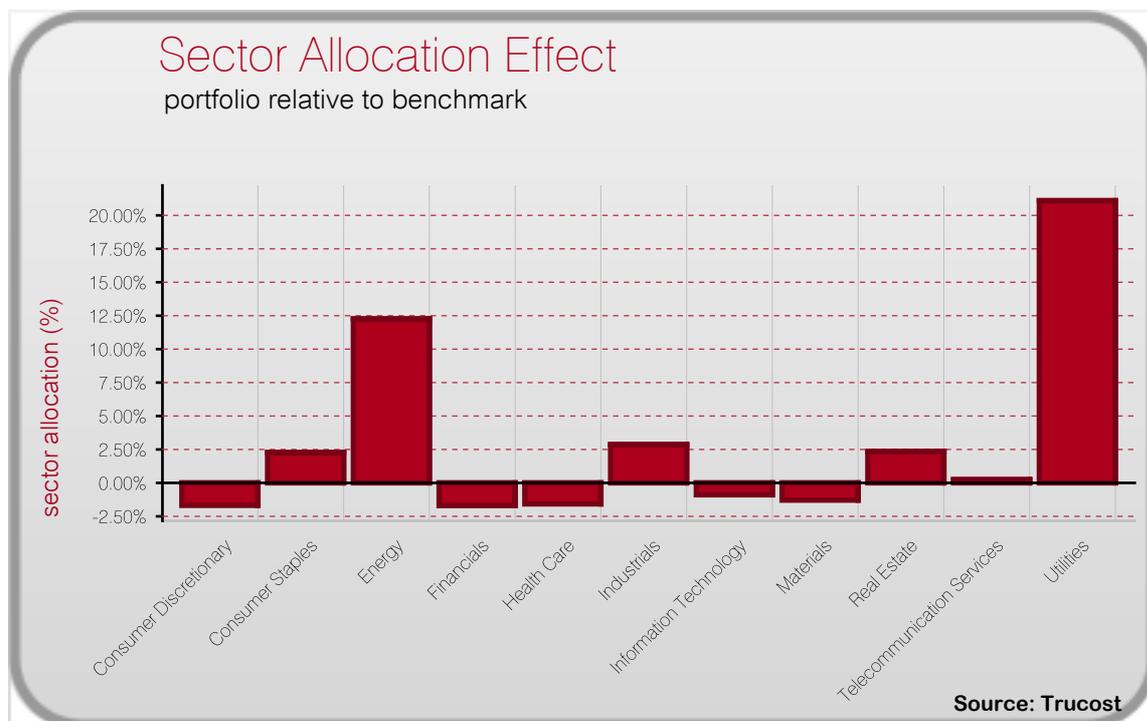
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## 4 Sector Allocation & Stock Selection Effect

This graph analyzes the sector allocation effect on the carbon footprint of the portfolio.

If the bar is negative, you are more heavily invested in a carbon intensive sector than the benchmark, or you are underweight in a carbon "light" sector.

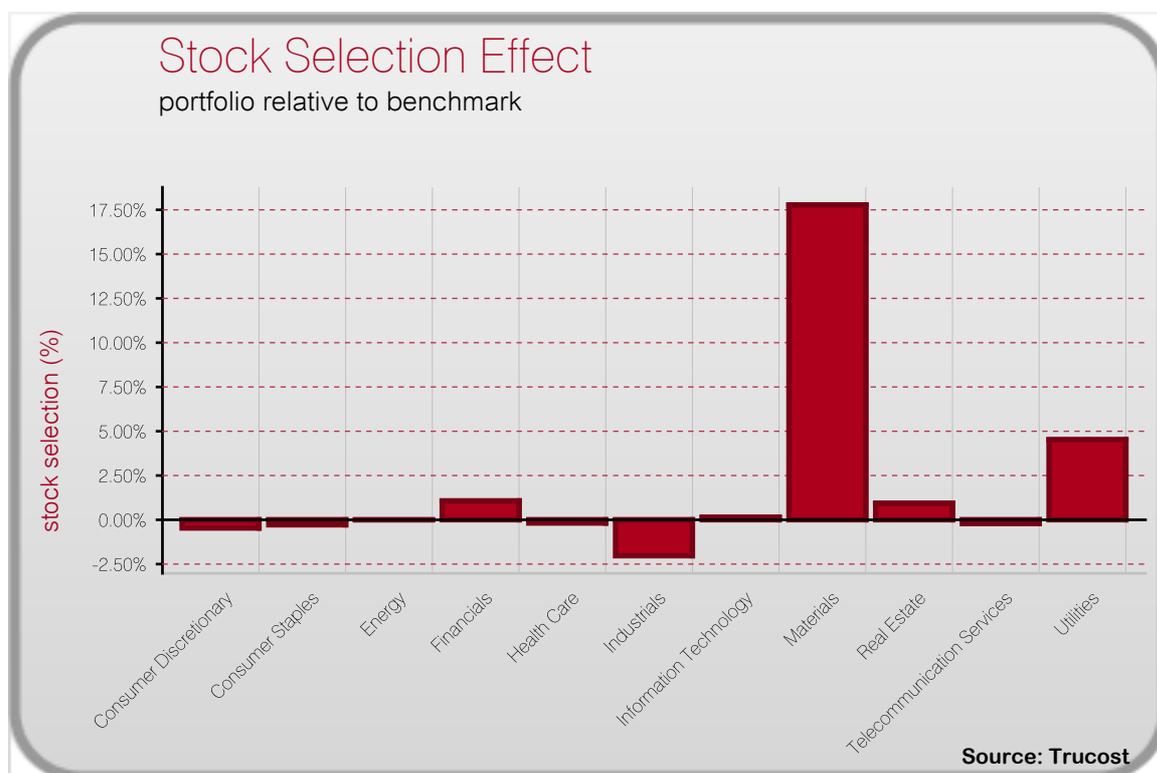
The reverse is true if the bar is positive.



This graph shows the effect of stock selection within sectors on the carbon footprint of the portfolio relative to the benchmark.

If the bar is positive, you are invested in companies that are less carbon intensive relative to peers within their benchmark sector.

If the bar is negative, you are invested in more carbon intensive companies within sectors.



Carbon efficiency can be used as a proxy for efficient management of a company. Therefore you may want to see how companies in your fund rank within their sectors from a carbon efficiency perspective. This "rank in sector" information is available in the Data Sheets at the back of this report.



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## 9 Next Steps

### Make portfolio adjustments

- Reduce risk by rebalancing holdings to favour companies with greater carbon or environmental efficiency relative to sector peers.

### Embed environmental analysis into your investment strategy

- Trucost provides standardized data on all companies across the investment universe to help identify carbon and environmental opportunities. We also have time series data and can customize research to meet your requirements.

### Engage with companies

- The chart on page 8 shows companies with which you may choose to engage with to encourage them to disclose better environmental data, providing greater transparency for investors and setting them on the course to appropriate measurement and management of GHG emissions.

### WHY CHOOSE TRUCOST DATA?

**Standardized:** company disclosed data is standardized to enable comparison between companies, funds, sectors and geographies.

**Validated:** company disclosed data is validated to resolve reporting errors.

**Comprehensive:** where companies do not measure or disclose data, Trucost 'fills the gaps' using its advanced environmental profiling model to provide complete data across the investment universe.

**Proven:** Trucost data has been used to analyze over \$2.7trillion AUM and drives \$583million in investment products that deliver financial performance with up to 50% reduced carbon intensity e.g. S&P US Carbon Efficient Index and the Legal and General Investment Management US Carbon Optimised Index Fund.

"Trucost's global environmental impact data has enabled us to truly integrate climate change analysis into our investment process. The quantitative data is fed into our mainstream investment decision making process enabling risk management, portfolio footprinting, sector and stock level analysis and the simulation of climate change strategies across asset classes."

### AXA Investment Managers

### Communicate your footprint to stakeholders

- You may choose to communicate your footprint to stakeholders to demonstrate that you actively consider carbon exposure in your investments and provide transparency about the risk exposure or benefits of the fund.

### Invest in carbon optimised funds

- Trucost's carbon and natural capital investment metrics drive investment indices and products from leading institutions that deliver financial performance alongside reduced environmental risk. Find out more at [www.trucost.com/capital-markets/investment-products](http://www.trucost.com/capital-markets/investment-products)

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