

Scientific Portfolio Market Review

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ScientificPortfolio
Premium Indexing & Analytics — An EDHEC Venture



Navigating the ‘Leap of Faith’ in Climate Investing

Introduction

Climate-branded equity indices and funds often focus on decarbonization as a means of managing climate-related risks or delivering on portfolio emissions objectives. However, investors considering the relationship between their portfolios and the real economy may also wish to consider the extent to which these strategies are ‘aligned’ with Net Zero Emissions (NZE) pathways – even where that is **not** the explicit objective of the provider. When we do look at well-established climate-branded equity indices *through an alignment lens*, a more complex and challenging picture emerges.

This Market Review finds:

- **Climate-labelled indices often have a higher ‘overshoot’ in projected absolute emissions than comparable market cap-weighted benchmarks** relative to NZE reference scenarios, according to a new examination of eighteen products from major providers. Investors should avoid the leap-of-faith assumption that climate investment should inherently improve alignment.
- **Climate-labelled indices are no more likely than cap-weighted indices to invest in companies that have committed to emissions reduction targets.** In addition, only 6.4% of financed emissions for the entire MSCI World Climate Paris Aligned index come from so-called ‘key sectors’ (those with high climate relevance), versus 65.3% of financed emissions of the MSCI World index.
- **Moreover, companies in climate-sensitive sectors do not appear to be on track to meet their own current decarbonization targets** for either absolute emissions or carbon intensity, according to new research¹. As such, the overshoots noted in this analysis may even understate the true gap.

A degree of pragmatism is required when pursuing climate alignment in the real world of today’s equity investment landscape. Yet the lack of straightforward *silver bullet* solutions should not dissuade us from scrutinizing potential strategic weaknesses. Independent analysis through multiple lenses, including a clear view on projected absolute emissions, can support robust governance and implementation in this space.

View risk, performance and climate analytics for your equity portfolio and a wide range of equity strategies on the **Scientific Portfolio** platform.

Climate-branded indices have higher ‘overshoot’ than cap-weighted indices

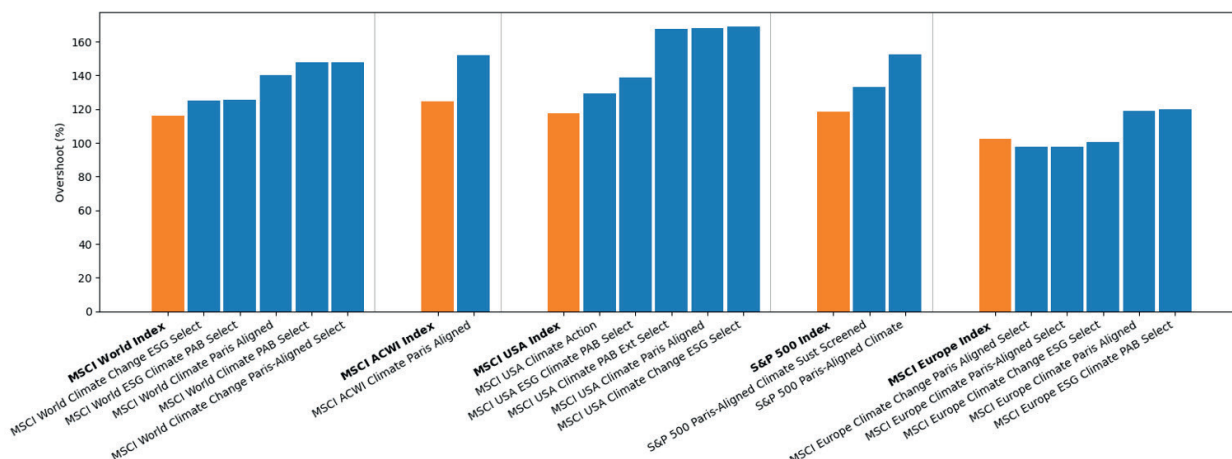
Eighteen climate-branded indices covering Developed World, US and European equity markets were assessed² in order to calculate the ‘overshoot’ of their *projected absolute emissions*. This is done by comparing the portfolio’s climate emissions trajectory, based on the companies’ recent emissions or target reduction rates, with the one of a portfolio that has the same sector exposure and assumes that the companies comply with their sector trajectories indicated by the IEA’s Net Zero Emissions scenarios. The results were consistent: every Global Developed and US product in the sample exhibited a higher overshoot in absolute emissions relative to the NZE reference scenario than the relevant cap-weighted benchmark; even in Europe, two out of the five products followed the pattern. Again, we should emphasize here that these indices do not explicitly seek or claim improvements in projected absolute emissions as a goal³, but the analysis underlines the importance of avoiding assumptions around alignment.

1 - *Evaluating the Consistency of Companies Decarbonisation Targets in Critical Sectors* (Bouchet, V., Clark, A., December 2025), available in Scientific Portfolio’s Knowledge Center

2 - The holdings of each index were proxied using an Exchange Traded Fund (ETF) closely and physically replicating the index.

3 - For instance, the MSCI World Climate Paris Aligned PAB Index aims to “reduce [...] exposure to transition and physical climate risks” and “pursue opportunities arising from the transition to a lower-carbon economy”; the climate risk analytics on the Scientific Portfolio platform confirm these objectives are indeed achieved (relative to the cap-weighted benchmark).

Exhibit 1: Absolute emissions overshoot of climate-branded and cap-weighted indices versus NZE-aligned reference portfolio



Source: Scientific Portfolio. Chart shows overshoot estimated under Net Zero Emissions by 2050 scenario, 2050 horizon (International Energy Agency). The portfolio overshoot is computed as the ratio between the portfolio's cumulative expected absolute emissions (according to the companies' recent or target reduction rates) and the portfolio's cumulative expected emissions according to the companies' trajectory if they comply with their sector's reduction rate scenario.

To understand this counterintuitive result, it may be helpful to consider the contribution of climate-relevant sectors to the 'overshoot' results shown in Exhibit 1. One might assume, for example, that a climate-aligned index might be experiencing 'overshoot' because of its exposure to climate-sensitive sectors such as Electricity and Automobiles, where NZE scenarios would require hefty emissions reductions over time.

The MSCI World Climate PAB Select, for example, has a far lower percentage of financed emissions coming from the **Electricity** industry than its cap-weighted counterpart (see Exhibit 2). This sector represents just 0.5% of financed emissions in the MSCI World Climate index, versus 2.0% in the MSCI World, and makes a very modest 4.6% contribution to the overshoot, in contrast with the 34.6% contribution in the cap-weighted index.

Exhibit 2: MSCI World Climate PAB Select vs. MSCI World, overshoot and sector contributions

	Overshoot vs. 2050 NZE scenario	% of financed emissions from 'key sectors'	Electricity		Automobile	
			% of financed emissions	Contribution to overshoot	% of financed emissions	Contribution to overshoot
MSCI World Climate Paris Aligned	148%	6.4%	0.5%	4.6%	3.1%	1.4%
MSCI World	116%	65.3%	2.0%	34.6%	2.4%	0.2%

Source: Scientific Portfolio. Key sectors: Oil and gas, electricity, cement, steel, aluminium, automobile, shipping and airlines

Indeed, only 6.4% of financed emissions for the entire MSCI World Climate Paris Aligned index come from what we might term 'key' sectors in terms of climate transition relevance, versus 65.3% of the financed emissions of the MSCI World index. Low and/or highly selective exposure to those key sectors can certainly help to reduce *today's* carbon intensity and absolute emissions metrics but the high projected overshoot is important to recognize complacency must be avoided.

In addition, an investor that seeks to encourage real-world transition may wish to take care when choosing to invest in strategies that have low and/or highly selective concentrated exposure within the sectors where transition success is most crucial: the Electricity sector's overall progress, for example, will be crucial in determining future Scope 2 emissions in other sectors that are relying heavily on electrification to support the delivery of decarbonization targets.

Climate indices do not favor companies with decarbonization targets

Many climate indices **are no more likely** than cap-weighted indices to invest in companies with more ambitious decarbonization targets. Two of the indices, shown in Exhibit 3, provide a useful illustration of this pattern. In fairness, providers make no claims to suggest otherwise. However, investors wishing to take a nuanced approach toward this subject may well find it interesting to learn that climate indices invest in large numbers of companies that have no stated commitment to reduce emissions.

Exhibit 3: Overshoot contributions from companies with and without decarbonization targets, Global Developed and US

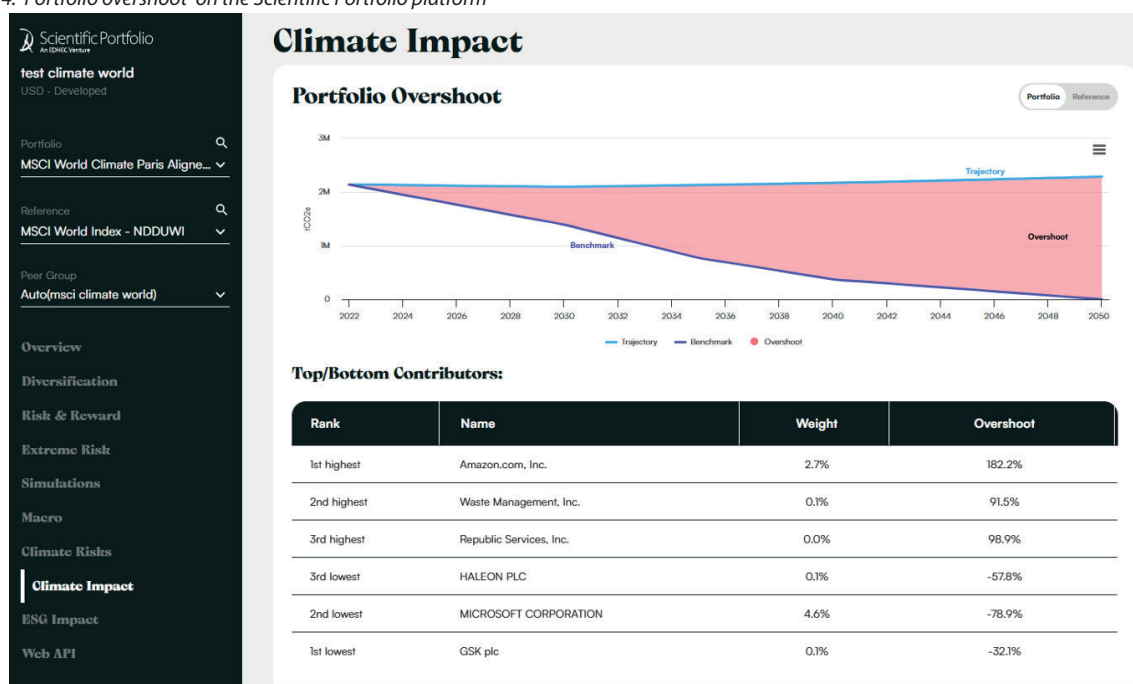
	Financed Emissions (tCO ₂ e)*	Weight	Contribution to overshoot
MSCI World Climate Paris Aligned			
Companies with ambitious targets	1.69M (72.5%)	75.3%	99.3%
Companies without ambitious targets	0.64M	24.7%	48.3%
MSCI World			
Companies with ambitious targets	25.18M (75.0%)	75.4%	82.3%
Companies without ambitious targets	8.38M	24.6%	33.9%
S&P 500 Paris Aligned Climate			
Companies with ambitious targets	5.44M (81.1%)	82.6%	106.6%
Companies without ambitious targets	1.27M	17.4%	26.4%
S&P 500			
Companies with ambitious targets	18.76M (70.3%)	74.4%	83.4%
Companies without ambitious targets	7.93M	25.6%	34.9%

Source: Scientific Portfolio, ISS. Financed emissions are estimated under the assumption of a portfolio AUM of USD 1 million. 'With ambitious targets' defined as "Approved SBT", "Ambitious Target", "Committed SBT" in ISS mapping. 'Without ambitious targets' defined as "No Target", "Non-Ambitious Target" in ISS mapping.

Theoretically, supporting companies with strong targets could offer a way to drive decarbonization in the real economy, as opposed to focusing on the low-hanging fruit of low-emission companies today. That being said, it is worth noting that the aforementioned 'overshoots' in the two climate-branded indices shown in Exhibit 3 are entirely driven by exposures to companies that *have* decarbonization targets.

Investors wishing to scrutinize this subject can assess the 'overshoot' in their public equity portfolios (see Exhibit 4) and identify the main positive and negative contributors at company level. For the MSCI World Climate Paris Aligned Benchmark Select Index, shown below, Amazon is identified as a major contributor to the index overshoot, thanks to its combination of high emissions (13.4M tCO₂e in 2022 for Scope 1 and 2) and low-ambition targets.

Exhibit 4: 'Portfolio overshoot' on the Scientific Portfolio platform



Source: Scientific Portfolio

The problem deepens: will targets be achieved?

We have shown that equity investors can currently scrutinize the potential 'overshoot' problem. However, climate index investors are also vulnerable to another issue that may be even more obscure: overshoot assumptions are based on companies' own targets and, when we look more closely, we find that those targets may not be achieved. In this scenario, the true overshoot would, of course, be even larger.

This challenge was discussed at some length in a new white paper, *Evaluating the Consistency of Companies Decarbonisation Targets in Critical Sectors* (Bouchet, V., Clark, A., December 2025), which was also the focus of a recent Scientific Portfolio Webinar. The authors examined emissions for carbon-sensitive sectors using data from Asset Impact and concluded that, based on (recent) historical emissions trends and current capital expenditure activity, firms in these industries are likely to fall considerably short of their decarbonization goals. Importantly, this is true for both absolute emissions and carbon intensity targets, although the gap frequently appears wider for absolute emissions.

Companies in the Steel, Oil and Gas and Shipping sectors show the weakest credibility in terms of distance from their own goals (and from Net Zero pathways), while the Electricity and Automobile sectors were somewhat more aligned on average, although there is a large degree of dispersion between individual companies.

Exhibit 5: Estimated 2023-2030 change: company target, historical-based, CapEx-based

a) All sample (160 firms)

Sector	Count	Absolute Emissions			Intensity Emissions		
		Target-Based	Historical	CapEx-Based	Target-Based	Historical	CapEx-Based
Airlines	20	-2.2%	+7.6%	+1.5%	-2.8%	-0.2%	-0.1%
Aluminium	20	-1.4%	+5.5%	-0.8%	-5.1%	-1.7%	+0.6%
Autos	20	-4.2%	-2.9%	-3.7%	-4.3%	-4.4%	-4.6%
Cement	20	-1.2%	+4.9%	+0.4%	-2.1%	-0.4%	+0.0%
Electricity	20	-4.0%	-3.6%	-2.0%	-8.0%	-2.6%	-2.7%
Oil and Gas	20	-0.7%	+4.6%	+1.4%	-0.6%	-0.3%	+0.0%
Shipping	20	-1.5%	+0.5%	+2.7%	-2.6%	-0.8%	+0.6%
Steel	20	-1.1%	+3.0%	+1.3%	-2.6%	-1.4%	-0.3%
All Universe	160	-2.0%	+2.5%	+0.2%	-3.3%	-1.5%	-0.7%

b) Companies with ambitious reduction targets (83 firms)

Sector	Count	Absolute Emissions			Intensity Emissions		
		Target-Based	Historical	CapEx-Based	Target-Based	Historical	CapEx-Based
Airlines	13	-3.4%	+8.1%	+1.6%	-3.7%	-0.8%	+0.0%
Aluminium	10	-2.0%	+0.0%	-0.3%	-5.2%	-2.0%	+0.8%
Autos	16	-4.8%	-3.3%	-4.9%	-5.0%	-3.0%	-5.2%
Cement	13	-1.6%	+2.7%	+0.6%	-2.3%	-0.6%	+0.0%
Electricity	12	-6.6%	-4.4%	-3.8%	-9.2%	-3.5%	-3.6%
Oil and Gas	6	-1.6%	+1.3%	+0.9%	-1.7%	-0.6%	+0.2%
Shipping	5	-2.7%	-0.9%	+2.3%	-4.4%	-0.9%	+0.3%
Steel	8	-1.9%	+3.3%	+1.2%	-2.9%	-1.3%	+0.0%
All Universe	83	-3.3%	+0.8%	-0.8%	-4.5%	-1.8%	-1.3%

Source: Evaluating the Consistency of Companies Decarbonisation Targets in Critical Sectors (Bouchet, V., Clark, A., December 2025),

Conclusion: how should investors navigate the challenge?

Unfortunately, there is no straightforward solution to what might appear, depending on an investor's perspective and expectation, to be a somewhat weak relationship between climate equity strategies and 'alignment'. Investors must approach implementation in a pragmatic manner that reflects what is currently available. Company alignment can be considered relative to other companies within the same sector or region, since normative assessments will be problematic in an environment where so many fall short of the desired ideal. Investors should consider their effective sphere of influence and methods for influencing the transition pathways of individual firms. Above all, taking a pragmatic approach does not mean sacrificing scrutiny and oversight. Indeed, analytical clarity is even more important when operating in highly imperfect conditions.

This article contains data from the **Scientific Portfolio** platform. Users can access analytics to conduct analyses of available funds and/or upload their own equity portfolios to examine performance and exposures.

Access the Scientific Portfolio Platform

About Scientific Portfolio

Scientific Portfolio is the latest commercial venture incubated within the research ecosystem of EDHEC Business School (EDHEC), one of the world's leading business schools.

Scientific Portfolio has assembled a team with a broad range of expertise and backgrounds, including financial engineering, computer science, sustainable and climate finance, and institutional portfolio and risk management. It proudly carries EDHEC's impactful academic heritage and aspires to provide investors with the technology they need to independently analyse and construct equity portfolios from both a financial and extra-financial perspective.

To achieve this, it offers investors three sources of value through its portfolio analysis & construction platform:

- Helping investors to analyse their equity portfolios, identify actionable insights and enhance portfolios with allocation functionalities. Indeed, Scientific Portfolio likes to promote portfolio analysis as a means to the concrete goal of building portfolios that are both more efficient and better aligned with their investment objectives.
- Providing investors with an integrated framework where financial and extra-financial (ESG) considerations are jointly captured in analysis and portfolio construction. The ability to incorporate ESG-related insights in the portfolio allocation process is now a common requirement among many investors.
- Giving investors access to a Knowledge Centre catering to all types of learners and providing guidance through the portfolio analysis and construction process. This aligns with Scientific Portfolio's commitment to remaining connected with its academic roots and bridging the gap between investors and academia.

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