Scientific Portfolio Market Review

February 2025

Scientific Portfolio
An EDHEC Venture

Climate Exclusions Need Investor Scrutiny

Introduction

The May 21st deadline is rapidly approaching for UCITS and Alternative Investment Funds (AIF) to comply with new labelling guidelines from the European Securities and Markets Authority (ESMA). Under the rules, every strategy bearing an environmentally-oriented name—such as ESG, sustainable, climate or impact (though not 'transition')—is expected to implement screening based on the Paris Aligned Benchmark (PAB) regulation[1].

In this new Market Review we continue to promote the importance of relying on holdings over ESG labels for sustainable investors, and we turn to the subject of Paris Aligned Benchmark screening and ask:

- **How much exposure** do ESG-labelled equity mutual funds and ETFs have to non-PAB stocks?
- **Do some funds manage the trade-off** between PAB-type exclusions and risk (tracking error) more efficiently than others?
- **Are the funds with the lowest exposure to non-PAB stocks** also delivering a substantial reduction in carbon intensity?
- **Should significant skews in sector exposure and Factor Profile be expected** when investing in strategies with a PAB-focused investment universe?

For this analysis, we focus on a set of public equity strategies that are intended to be comparable, primarily driven by market beta and with low idiosyncratic risk. As a result of the parameters used, the strategies in our group are somewhat benchmark-constrained by nature, but investors can ask the same questions of more active strategies.

Moreover, while we focus here chiefly on PAB-based screening (with ESMA in mind), investors should take care to avoid 'tunnel vision' based on one screen or metric. PAB has its recognised limitations: the carbon calculations used are inherently backward-looking in nature; information on 'Scope 3' emissions remains limited; forward-looking assessments, such as those supported by the Science Based Targets Initiative, are not considered. Philosophically, investors seeking to promote real-world transition should also consider the extent to which they wish to remain engaged with the broader market: the Paris Aligned version of the MSCI World index contains just 39% of the companies in the MSCI World and 68% of its market capitalisation; these figures may decline over time depending on the progress of decarbonisation.

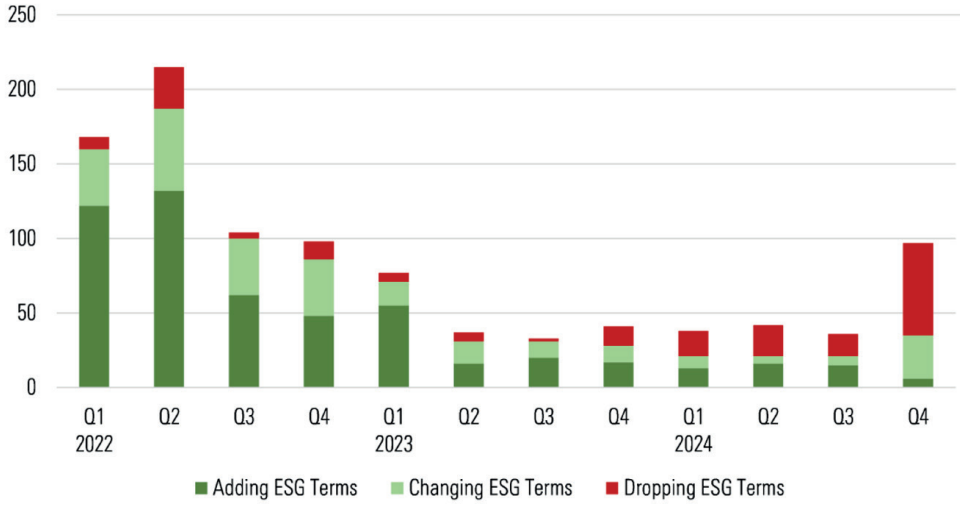
We hope that this article provides practical insights for investors and asset managers who are seeking to build sustainable portfolios in today's uncertain environment. Readers are welcome to use the Scientific Portfolio user platform to analyse their own equity portfolios for non-PAB stocks, carbon intensity and a variety of other ESG, risk and performance metrics.

1 - Note: funds bearing a name such as 'transition,' 'social' or 'governance' are required by ESMA to implement screening based on the (less restrictive) Climate Transition Benchmark. Other requirements include a proportion of 'sustainable investments' within the fund, as defined by ESMA.

Backdrop: De-Labelling Underway as Fund Flows Falter

We are witnessing a wave of fund 'de-labelling,' driven in large part by the aforementioned ESMA guidelines and the UK Financial Conduct Authority's sustainable disclosure requirements, though other factors—such the US political climate—may also be playing a role. Morningstar has identified 115 instances in 2024 where ESG terms were dropped by European equity and bond funds, as well as 48 examples where one ESG-related term had been swapped for another[2] and 351 sustainable fund closures.

Exhibit 1: Fund 'de-labelling' tracked by Morningstar



It should be noted that this number is still modest in comparison with earlier predictions. Morningstar themselves had announced last June that 1600 funds were not compliant with the guidance released by ESMA and estimated that as many as 50% of these would change their

names. This headline-grabbing prediction was widely disseminated across the financial press. It remains to be seen whether several hundred more strategies will indeed de-label or undertake the required portfolio changes in order to become compliant.

This period of change coincides with what appears to be a cooldown in investor sentiment towards sustainable strategies. The growth in assets managed by 'Article 6' funds significantly outpaced growth in 'Article 8' funds in 2024, while outflows from Article 9 funds persisted for several quarters. Overall, last year saw a slowdown in net flows to European sustainable investment strategies and, in a reversal of a multi-year trend, the volume of assets under management in US sustainable strategies declined over the course of the year[3].

In this evolving landscape, it is important for investors to form a view on climate-based screens, such as elimination of non-PAB stocks, and consider some of the trade-offs and questions involved.

Defining a Universe of Sustainable Equity Funds

For this analysis, we consider a group of large cap equity mutual funds and ETFs (hereafter 'funds') that carry an ESG-type label. In particular, we focus on strategies whose returns are strongly attributable to market beta and showing low idiosyncratic risk in our factor-based risk model.

2 - Europe Continues to Dominate the Sustainable Fund Market, and Inflows Surged for European Article 8 ESG Funds in Q4, Morningstar, January 2025.
3 - Sustainable funds market inflows halve as ESG falls out of favour, Reuters, January 2025

The same set of strategies was also presented in a previous Market Review, which considered whether equity funds had exposure to companies that would be prohibited by the investment policies of many large asset owners, referred to as a 'consensus' screen (Reading the ESG Label Before Use is Not Enough).

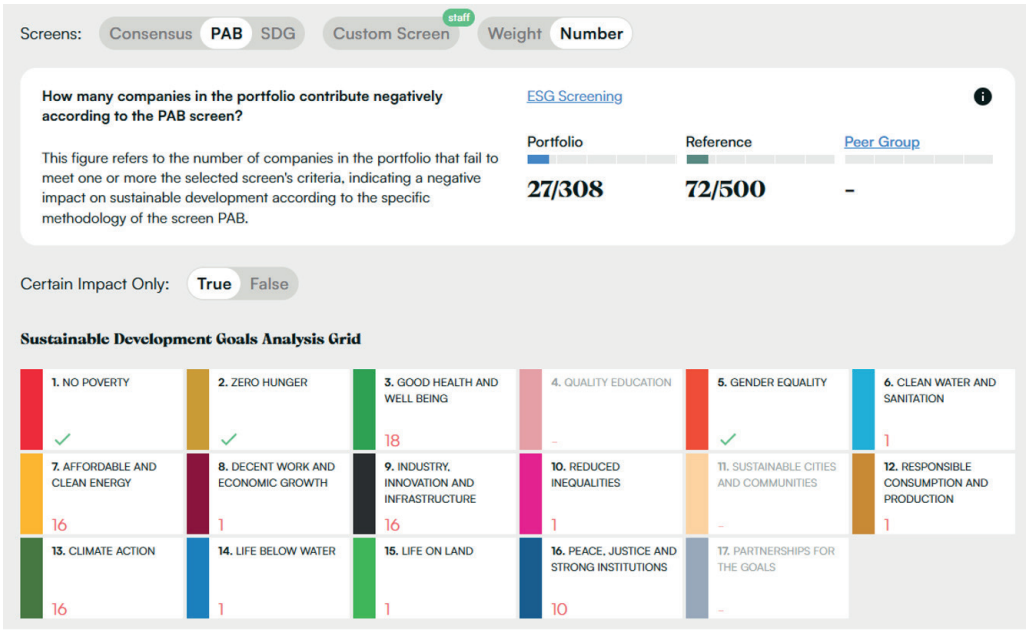
The large cap equity funds assessed here all feature:
i) A name that includes one of the following terms: *ESG, climate, carbon, renewable, sustainable, sustainability, PAB/Paris Aligned, SRI, ISR, responsible, ethical* or *choice*.
ii) Market exposure (i.e., beta) greater than +0.6.
iii) Sum of absolute non-beta exposures that is less than the beta.
iv) Minimum R-squared of 80% (such that volatility is sufficiently well explained by our proprietary factor-based risk model), excluding more idiosyncratic strategies.
v) As a result of the constraints above, it should be noted that the funds' tracking error relative to their associated regional market capitalisation-weighted (CW) benchmark remains overall under control (3% median for US strategies, 4.69% median for Developed Europe, 4.44% for Developed World).

Region	ESG-labelled mutual funds and ETFs selected for analysis
United States	74
Developed Europe	31
Developed (World)	43

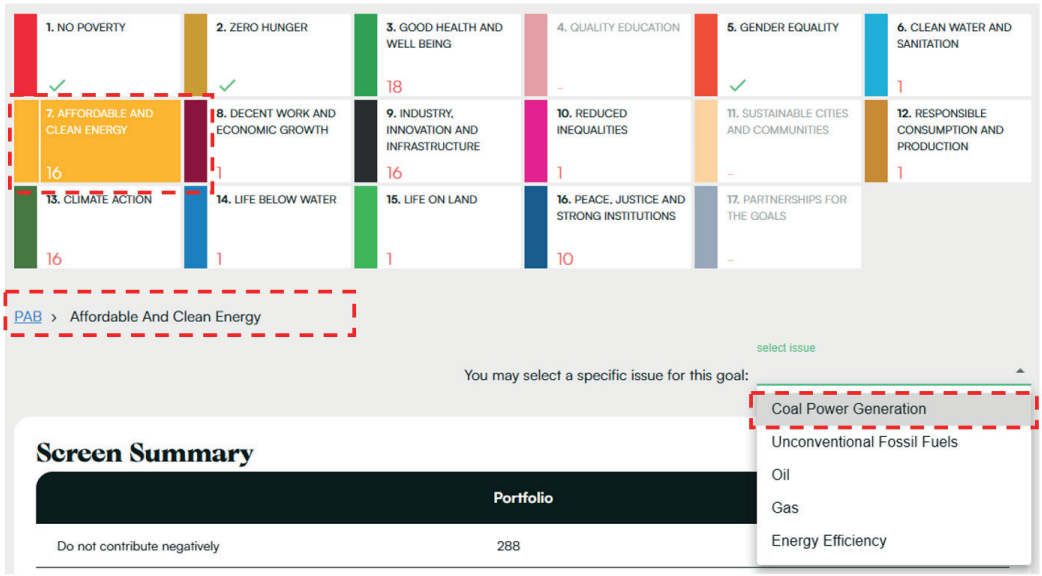
Exposure to Non-PAB Stocks

Readers may be surprised to learn that nearly every ESG-labelled fund in this sample—even funds with an explicit 'Paris Aligned' description—had at least some exposure to non-PAB stocks according to the screen available on the Scientific Portfolio platform. Although fund managers may have their own justifications for these decisions (a granular review shows that the vast majority of the non-PAB stocks flagged inside Paris Aligned portfolios could be explained by possible disagreements on the interpretation of how the UN Global Compact criteria should be applied), this result is somewhat eye-catching.

For investors looking to understand the exact reason why a stock is deemed non-PAB and how the underlying sustainability issue(s) may relate to one or several UN Sustainable Development Goals (SDGs), the Scientific Portfolio platform offers a clear and interactive view with drill-down capabilities (see the two exhibits below).



Note: Portfolio is the UBS (Irl) ETF plc - S&P 500 ESG UCITS ETF. Reference is a market cap-weighted benchmark containing the 500 largest US stocks.

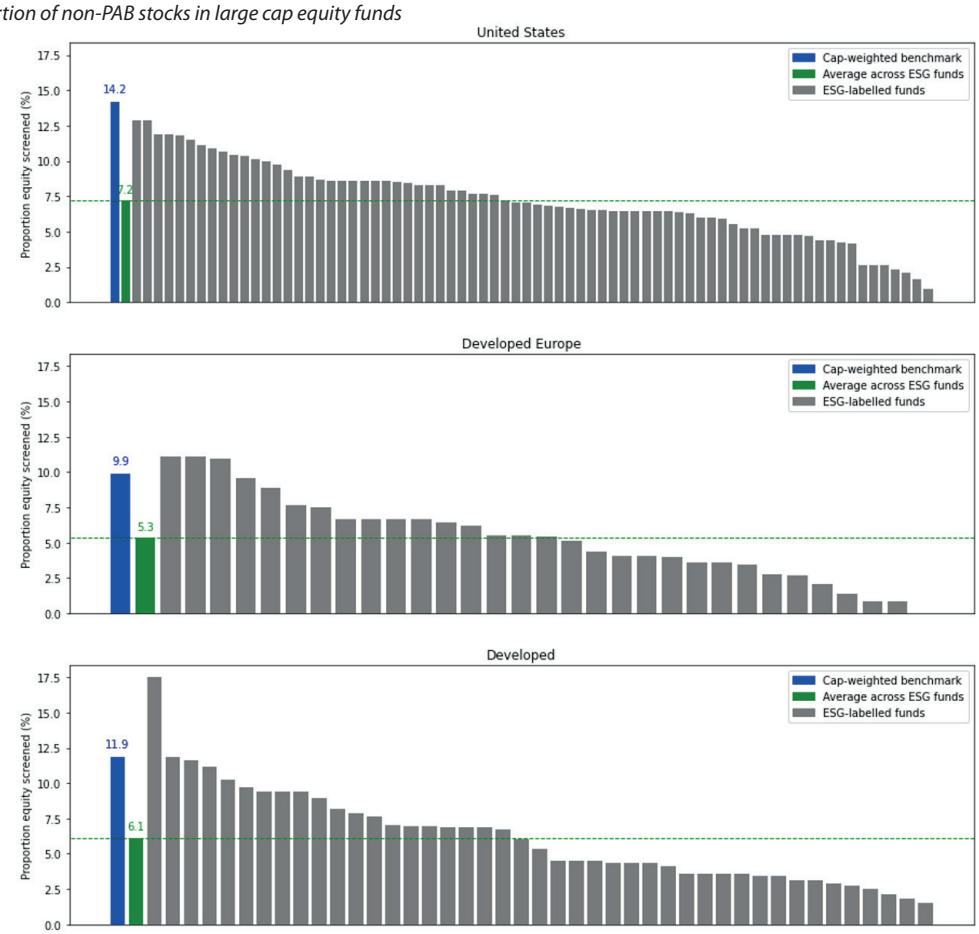


Source: Scientific Portfolio platform

On average, the European ESG-labelled funds in this sample hold 5.3% of their portfolios in non-PAB stocks (compared with 9.9% of the European CW benchmark). That being said, there is huge dispersion around this figure: 13% of the funds shown here have less than 2.5% of the portfolio in non-PAB stocks, while 10% have even higher exposure to non-PAB stocks than the benchmark itself.

The US ESG-labelled funds, meanwhile, hold an average of 7.2% of their portfolio in stocks that are not aligned with the Paris Aligned Benchmark regulation (compared with 14.2% of the CW benchmark), and only 9% of strategies have less than 2.5% of the portfolio in non-PAB stocks.

Exhibit 2: Proportion of non-PAB stocks in large cap equity funds



Source: Scientific Portfolio. Figures are based on the number of stocks, not capitalisation.

It's also worth noting that the average figure decreases still further when we look purely at funds with an explicitly climate-oriented label as opposed to those branded 'SRI,' 'social,' 'ethical' or 'transition.' (ESMA's guidelines, incidentally, would require PAB screening for the former but only CTB screening for the latter.)

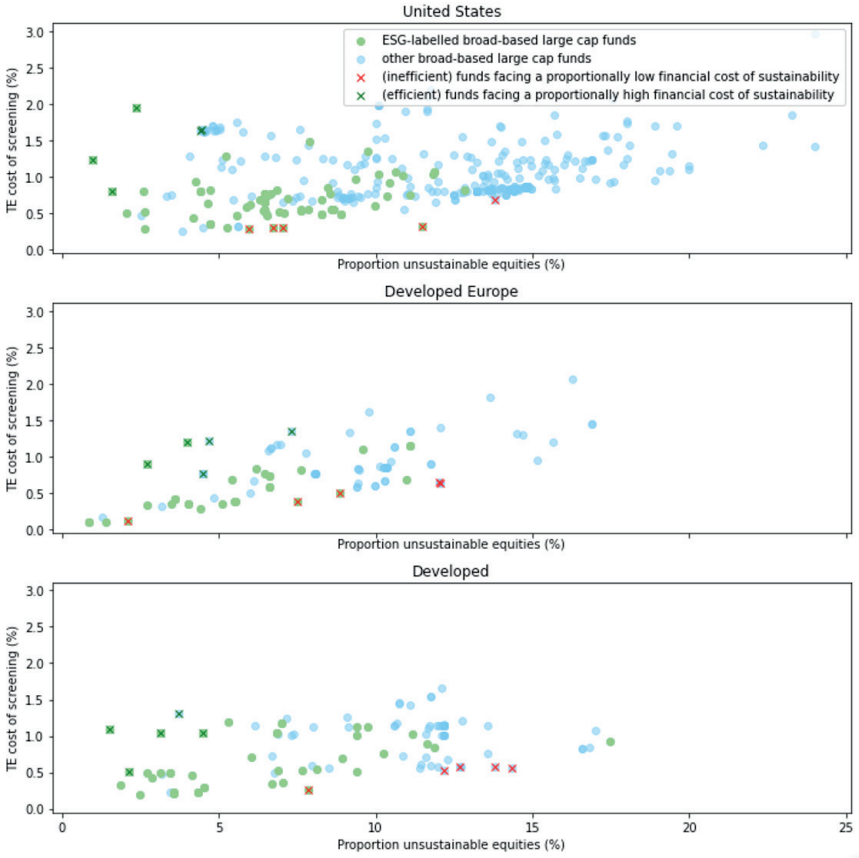
Balancing PAB Exclusions and Tracking Error

Funds take different approaches to managing the trade-off between excluding non-PAB stocks and incurring tracking error. In order to assess this point, a selection of ESG-labelled and non-ESG-labelled funds were fully screened to remove non-PAB stocks and then portfolios were reweighted using a method designed to minimise tracking error relative to the pre-screen portfolio. The results are presented in Exhibit 3.

This analysis shows very different tracking error cost when non-PAB equities are screened out. The green crosses, for example, indicate funds that appear to be taking a more efficient approach: when the (typically very few) non-PAB stocks in those portfolios were removed, the result was a significant increase in tracking error. The red crosses, on the other hand, suggest funds that are missing out on low hanging fruit from a sustainability perspective: non-PAB equities could be removed from those portfolios to a significant degree with only a small impact on tracking error.

7 - See our publication Porteu de la Morandière et al. (2024) for more details on our SDG-related methodology.

Exhibit 3: TE cost of screening as a function of the proportion of non-PAB stocks (ESG-labelled funds)



Source: Scientific Portfolio. 'Unsustainable' defined as not in Paris Aligned Benchmark

What About Carbon Intensity?

Undertaking screening based on the Paris Aligned Benchmark is very different from adopting a Paris-aligned investment strategy. The PAB itself was constructed to offer a 50% immediate reduction in carbon intensity (Scope 1, 2 and ideally 3) versus the parent index, followed by progressive year-on-year decarbonisation, with the aim of supporting a global rise in temperatures of no more than 1.5 degrees Celsius. Screening alone is unlikely to offer an equivalent decarbonisation profile, depending on the nature of the subsequent portfolio optimisation (such as, in the case of the strategies assessed here, the imposition of a tight tracking error constraint).

As such, it may also be interesting to examine the carbon intensity profile of the 'top five' funds in each region in Exhibit 2, defined as those who have the smallest proportion of non-PAB equities in their portfolios. Exhibit 4 shows a recent snapshot of the Weighted Average Carbon Intensity (WACI) of the 'best five,' based on Scope 1 and 2 emissions. WACI figures should not be viewed as a panacea (even when Scope 3 emissions are included): there are some who prefer to look at emissions (or financed emissions) rather than a revenue-related metric. Yet WACI calculations do at least have the advantage of being well understood and widely used.

Exhibit 4: 'Top 5' managers and their WACI relative to relevant CW index

United States		
Fund Name	Proportion of non-PAB equities	Carbon footprint (as a % of benchmark)
Vanguard ESG U.S. Stock ETF	1.0%	32%
Vegan Climate ETF	1.6%	14%
iShares ESG Advanced MSCI USA ETF	2.1%	35%
DFA U.S. Sustainability Core 1 Portfolio	2.4%	42%
Vanguard FTSE Social Index Fund	2.6%	26%
Average		
Developed Europe		
Fund Name	Proportion of non-PAB equities	Carbon footprint (as a % of benchmark)
BNP PARIBAS EASY LOW CARBON 100 EUROPE PAB ETF	0%	17%
UBS – MSCI Europe Socially Responsible ETF	0.9%	7%
Xtrackers MSCI Europe ESG UCITS ETF	1.4%	31%
Franklin STOXX Europe 600 Paris Aligned Climate ETF	2.1%	45%
iShares MSCI Europe SRI UCITS ETF	2.7%	14%
Average		
Developed		
Fund Name	Proportion of non-PAB equities	Carbon footprint (as a % of benchmark)
BetaShares Global Sustainability Leaders ETF	1.5%	6%
Xtrackers MSCI World ESG ETF	1.9%	18%
Vanguard Ethically Conscious International Shares Index ETF	2.1%	25%
Enhanced Index Sustainable Equity Fund	2.5%	31%
Storebrand Global ESG Plus	2.7%	28%
Average		

Source: Scientific Portfolio. Carbon footprint figures for equity portfolios can be obtained via the Scientific Portfolio platform. Benchmark figures as follows: US 30.27 tCO2e/M $, Developed Europe 61.71 tCO2e/M $, Developed World 43.03 tCO2e/M $.

Risk and Sector Exposures

Investors in ESG-labelled strategies should be aware of the potential for skews in sector exposures and Factor Profiles versus the market. As such, this final section briefly examines the sector and factor exposures of the so-called 'top five' managers for each region (defined, again, as those with the lowest proportion of non-PAB equities).

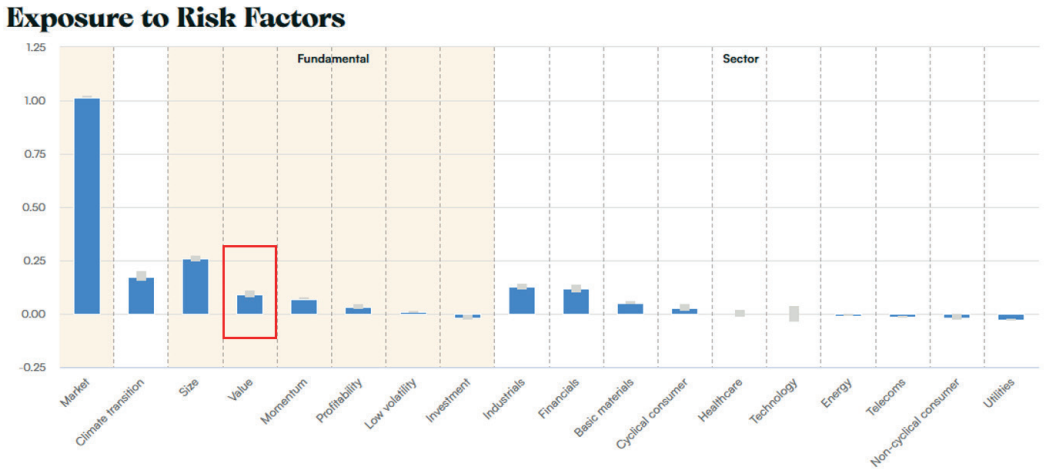
Upon analysis, we find that tilts are relatively small, thanks in part to the somewhat benchmark-constrained nature of strategies. That being said, the 'top five' European funds do have a clear skew away from the Value factor, while all groups exhibit minor tilts away from Energy and towards Technology. Investors should not be surprised by these conclusions: many industry studies have identified that Growth and Technology-heavy strategies tend to have a more 'decarbonising' profile (see Exhibit 6).

Exhibit 5: Factor and sector exposures of 'Top 5' managers (those with the lowest proportion of non-PAB stocks)

Source: Scientific Portfolio

Importantly, even within these small samples (fifteen managers in total), we saw significant differences in the results. Four are negatively positioned in Technology, three are positively skewed to Value and, while all were underweight Energy, the extent varied from a negligible -0.016 to a more meaningful -0.075.

Below, we can see the analysis for a single US fund—*DFA U.S. Sustainability Core 1*—as it appears on the Scientific Portfolio platform. Their positive Value tilt stands out as being rather unusual in this sample and indeed dragged (up) the average Value tilt for US 'Top 5' to near-zero.



Source: Scientific Portfolio platform

Looking Ahead: Active Managers

As mentioned above, rather different conclusions may be reached if strategies with a higher degree of tracking error are included, as opposed to the more benchmark-constrained cohort presented here. More active strategies may deliver strong style and sector tilts. They can also feature large reductions in carbon intensity, even where the strategy has no ESG label at all, as illustrated by a chart from investment consultant bfinance below.

Exhibit 6: Weighted Average Carbon Intensity (Scope 1&2) of Active Global Equity Strategies

Source: 'Climate and Biodiversity in Equity Investing,' bfinance, 2024. Actively managed funds in each group are classified by their style focus.

In an upcoming edition of Market Review, we will be turning to the subject of higher tracking error strategies in more detail—particularly the 'labelled' group—and assessing their portfolios through a variety of lenses.

In the meantime, we invite readers to use the Scientific Portfolio platform to scrutinise their own equity portfolios from the perspective of PAB, carbon intensity or a variety of other ESG, risk and performance screens. Whether investors are concerned about strategy resilience in view of the upcoming

regulatory deadline or are simply seeking to gain a better understanding of existing exposures, we believe that easy-to-use tools with objective academically-based fundamentals can help to empower oversight.

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.

https://scientificportfolio.com/


Scientific Portfolio
An EDHEC Venture