

The case for transition strategies in credit

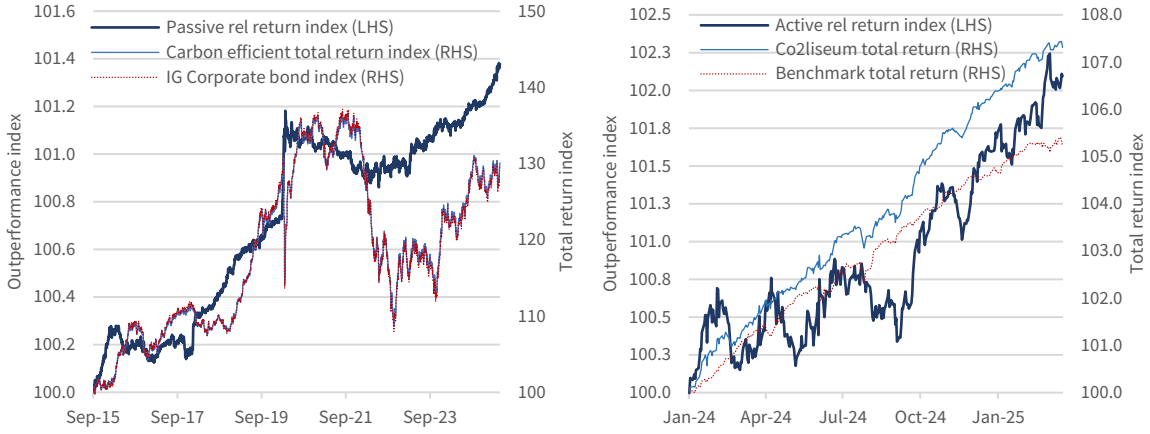
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Do credit portfolio strategies that target decarbonisation outcomes deliver returns that are at least comparable to those of traditional benchmark credit strategies? For the fixed income investor, determining whether greater returns can be achieved by investing in companies with lower or higher carbon emissions relative to others is a fundamental question We attempt to answer this with data based on two distinct decarbonisation-oriented strategies, both evaluated using out-of-sample results. One is passive and one is active, with both yielding broadly similar conclusions:

- The Passive Carbon Efficient strategy (PCE for brevity), based on the S&P Carbon Efficient index, has outperformed by 1.4bps per month with an annualized Sharpe ratio of 1.03. The strategy has run out-of-sample since 2018 on US investment-grade credit.
- The Co_2liseum Model Portfolio strategy (CMP), is an active (hypothetical) AFII allocation strategy that has outperformed the benchmark by 14bps per month, with an annualized Sharpe ratio of 1.09. The strategy has run since Jan-24 and has a global focus with a Europe/US benchmark.

Our results, based on more robust out-of-sample testing compared to many other studies, support the notion that lower carbon, transition credit strategies are outperforming despite cyclical headwinds to the energy transition.[1] Indeed, this suggests a burden-of-proof for relatively high-carbon investment strategies to show relatively better risk-return metrics in order to be aligned with fiduciary duty.

Figure 1. Transition strategy relative return indices: (left) passive PCE strategy, (right) active strategy CMP relative returns and underlying return indices. Source: AFII, S&P Global.



[1] Previous work from AFII discussing the relative merits and pitfalls of transition credit strategies include "Fossil bonds holdings in sustainable funds", AFII, 19 May 2025; "Decarbonising iShares' JPM EMB ETF", AFII, 11 May 2023; "Decarbonising iShares' LQD ETF", AFII, 15 Dec 2022; "What if the ECB decarbonised its portfolio from start?", AFII, 20 Sep 2022 and further pieces available on AFII's website.

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Key results

Table 1 provides summary data on the relative performance for both the PCE and the CMP strategies, with technical descriptions of the indices and the back-testing procedures in the following sections. We see average monthly excess returns range between 1.4bps to 14bps for the passive vs the active index with annualized Sharpe ratios close to 1. The monthly numbers may seem small, but on an annualized basis, outperformance in the order of 16.4bps/168bps for PCE/CMP is quite substantial. Both strategies also compensate for additional volatility introduced by deviation from the benchmark, as demonstrated by Sharpe ratios in the range of 1.03-1.09.[2]

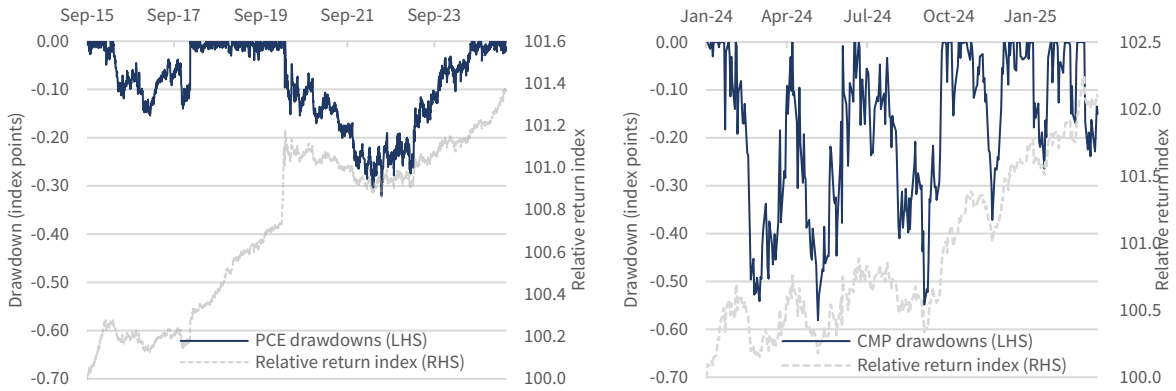
Table 1. Comparative statistics of the strategies. Description of index construction below. Source: AFII.

Metric	*PCE (Passive strategy)*	*CMP (Active strategy)*
Training period	*2015-2018*	*Est. 2021-2023*
Out-of-sample period	*2018-30 April 2025*	*2024 – 30 April 2025*
Type of strategy	*Passive*	*Active*
Geographical dispersion	*100% US*	*70% Europe 20% US 10% RoW*
Benchmark index	*S&P500 IG Corporate bond index*	*Fully funded 50% CDX.IG, 50% iTraxx Main on-the-run*
Average monthly relative return to benchmark	*1.4bps*	*14.0bps*
Estimated monthly tracking error	*4.6%*	*31.6%*
Annualized Sharpe ratio	*1.03*	*1.09*
Positive months	*68%*	*60%*

An important consideration when executing a strategy is how consistent it is over time, and over how long time a period it will be in drawdown mode. In Table 1, we can see that the strategies have run positive results on a monthly basis at a ratio of 68%/60%. After taking into account transaction costs, these numbers are respectable.[3]

Figure 2 shows the drawdown period for both strategies. The PCE strategy had a multi-year drawdown after Mar 2020, however this came after an extreme spike in outperformance on the back of the Covid volatility that year. Interestingly, a visual inspection of the PCE return index suggests that the index started outperforming again around the time of Russia's invasion of Ukraine (Feb-22). In comparison, the CMP strategy (Figure 2, right) has had larger and more frequent drawdowns but also short recovery times. Note the different time scales across the y-axes.

Figure 2. Drawdown of PCE (left) and CMP (right) strategies. Source: AFII.



[2] A stable Sharpe ratio above 0.5 would be considered 'good' in real-life applications.
[3] For the CMP strategy, the bid/offer at the time of entry and exit is used for each position.

Testing the strategies: the importance of out-of-sample

Evaluating investment strategies based on 'factors' is notably difficult, especially when trying to infer future performance.[4] This is true as much as anywhere else for transition or fossil–fuel–focused investing. Depending on whether the strategy is passive or active, its proponents may be — either consciously or unconsciously — inclined to present the results in a manner that favours their position.

For systematic, rules-driven (passive) strategies, there is a significant temptation to overfit models to historical data. One way to avoid this is to evaluate them using out-of-sample data. There is also a danger that comes with the ability to generate a large number of systematic strategies. This introduces the potential for survivorship bias: by running hundreds of strategies, one could selectively highlight only those that happen to outperform in out-of-sample tests, regardless of their true predictive validity. The solution is to commit to a particular strategy ex ante, and then evaluate the hypothesis on this strategy only. In our analysis, we account for these potential shortcomings in the PCE evaluation, which examines the performance of a long-term, pre-committed passive transition strategy.

For active strategies, it is impractical to create a large number of strategies. Instead, the temptation here is one of style-drift: following a period of over- or underperformance of the underlying investment theme, the manager's investment process adjusts to fit recent history. The way to mitigate against this bias is to ensure that the investment strategy is consistent. This can and should be done quantitatively via metrics and qualitatively through audits of the investment process. In the CMP approach presented below, we purport to do exactly that.

The Passive Carbon Efficient (PCE) strategy

The PCE index was originally constructed by S&P Indices on the back of the ECOBAR.[5] The Anthropocene Fixed Income Institute has tracked the progression of the index in a number of articles.[6]

Table 2. Reweighting of bonds in the PCE strategy. Source: S&P indices. Numbers in parentheses is the carbon efficient weighting of each bond relative to the standard benchmark.

		Sector ranking		
		Efficient	Intermediate	Inefficient
Within sector ranking	Efficient	1 (135%)	2 (125%)	3 (85%)
	Intermediate	2 (125%)	4 (100%)	6 (75%)
	Inefficient	3 (115%)	6 (75%)	9 (65%)

The PCE is constructed by comparing the S&P500 Investment Grade Corporate Bond Index (SP5CEBDT) versus its standard counterpart (SPUIGBD), adjusted for duration differences in the indices.[7] The carbon efficient index looks at relative carbon intensity, based on EVIC (Enterprise Value Including Cash), within and across sectors. Issuers are classified as low-, medium-, or high-carbon, receiving a score of 1, 2, or 3, respectively. Sectors are scored in the same way. The issuer and sector scores are then multiplied, yielding a composite score of 1, 2, 3, 4, 6, or 9. The index is

[4] Past performance is no guide to future performance.
[5] See "Credit alpha and CO2 reduction: A portfolio manager approach", Erlandsson, U., SSRN, 2017.
[6] "Low carbon credit performance 2015-2020", AFII, 27 Jan 2021, is the core reference and explains how the relative return index is constructed. Further follow ups in "The oil rally and low carbon credit performance", AFII, 21 Apr 2021; "Low carbon credit performance: equity and rates sell-off update", AFII, 8 Oct 2021, "Low carbon credit performance: Mayday or opportunity?", AFII, 5 May 2022.
[7] Data retrieved from S&P Global website, link to standard index and carbon-efficient index.

constructed using these composite scores, with bonds under- and/or overweighted according to the schema in Table 2. Green bonds are assigned a score of 1. The index is rebalanced monthly.[8]

The index went live in 2018 based on training data from 2015. It thus represents close to 7 years of out-of-sample data.

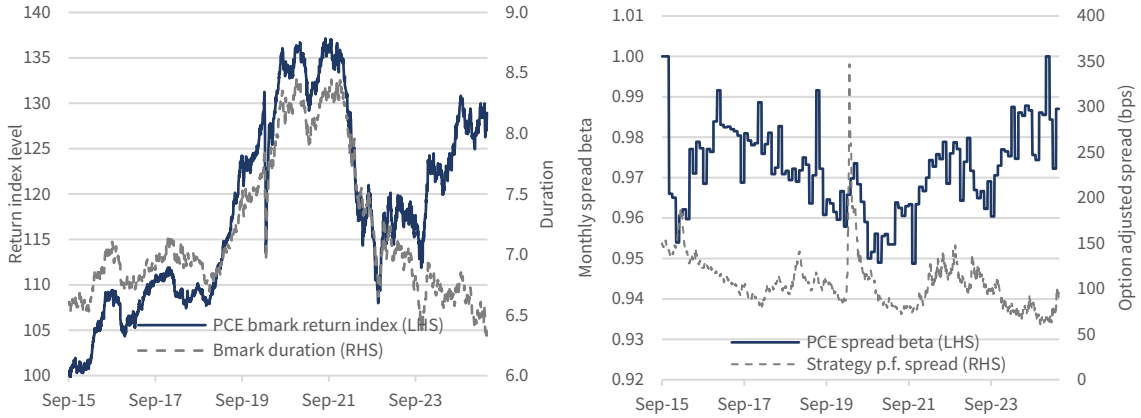
From an analytical standpoint, it has two additional noteworthy features. First, it focuses on the US, a geographic context where the assumption of non-transition investment superiority is perhaps most plausible. The rapid rise of the US to become the world's large producer of fossil fuels should reasonably give a tailwind to this non-transition theme. When combined with the recent political effort in the US to favour fossil fuels we would expect strong performance in the later part of the out-of-sample period.

Second, the PCE provides an apples-to-apples comparison with the benchmark, as no issuer exclusions apply — just simple reweightings of the index based on the transition factor. This is particularly useful in a credit context, where the inclusion or exclusion of certain companies can decide the macro characteristics of an index.[9]

As seen in Figure 1 (left) the total return of the benchmark index has been approximately 25% over the full sample period, with a notable drawdown (see Figure 2, left) in early 2022, reflecting the ramp up of inflation and interest rates on the back of Russia's invasion of Ukraine. This dynamic was reflected in the benchmark index too, see Figure 3 (left). As we note in our methodology, we reweight the indices to be interest rate duration neutral at each month end, allowing us to measure relative performance on an excess return basis (stripped of interest rate returns).

On the right-hand side of Figure 3, we can see in the dotted line how spreads remained relatively contained during the same early 2022 period and how they have tightened since. This indicates a positive excess return for the period. The graph also shows the spread beta (the ratio of spreads) between the carbon-efficient index and the benchmark index. The beta has consistently been below 1, indicating that the carbon-efficient index has had a lower spread compared to the benchmark.

Figure 3. (Left) Passive strategy benchmark return index level and duration. (Right) PCE monthly spread beta to benchmark and options adjusted spread (OAS) of PCE portfolio. Source: AFII, S&P Global.



[8] For more technical information, see the index documentation here.

[9] A classic example concerns the credit investment strategies including or excluding Lehman Brothers, which would determine positive (or negative) cumulative total returns for some IG strategies for decades.

The credit active model portfolio (CMP) strategy

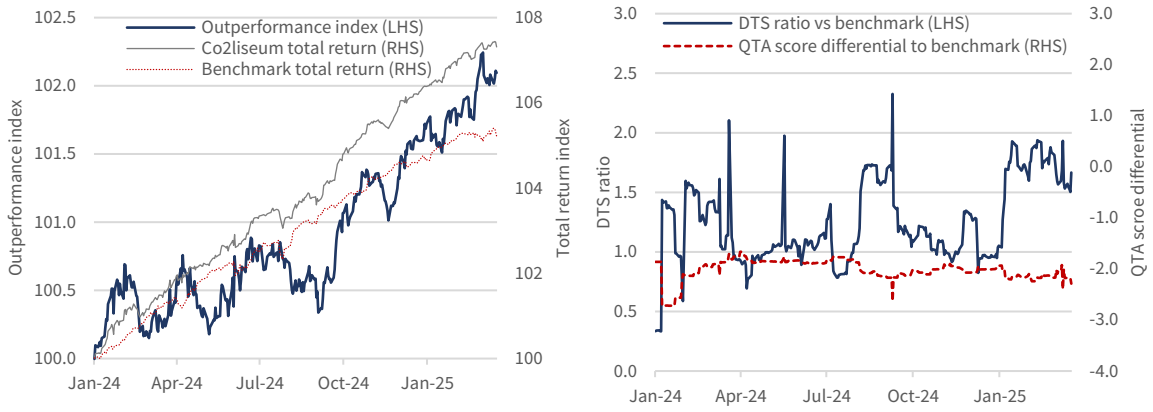
The active strategy is based on AFII's Co_2liseum model portfolio. It is an active model portfolio based on our own research and methodologies. The portfolio consists of publicly available credit instruments such as bonds and CDS. It is limited to investment-grade credits issued in EUR or USD. The positions are allocated into strategy buckets, which range from long-only to active shorts, curves, and relative value trades.[10] Interest rate and FX risks are hedged. The portfolio's purpose is to outperform its benchmark on an excess spread return basis. The benchmark is an equally weighted composite of on-the-run iTraxx Europe and CDX-IG 5yr credit default swap indices.

For analytical purposes, the CMP valuation relies on a smaller sample size with broader geographical coverage. Its primary advantage lies in its auditability, as portfolio changes are documented in real time and occur in response to predetermined criteria.. This allows for detecting and controlling for style-drift, a bias where the manager strays away from the original investment strategy.

The performance numbers of CMP are reflected in time-series format in Figure 4. Since inception in Jan 2024, CMP has outperformed by approximately 210bps versus its benchmark (163bps in the calendar year 2024). An important point of analysis is how much of this excess return is based on additional risk-taking versus the benchmark. In order to assess this, we plot duration-times-spread (DTS) ratios of CMP versus the benchmark in the right-hand panel of Figure 4. The DTS ratio has consistently been between 1 and 2 meaning that the CMP portfolio has been at least as risky as the benchmark, but rarely more than twice as risky.

The CMP portfolio undergoes a regular transition assessment, where each position is scored based on the issuer's sector, region, and the type of instrument being held in the portfolio. The Quantitative Transition Assessment (QTA) score is a progression of the ECOBAR scoring approach used for the PCE index. Notably, there are special scoring approaches for transition-linked debt (SLBs) as well as for emerging and developing market (EMDE) paper. In the right-hand side of Figure 4, we plot the differential between of the QTA score between CMP and its benchmark. The CMP index has had a QTA of roughly 2 scoring points lower relative to its benchmark, indicating improved transition alignment and a lower carbon footprint.

Figure 4. (Let) CMP total return and relative return indices. (Right) CMP spread beta through DTS ratios, and transition score via the QTA measured as differential to the benchmark (a number below zero means a 'better' transition score for the CMP index). Source: AFII, S&P Global.



[10] A full description of the strategy and the metrics used are available on the Co_2liseum platform. Each Co_2liseum portfolio is hypothetical, and each portfolio and the QTA methodology are for informational and educational purposes only, and is are not an investment recommendation. See our Co_2liseum website here, including our Disclaimer Notice here.

Conclusion

It is remarkably difficult to conduct robust tests of investment strategies given the multitude of approaches (passive vs active) as well as the slow pace at which one can obtain truly out-of-sample validation data.

This note has compiled both active and passive relative performance series, categorised by the carbon intensity and climate alignment of the underlying strategies. Both data sets meet the criteria for genuine out-of-sample testing.

Observing these historical data sets, we conclude that the relatively less carbon intensive strategies can consistently outperform their more carbon intensive peers for large-cap corporate bond issuers. As a general conclusion, this would suggest that investors stand to systematically benefit from investing in bond issuers with relatively lower carbon profiles.

However, our analysis reflects only a subset of performance and transition metrics. Please contact the Institute for complementary measures and suggestions. For the CMP / Co_2liseum strategy in particular, more transition metrics — such as forward-looking TPI data — are available.

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