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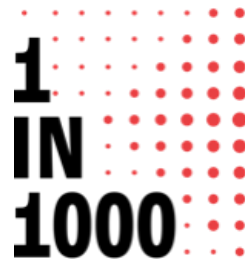
## **CABINET OF CURIOSITIES**

*A very brief introduction to the wonderful and curious world of mainstream & low-carbon benchmarks*



## About 1in1000

[1in1000](#) is a new research program by the 2° Investing Initiative that brings together new & existing research projects on long-termism, climate change, and adjacent future risks for financial markets, the economy, and society. Its objective is to develop evidence, design tools, and build capacity to help financial institutions and supervisors to mitigate and adapt to future risks and challenges. The programme focuses on climate change (inter-) connected risks and challenges, notably risks stemming from ecosystem services and biodiversity loss, as well as risks from social cohesion and resilience. To achieve this objective, 1in1000 operates with three main areas: i) Long-term metrics; (ii) Risk (management) tools and frameworks; and (iii) Policies & incentives.



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*Picture credit: Carbon of Curiosities, Johan Georg Hanz (ca. 1666)*



DISCLAIMER: "In 2025, 2° Investing Initiative became the Sustainable Finance Observatory (The Observatory). This research is the intellectual property of The Observatory."

**1. An investor investing in the MSCI World since 2015 would have had higher annual emissions intensity reduction (measured in WACI) than an investor invested in its low-carbon counterparts.**

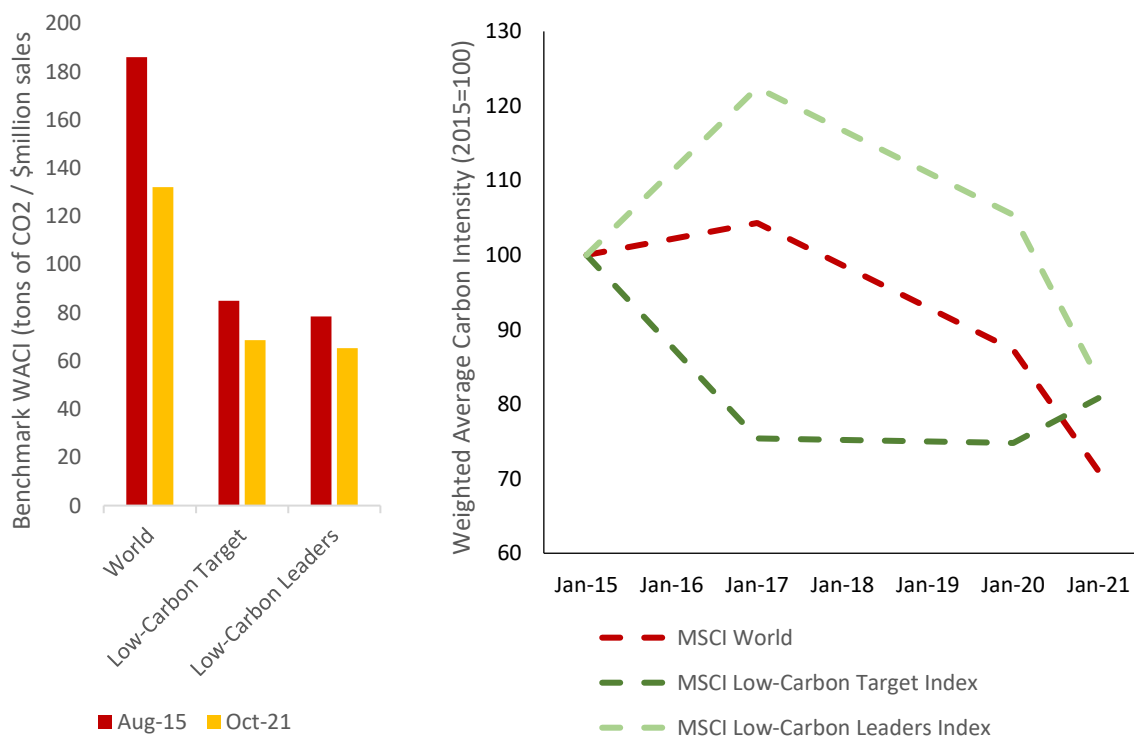
The Weighted Average Carbon Intensity (WACI, tons of CO<sub>2</sub> / \$ million sales), as per MSCI, since 2015 of the MSCI World and its low-carbon counterparts (MSCI World Low-Carbon Leaders Index & MSCI World Low-Carbon Targets Index) shows that the MSCI World experienced significantly higher emissions reductions over the past 6 years than its low-carbon counterparts. In terms of percentage reduction, the MSCI World delivered a cumulative 29% emissions reduction over a duration of six years, relative to the low-carbon counterparts of 17% and 19% respectively. In absolute terms, the reduction was 3x that of the low-carbon counterparts.

The MSCI World still has a higher emissions intensity today than the low-carbon counterparts launched in 2015, although 2021 marked the first year that at least in terms of WACI, the emissions reduction was less than 50%. The index advertises a minimum emissions reduction of 50%, but the methodology is not sufficiently transparent to establish whether the index actually complies with that stated target. At least for WACI however, this no longer seems to be the case.

In principle, these results are not surprising. Year on year emissions reduction is not defined as an index target. Higher baselines mean that marginal emissions reductions may be easier to achieve. There is of course a broader set of literature, including by the authors of the note, as to the shortcomings of the indicator in tracking climate performance, which means some of these movements are likely entirely disconnected from index constituents' climate performance. Data limitations do not provide for the opportunity to distinguish between real and virtual emissions reductions. It is also worth noting that the analysis does not cover the recent MSCI indexes designed to align with recent EU regulation.

However, these findings are material and meaningful for investors seeking to maximize year on year emissions reductions of their investees. They highlight the overall inconsistency of an approach that tries to both maximize absolute emissions reductions in a portfolio and tilt away from high-carbon companies.

**Fig. 1: Normalized and absolute evolution of the WACI of the MSCI World and its low-carbon counterparts (Source: Authors, based on MSCI data)**



- An investor investing \$1 billion in 2007 in the MSCI World ESG Leaders Index would have earned 0.8% more over a 14-year period (measured in gross returns) relative to the MSCI World market benchmark**

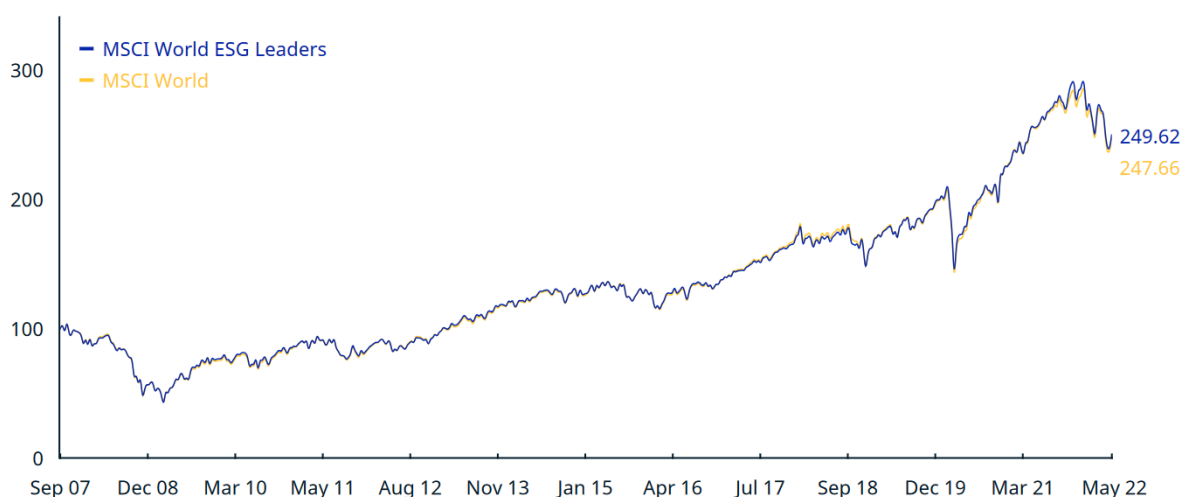
ESG funds are advertised as reducing sustainability risks for investors through a combination of exclusion and best-in-class approaches. Academic studies seek to demonstrate that investors can invest in “ESG” strategies without sacrificing return. Performance neutrality also suggests however that ESG strategies do not actually protect investors from sustainability risks, contrary to the claims made about them.

As outlined below, the distinction between the MSCI World and MSCI World ESG Leaders in terms of gross returns is minor over a 14-year period. The ESG fund largely mirrors all major risk events over the past 14 years (Global Financial Crisis, Euro Crisis, COVID-19 pandemic, Russia-Ukraine War). ESG index investing in this form is basically the equivalent of investing in the benchmark from a sustainability risk management perspective. Over 14 years, a \$1 billion investment in the MSCI World ESG Leaders Index would have generated only \$19 million in higher gross returns, or just over \$1 million per year on a \$1 billion portfolio.

This type of analysis of course may also suggest that ESG strategies, independent of their risk profile, help deliver sustainability performance without sacrificing returns, as suggested by parts of the literature. However, this argument conflicts with the argument that ESG ratings are based on ‘sustainability risks’ rather than impact (2DII 2022).

The key question is: quo vadis? There is no evidence that – at least when looking at the MSCI World ESG Leaders Index – an ESG strategy helps improve sustainability risk outcomes, nor drive capital to ‘sustainable’ companies in a way that improves real world sustainability outcomes.

**Fig. 2: Cumulative index performance of the MSCI World ESG Leaders Index vs. the MSCI World measured in gross returns (Source: Authors, based on MSCI data)**



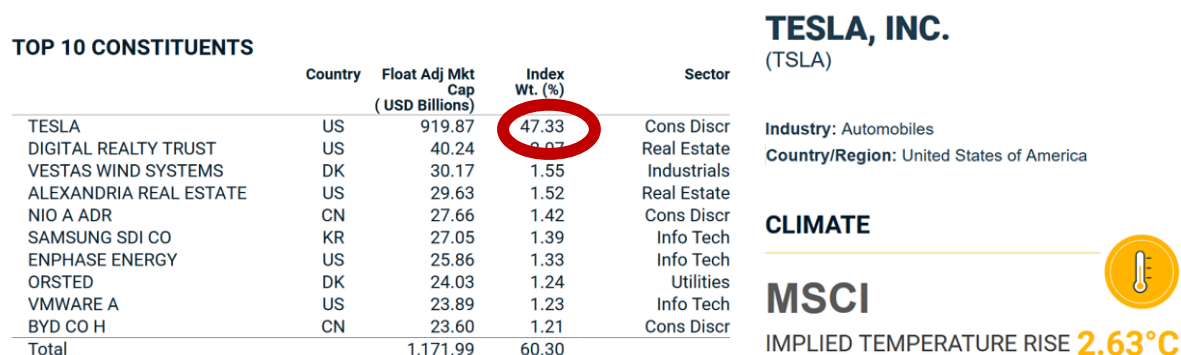
3. Investing in the MSCI Environmental Index involves investing 50% of your assets in one company: Tesla. The same company that according to MSCI is aligned with a 2.63°C temperature outcome.

The original vision of the MSCI Environmental Index series was to gain exposure to companies delivering +50% of their products from green products and services. Traditionally, the index involved a diverse set of companies in the small- and mid-cap universe that were growing. As of Q1 2022 however, Tesla is now almost 50% of the entire index.

Tesla obviously satisfies the criteria of providing zero-carbon solutions. However, the ‘index’ now is effectively dominated by a single company. Investors investing in the index effectively invest in one company and then an index of small- and mid-cap companies. This composition has helped drive dramatic outperformance of the index in 2020, after largely oscillating around the mainstream benchmarks in terms of performance prior.

The dominance of Tesla raises significant questions: Does the index still provide capital to growth companies? It also raises a broader question as to the logic of green services and the problems with emissions accounting. Because according to MSCIS “Implied Temperature Rise” model, Tesla is actually on a 2.63°C trajectory. How can on the one hand an environment index conclude that Tesla is a leading constituent and not just any, 50% (!) of the index, while at the same time classifying the company as only 2.63°C aligned. Of course, the distinction can be explained by the use of corporate emissions to calculate implied temperature rise, while ignoring the green / high-carbon product portfolio of a company. It is also worth noting that despite the uncertainty of the climate science and temperature outcomes, the data is presented with two digits behind the decimal point.

Fig. 3: Top constituents of the MSCI World Environment Index and Tesla’s climate alignment score (Source: Authors, based on MSCI data)



#### 4. Market-cap weighted benchmarks overweight economic sectors by up to 5x-6x relative to their “economic weight”

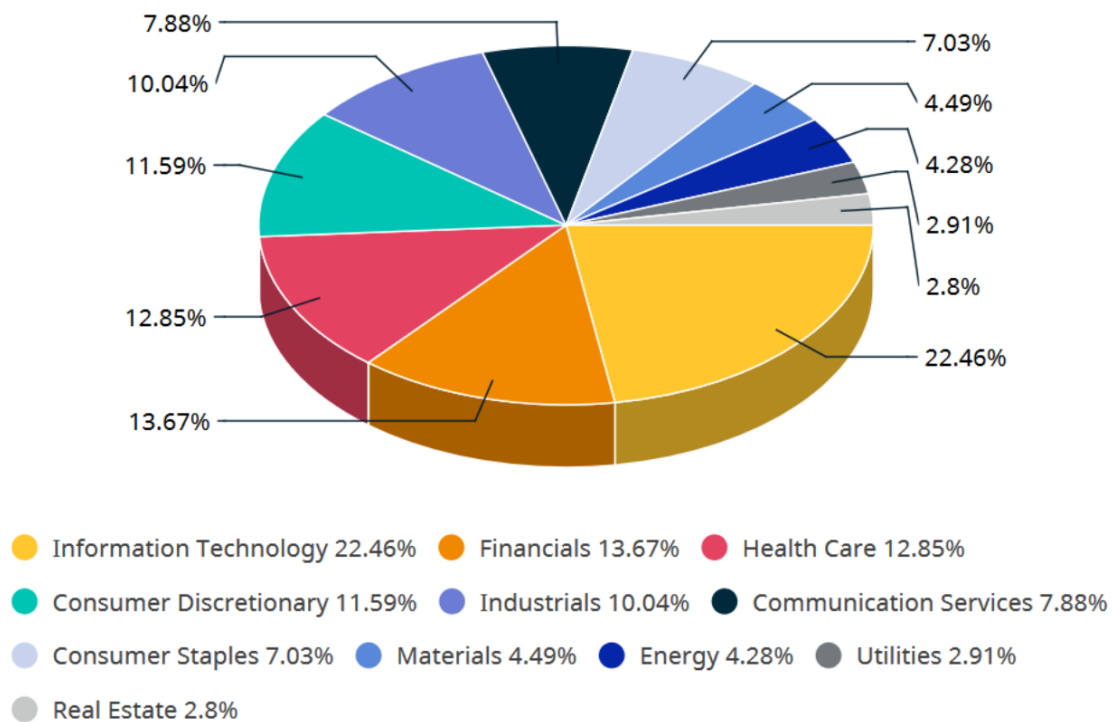
The information and communication sector represents on average around 5% of total value add in developed markets according to the OECD. In the MSCI World, the sector represents around 25-30% (depending on how you classify Alphabet (Google) and Meta (Facebook)).

Since May 2015, the share of the 10 largest companies in the index has roughly doubled from 9.5% to 19.1%. An index that claims to be broadly diversified concentrates almost \$1 in \$5 invested in only ten companies.

Market-cap weighted benchmarks are advertised as delivering broad diversification and market exposure. But the fact that they are driven by the size of a company in terms of ‘value’ means that in practice these indexes can become both highly concentrated in terms of individual companies and in terms of sector exposure.

As outlined in previous research, the same issue extends in the opposite direction to exposure to green sectors (2DII 2015) which are systematically under-represented in mainstream indexes.

**Fig 4: Sector weights of the MSCI World (Source: Authors, based on MSCI data)**



5. **The new MSCI World Climate index is dramatically improved in terms of climate alignment performance based on the RMI PACTA methodology**

An analysis of the MSCI World Climate Index on the PACTA Transition Monitor Platform highlights significant improvements over the benchmark both in terms of current *and* forward-looking exposures. While the index does not align across all technologies, sectors, and regions, the overall alignment performance generally exceeds that of the parent benchmark index, notably in the power sector. It also has visibly more stringent exposure requirements in the auto sector and in terms of current coal power exposure.

The full results can be accessed here: <https://platform.transitionmonitor.com/pacta2020/share/b9115086-b728-499d-9a80-8c94dfa8f6b7>

**Fig 5: Alignment of the MSCI World Climate Change Index on forward-looking coal power relative to IEA climate scenarios and the MSCI World (Source: Authors, based on MSCI data, PACTA RMI Transition Monitor)**

