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# **Understanding Paris-Aligned Indexes: A Guide for Fixed Income Investors**

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## Understanding Paris-Aligned Indexes

EU Paris-Aligned Benchmarks (PABs) and Climate Transition Benchmarks (CTBs) are investment benchmarks that incorporate specific objectives aimed at the reduction of Greenhouse Gases (GHG) emissions and the transition to a lower-carbon economy. They were first introduced in 2019 as tools to accompany the transition to a low-carbon economy by the Technical Expert Group of the European Commission. The recommendations in the TEG Report for PABs and CTBs was then incorporated into the EU Low Carbon Benchmark Regulation in December 2020

Both PABs and CTBs seek to facilitate investor integration of the objectives set out in the 2015 Paris Agreement into practical capital allocation plans and investment strategies that are environmentally sustainable and inclusive. Importantly, they strive to promote decarbonisation in the real world and facilitate the low-carbon transition to keep the temperature rise well below the 2°C above the pre-industrial levels, and pursue efforts to limit the temperature rise to below 1.5°C.

State Street Global Advisors recognizes the pivotal role investors have in this given the tremendous influence they have in driving change through capital allocation. The establishment of these benchmarks within the EU regulation is also an acknowledgement of the importance of redirecting index-invested assets in addressing the climate challenge. With strict minimum requirements they deliver a comprehensive and structured index approach to addressing climate change.

However, it is also important that investors are mindful of the holistic sustainability approach of their portfolios and benchmarks, making it critical to understand the nuances of their structure as well as have the data and proxies to perform their own analysis and monitoring of their investments.

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## Key Differences between PAB vs. CTB

PABs are more stringent than their CTB counterpart in both their opening decarbonisation requirements and the baseline exclusions of oil & gas exploration, coal and fossil fuel energy production.

Investors that are serious about incorporating carbon reduction in their portfolios/strategies need to accept a potentially higher tracking error volatility to their standard or strategic benchmark. This, likely higher, tracking error is a measure of the impact of the approach in decarbonising the strategy.

CTBs are typically more aligned to their parent index in terms of eligible constituents and may be better suited for investors who do not wish to extend as far as committing to a PAB now, but who are willing to commit to a more measured climate thematic index-replacement strategy.

Figure 1  
Who Uses Them?

<b>Climate Transition Benchmarks (EU CTB)</b> The benchmark portfolio is on a decarbonisation trajectory.	The main users of EU CTBs are intended to be institutional investors such as pension funds and (re)insurance companies with the objective of protecting a significant share of their assets against various investment risks related to climate change and the transition to a low-carbon economy, labelled as transition risks by the Task Force on Climate-Related Financial Disclosures.
<b>Paris-Aligned Benchmarks (EU PAB)</b> The benchmark portfolio's greenhouse gas emissions are aligned with the long-term global warming target of the Paris Climate Agreement.	The main users of EU PABs are intended to be institutional investors who wish to display more urgency than CTB investors and want to be at the forefront of the immediate transition towards a +1.5°C scenario.

## Fixed Income PABs and CTBs Indices

While continually evolving, there are currently three dominant climate thematic bond index providers, namely MSCI, Solactive and Bloomberg. Other index providers such as FTSE, ICE and Markit iBoxx are also in the process of developing similar climate thematic indices but have not yet published these at the time this research was conducted. MSCI offer a Climate Change index which is CTB aligned and therefore we have also included it in our analysis, though our primary focus is on the PABs.

In general, MSCI, Solactive and Bloomberg (who use MSCI's ESG data) have similar approaches in their PAB offerings. All employ a similar set of ESG exclusions criteria and use an optimization approach in their construction methodology. An optimized approach involves applying certain risk parameters versus the parent index which must be met as part of the index construction. In fixed income optimizer constraints are typically target active limits for constituent weights, issuer weights, sector weights, country weights, turnover, duration, and average credit rating. For example the optimizer may apply an issuer cap whereby no issuer can exceed a 3% weight in the index so as to reduce the risk of issuer concentration.

An issuer exclusion method such as that which is offered by Bloomberg MSCI is by comparison more simplistic in that eligible securities are market weighted and does not control for systematic risks relative to the parent index. The table below presents a summary of their key features. Please note that this is a summary for ease of comparison and is based on their investment grade PAB indices and the MSCI CTB.

Figure 2  
Summary of Key Features

	PAB/CTB Requirements	MSCI Climate Paris Aligned Corporate Bond Index	Solactive PAB Index	Bloomberg MSCI PAB	MSCI Climate Change Index
<b>Index Type</b>	—	EU PAB	EU PAB	EU PAB	EU CTB Aligned
<b>Methodology</b>	—	Optimized	Optimized	Optimization or issuer exclusion methods available	Rules-based
<b>Rebalance Frequency</b>	—	Monthly	Semi-annual (January and July)	Monthly	Monthly
<b>Data Provider(s)</b>	—	MSCI	ISS ESG	MSCI	MSCI
<b>Carbon Reduction Target</b>	50% PAB/30% CTB	50%	50%	50%	30%
<b>Carbon Measure</b>	Scope 1+2 (+3)	Scope 1+2+3	Scope 1+2+3	Scope 1+2+3	Scope 1+2+3
<b>Baseline Exclusions</b>	<ul style="list-style-type: none"> <li>Controversial Weapons</li> <li>Societal Norms</li> </ul>	<ul style="list-style-type: none"> <li>Controversial Weapons</li> <li>ESG Controversies</li> <li>Tobacco Involvement</li> <li>Environmental Controversies</li> </ul>	<ul style="list-style-type: none"> <li>Controversial Weapons</li> <li>ESG Controversies</li> <li>Environmental Controversies</li> <li>SDGs 12, 13, 14 &amp; 15 Violations</li> </ul>	<ul style="list-style-type: none"> <li>Controversial Weapons</li> <li>Tobacco</li> <li>UNGC Violations</li> <li>Environmental Controversies</li> </ul>	<ul style="list-style-type: none"> <li>Controversial Weapons</li> </ul>
<b>Activity Exclusions</b>	For PAB <ul style="list-style-type: none"> <li>1% Coal</li> <li>10% Oil</li> <li>10% Natural Gas</li> <li>50% Coal, Oil &amp; Gas based power</li> </ul> CTB No requirements	<ul style="list-style-type: none"> <li>1% Coal</li> <li>10% Oil</li> <li>10% Natural Gas</li> <li>50% Coal, Oil &amp; Gas based power</li> </ul>	<ul style="list-style-type: none"> <li>1% Coal</li> <li>10% Oil</li> <li>10% Natural Gas</li> <li>50% Coal, Oil &amp; Gas based power</li> </ul>	<ul style="list-style-type: none"> <li>≥ 1% Coal</li> <li>≥ 10% Oil &amp; Gas Revenue</li> <li>≥ 50% Coal, Oil &amp; Gas based power</li> </ul>	None
<b>Green/Brown Revenue (Voluntary Requirement)</b>	PAB 4x vs parent  CTB 2x vs parent	4x minimum ratio of Green Revenue vs Fossil Fuel-revenue	No	No	> 3x category tilt score for highly rated LCT companies vs parent index
<b>Ongoing Annual Decarbonisation Objective</b>	PAB & CTB require 7% annual decarbonisation adjusted for EV inflation	7% (not adjusted for EV inflation)	7% (adjusted for EV inflation)	7% (adjusted for EV inflation) by monthly decarbonisation to achieve 7% annually.	7% (adjusted for EV inflation)

Source: SSGA. As of April 2022.

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## Comparing the MSCI, Solactive and Bloomberg's PAB Indexes in More Detail

MSCI, Solactive and Bloomberg have broadly similar approaches in their PAB offerings — they employ a set of similar ESG exclusions criteria and use optimizations to construct their PAB indexes. However, there are several key differences which we summarize below.

- Solactive and Bloomberg do not apply any additional parameters while MSCI utilizes additional parameters such as:
  - **Climate Value-at-Risk (VaR)** The MSCI Climate VaR framework aims to aid investors in quantifying climate risks based on specific adverse scenarios. Based on TCFD<sup>1</sup> recommendations the Climate VaR provides insights into climate-stressed valuation of assets based on the downside risk associated with the 1.5°C goal of the Paris Agreement, technological opportunities exposure and exposure to extreme weather risk. A positive number represents a better valuation in stress situations and vice-versa.
  - **Low-Carbon Transition** Another proprietary climate metric designed by MSCI to identify potential leaders and laggards based on climate transition risks. The MSCI PAB targets a score increase of 10% against the parent index. The methodology uses a combination of scores that assess both the individual company and its industry's ability to transition to a lower carbon economy.
  - **Extreme Weather Climate VaR** This is a sub-set of the Aggregate Climate VaR. Similar to the Aggregate Climate VaR, it studies a company's downside exposure to extreme weather scenarios and targets to reduce these risks by 50%.
- MSCI use their own proprietary data, whereas Solactive uses ISS, and Bloomberg uses MSCI as their ESG/Climate data provider.
- From a broad sector exposure perspective Solactive, Bloomberg and MSCI overweight less carbon-intensive sectors such as Information Technology, Healthcare and Financials, whereas they underweight the carbon-heavy sectors such as Utilities and Energy. However, MSCI's PAB approach does incorporate a specific green/brown revenue ratio. There is no clear evidence of this in the Solactive or Bloomberg indices which does raise some questions around whether the opportunities pillar of the sustainable climate approach is being as effectively targeted.
- Meeting the Paris Agreement goals requires not just screening of select sectors and overweighting greener companies, but also addressing the climate financing gap. None of the indices we have identified specifically target the inclusion of green and sustainability-labelled bonds such as those that are screened and checked for climate alignment by Climate Bonds Initiative. As such we view the absence of green and sustainability labelled bond targets in PAB/CTB constructions a major shortcoming.

There has been a surge of net zero aspirational pledges and initiatives by companies and governments recently. Once set, climate targets, usually require external financing. The ICMA Green Bonds Principles (GBP) among other things require issuers to have a clear “use of proceeds” (UoP) pledge by the borrower to allocate the funds borrowed into projects to meet specific environmental objectives, as well as regular reporting. Having an established Green Financing Framework in place is also a best practice requirement and this lays out the issuer's future pathway and commitments. Consequently, green bonds facilitate the ability for investors to identify and provide funding to companies based on their future intentions, rather than on their historical record on sustainability. Owing to current data limitation too often the metrics used in PAB/CTB index and portfolio construction are predominantly back-ward looking and relatively static indicators. Therefore green bonds play a vital and immediate role in funding the transition of issuers to a low carbon future. For example, financing energy companies (possibly the worst polluters) that have made clear commitments to transition out of fossil fuels can be potentially very impactful. Not only do green bonds have core principles that create important incentives, which can contribute to changing behaviours and business practices over time, they also provide the necessary funding for companies to do so.

## 1 Key Characteristics

Below we compare the overall key characteristics for these PAB indices and the MSCI CTB aligned index against their corresponding benchmarks.

These indices constitute a sub-set of the market-cap benchmark investment universe. The number of issuers in the PAB indices drops materially relative to their market-cap benchmarks with the MSCI index dropping approximately 42% of its parent's constituents. Bloomberg and Solactive drop around 18% and 24% respectively as a by-product of achieving the key climate objectives for PAB indices. By comparison, the less climate aggressive MSCI CTB drops just 5.5% relative to its market-cap index.

Figure 3

### Key Characteristics of PAB and MSCI CTB-Aligned Indexes vs. Benchmarks

April 2022	MSCI IG EUR Paris Aligned Corporate Bond Index	MSCI IG EUR Climate Change Corporate Bond Index	MSCI IG Euro Corporate Bond Index	Bloomberg MSCI Euro Aggregate Corp PAB Index	Bloomberg Aggregate Corporate Index	Solactive Euro Corporate IG Paris Aligned Index	Solactive Euro IG Corporate Index
Type of Index	PAB	CTB Aligned	Parent	PAB	Parent	PAB	Parent
# of Bonds	1,836	3,120	3,310	2,803	3,423	2,587	3,423
# of Issuers	457	674	747	629	797	545	797
Market Value (EUR bn)	1,368.94	2,425.51	2,552.61	2,017.00	2,455.40	N/A	N/A
OAS (bps)	131	134	135	146	150	139	150
Duration (yrs)	5.25	5.02	5.06	4.93	4.95	4.87	4.95
Yield to Worst	1.92	1.93	1.94	2.05	2.10	1.97	2.10

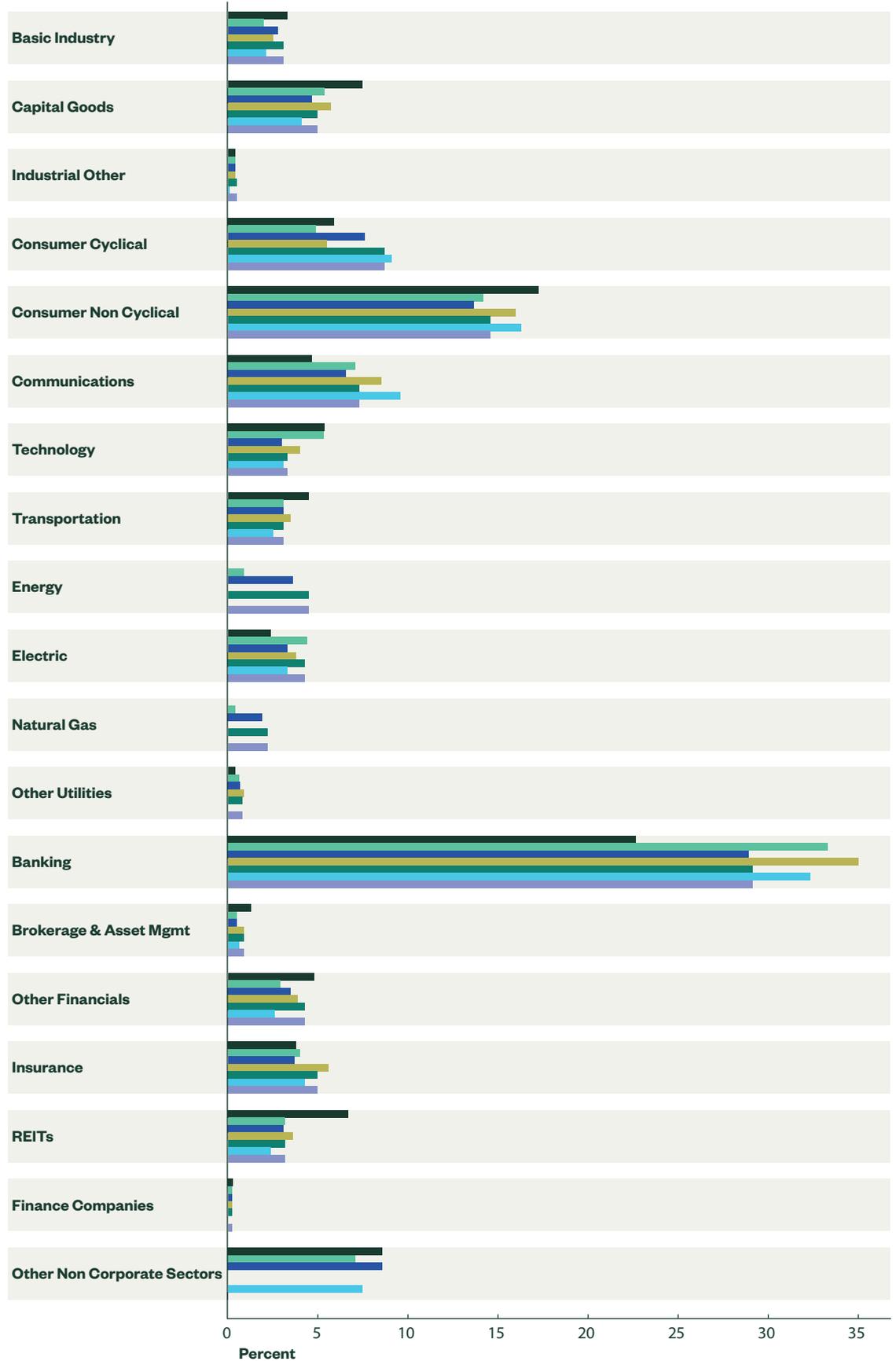
Source: SSGA. As of April 2022.

Figure 4 below compares the sector-level breakdowns of the climate indices and their market-weight counterparts. All three providers drop high-carbon sectors like energy and natural gas completely from their respective PABs.

The MSCI CTB retains a small but significantly reduced exposure to these sectors compared to the standard indices. The PABs overweight less-carbon intensive sectors like technology, finance and banking significantly. The Solactive PAB and MSCI have exposure to government-related securities in their corporate bond index owing to slight differences in their definition of what qualifies as a corporate entity based on the percentage of government ownership of a publicly listed company.

Figure 4  
**Climate Index Sector  
 Breakdowns vs.  
 Respective Benchmark**

- MSCI IG EUR Paris Aligned Corporate Bond Index
- MSCI IG EUR Climate Change Corporate Bond Index
- MSCI IG Euro Corporate Bond Index
- Bloomberg MSCI Euro Aggregate Corp PAB Index
- Bloomberg Aggregate Corporate Index
- Solactive Euro Corporate IG Paris Aligned Index
- Solactive Euro IG Corporate Index



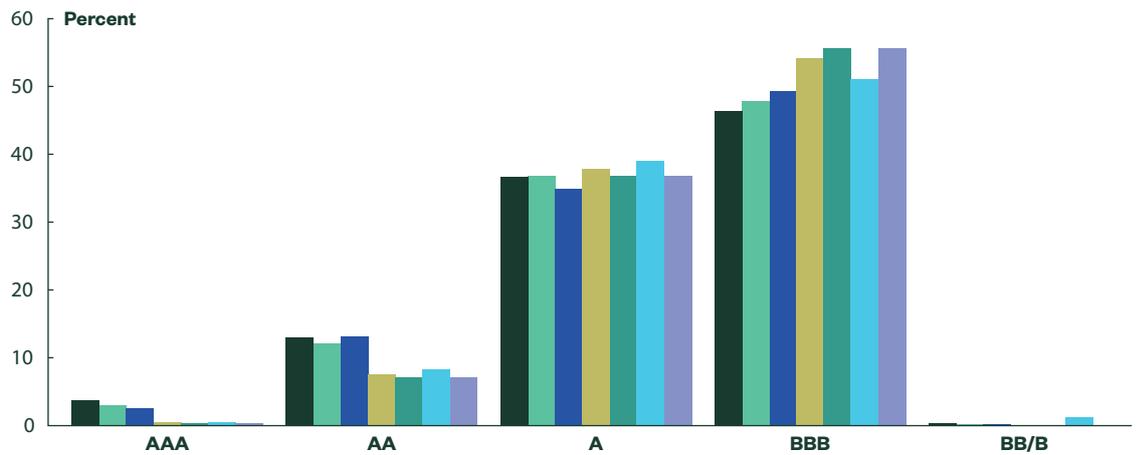
Source: SSGA. As of April 2022.  
 Other sectors include Non-Corporate Sectors: Treasuries, Government-Related and Securitized.

Figure 5 below provides an overview of the credit quality distribution for these investment-grade indices. All 3 PABs and the CTB show a slight overweight to higher-rated companies and underweight the lower-rated companies when compared to their respective parent index.

Figure 5

**Credit Rating Breakdown**

- MSCI IG EUR Paris Aligned Corporate Bond Index
- MSCI IG EUR Climate Change Corporate Bond Index
- MSCI IG Euro Corporate Bond Index
- Bloomberg MSCI Euro Aggregate Corp PAB Index
- Bloomberg Aggregate Corporate Index
- Solactive Euro Corporate IG Paris Aligned Index
- Solactive Euro IG Corporate Index



Source: SSGA. As of April 2022.

It should also be noted that when comparing EU CTB and EU PAB benchmarks, there are subtle differences to sector diversification objectives between equity and fixed income<sup>2</sup> around the requirement for minimum exposure to sectors that are highly exposed to climate change. To maintain influence via voting and engagement, equity investors are prevented from the complete exclusion of high impact sectors, whereas in fixed income, no such minimum limit exists.

**2 Climate and ESG Risk Profile**

Figure 6 below shows the Climate Profile for MSCI, Bloomberg and Solactive PAB indices and the MSCI Climate Change Index compared to their corresponding standard benchmarks. It is important to note that the carbon footprint metric used for this measurement is S&P Trucost’s Direct + First Tier Indirect emissions, which is also our preferred measure. MSCI and Solactive use different data providers in their index construction, so, there may be discrepancies in the carbon footprint measurements. Also, these are based on a single snapshot in time and therefore historical changes and trend analysis are not possible.

Based on the data available carbon intensity is reduced by 31.4%, 18.4% and 21.9% by these benchmarks respectively. MSCI’s Climate Change Index when compared to its CTB version reduces carbon intensity by 31.9%.

Using S&P Trucost’s Fossil Fuel Reserves data, we identified that all the PABs achieve similar levels of very near to complete exclusion of such reserves. Again, using S&P Trucost’s Brown Revenue metrics we found the results were broadly similar for both MSCI and Solactive, however Bloomberg achieves a 66.7% reduction verses its parent index, which is more comparable to the level achieved in MSCI’s CTB.

Next we compared the level of green bonds in the indices using the Climate Bonds Initiative standard. As a starting point of reference, in the standard Bloomberg Euro Aggregate Corporate Index, green bonds make up a relatively large part of the universe at 6.80%. When we compare this to the PABs, the results are somewhat disappointing, and stems from the principle issue that the green, sustainable, sustainability-linked bonds, etc are not factored into PAB/CTB construction guidelines for fixed income indices. Even in the MSCI PAB the allocation to green bonds was only modestly higher (+1.30%) at 7.30% while in the Bloomberg MSCI PAB their weight is even reduced by -0.50% verses the parent index.

Figure 6

## Climate Risk Profile

Climate Profile	MSCI IG EUR Paris Aligned Corporate Bond Index	Improvement vs Parent Index (%)	Bloomberg MSCI Euro Aggregate Corp PAB Index	Improvement vs Parent Index (%)	Solactive Euro Corporate IG Paris Aligned Index	Improvement vs Parent Index (%)	MSCI IG EUR Climate Change Corporate Bond Index	Improvement vs Parent Index (%)
Type of Index	PAB		PAB		PAB		CTB Aligned	
Weighted Average Carbon Intensity (Tons CO <sub>2</sub> e/\$M Revenue)	134.79	-32.37	169.38	-18.40	162.11	-21.90	135.70	-31.91
Fossil Fuel Reserves (Tons of embedded CO <sub>2</sub> e)	0	-100	0.389	-99.77	0.00	-100	30.61	-76.30
Brown Revenue (%)	0.00	-100	0.40	-66.67	0.10	-91.67	0.40	-63.64
Green Bonds (%)	7.30	21.67	6.30	-7.35	7.00	2.94	5.80	-3.33
R-Factor™ Score	73.46	-1.64	74.70	0.18	75.15	0.77	74.69	0.14

Source: SSGA. As of April 2022.

We also assessed the average-weighted R-Factor™ (aka Responsibility Factor) rating of issuers included in the index. R-Factor systematically integrates data from four global data providers and leverages the transparent materiality frameworks from the Sustainability Accounting Standards Board (SASB) and corporate governance codes to generate a unique ESG score for listed companies. The metric assesses the long-term sustainability drivers of value across environmental, human capital, social capital, business model, leadership and corporate governance dimensions. In general the R-Factor scores of the climate indices were very close to that of their parent index with the slight exception to the MSCI PAB which had a score almost 2% weaker than that of the parent index. Next we analysed the indices against some common ESG controversy and product involvement screens, recognising that investors often incorporate such screens as minimum requirements, regardless of whether they are targeting a climate-thematic strategy or not.

It is important to note that in this analysis we have used our own proprietary and comprehensive point-of-view (POV) methodology (see [here](#)) and therefore the underlying sources used may be different from those used by each index provider. For example, some screens used in this section employ data from Sustainalytics, where a revenue threshold is used, typically set to 10%, however this may differ from the thresholds applied by the index provider.

Figure 7

## Analysis of ESG Controversy and Product Involvement

Controversial Business Involvement	MSCI IG EUR Paris Aligned Corporate Bond Index	MSCI IG EUR Climate Change Corporate Bond Index	MSCI IG Euro Corporate Bond Index	Bloomberg MSCI Euro Aggregate Corp PAB Index	Bloomberg Aggregate Corporate Index	Solactive Euro Corporate IG Paris Aligned Index	Solactive Euro IG Corporate Index
Controversial Weapons	0.50%	0.70%	0.60%	0.80%	0.60%	0.00%	0.60%
Swedish Ethical Council Exclusions	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
Tobacco	0.00%	1.00%	0.90%	0.00%	0.90%	0.00%	0.90%
UNGC Violations	0.00%	0.80%	0.70%	0.80%	0.70%	0.80%	0.70%
Civilian Firearms	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Thermal Coal	0.00%	0.20%	0.40%	0.10%	0.20%	0.00%	0.20%
Oil Sands	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Arctic Oil & Gas	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Extreme ESG Controversies	0.00%	1.30%	1.20%	0.80%	1.20%	1.30%	1.20%
Oil & Gas	0.00%	3.28%	2.79%	3.03%	3.04%	0.00%	5.77%
Shale Energy	0.00%	0.04%	0.02%	0.02%	0.02%	0.00%	0.00%

Source: SSGA. As of April 2022.

The findings were quite mixed with certain controversies making it through the screening process. The MSCI approach was flagged for one screen factor (0.50% in Controversial Weapons), while Solactive was flagged for two (Extreme ESG Controversies at 1.30% and Violators of UN Global Compact Principles at 0.80%). However, the Bloomberg approach breached four screens including a 0.10% exposure to Thermal Coal. MSCI's CTB breached five of the eight screens, with the most significant being 1.30% exposure to Extreme ESG Controversies and the only index retaining some exposure to tobacco companies (1.00%).

### 3 Returns

As shown in Figure 8, both MSCI (a) and Solactive PAB (b) appear to have a similar one year ex-post tracking error level of around 20 bps with MSCI slightly better than Solactive. Bloomberg PAB has only recently completed one year and currently meaningful data is not available to comment. The MSCI CTB has a much lower tracking error as it is designed to be a close index replacement product. All three indices have produced returns very similar to their parent indices with Solactive PAB deviating the most and the Bloomberg PAB the least.

Figure 8

#### Returns Analysis

As of 29 April 2022	Cumulative Returns				Annualized Returns			Tracking Error Volatility	
	1m (%)	3m(%)	6m(%)	YTD(%)	1 Yr (%)	3 Yr (%)	5 Yr (%)	1 Yr TE (%)	3Yr TE (%)
<b>MSCI IG EUR Paris Aligned Corporate Bond Index (a)</b>	-2.74%	-4.14%	-8.00%	-6.52%	-7.86%	-	-	<b>0.14%</b>	-
<b>MSCI IG EUR Climate Change Corporate Bond Index (b)</b>	-2.76%	-4.01%	-7.70%	-7.33%	-7.62%	-1.34%	<b>-0.05%</b>	<b>0.06%</b>	0.09%
<b>MSCI IG Euro Corporate Bond Index (c)</b>	-2.75%	-4.07%	-7.80%	-7.42%	-7.72%	-1.39%	<b>-0.09%</b>		
<b>Difference: MSCI PAB (a) vs Parent Index (c)</b>	<b>0.01%</b>	<b>-0.07%</b>	<b>-0.20%</b>	<b>0.90%</b>	<b>-0.14%</b>	-	-		
<b>Difference: MSCI CTB (b) vs Parent Index (c)</b>	<b>-0.01%</b>	<b>0.06%</b>	<b>0.10%</b>	<b>0.09%</b>	<b>0.10%</b>	<b>0.05%</b>	<b>0.04%</b>		
<b>Solactive Euro Corporate IG Paris Aligned Index (d)</b>	-2.70%	-3.81%	-7.37%	-7.12%	-7.45%	-1.30%	<b>-0.01%</b>	<b>0.19%</b>	0.23%
<b>Solactive Euro IG Corporate Index (e)</b>	-2.80%	-4.12%	-8.06%	-7.79%	-8.11%	-1.46%	<b>-0.06%</b>		
<b>Difference: Solactive PAB (d) vs Parent Index (e)</b>	<b>0.10%</b>	<b>0.31%</b>	<b>0.69%</b>	<b>0.67%</b>	<b>0.66%</b>	<b>0.16%</b>	<b>0.05%</b>		
<b>Bloomberg MSCI Euro Aggregate Corp PAB Index (f)</b>	-2.75%	-3.85%	-7.55%	-7.44%	-7.61%	-	-	-	-
<b>Bloomberg Aggregate Corporate Index (g)</b>	-2.74%	-3.91%	-7.66%	-7.38%	-7.70%	-1.28%	<b>0.05%</b>		
<b>Difference: Bloomberg MSCI PAB (f) vs Parent Index (g)</b>	<b>-0.01%</b>	<b>0.06%</b>	<b>0.11%</b>	<b>-0.06%</b>	<b>0.09%</b>	-	-		

Source: SSGA. As of April 2022.

It is particularly important to note that in the context of Climate Indices, the tracking error volatility (TEV) against the standard market-cap benchmarks loses its importance. Deviations from the standard benchmark are inevitable when ESG considerations are included in index methodologies. The greater the number of ESG considerations and the more ambitious the ESG/ climate target thresholds (e.g. percentage of weighted average carbon reduction vs the parent index), the smaller the remaining subset of the original market-cap investment universe and therefore the greater the potential for deviation vs the market-cap weighted parent index. Please see [ESG, Tracking Error and Long-Term Performance](#) for more on this topic.

## Additional Points for Consideration

When considering PABs, some clients ask what the pros and cons are of using a climate index versus a traditional index (e.g. the Bloomberg Euro Corporate Index) with portfolio-level climate guidelines, restrictions and targets?

The below table outlines a brief summary of some of the relative pros and cons that have arisen during these discussions. Please note these are for illustrative purposes, based on our extensive research and the discussions that we have had with index providers and investors.

Figure 10

	Climate Index (e.g. EUR CTBs and PABs)	Portfolio Benchmarked to a Traditional Index But Incorporate at the Portfolio Level Climate Guidelines, Restrictions and Targets
<b>Pros</b>	<ol style="list-style-type: none"> <li><b>1. Systematic Rules to Define Eligible Investment Universe</b> No difference on ESG grounds between what securities are eligible and their respective weights for inclusion in the portfolio vs the benchmark.</li> <li><b>2. Low TEV (Tracking Error Volatility) for Climate Index vs Parent Index</b> Certainly those which combine an optimisation approach should by definition lead to lower TEV (note: a possible exception to this is during times of a fundamental ESG data rebalance at which times TEV could be materially higher).</li> <li><b>3. Low TEV for a Portfolio benchmarked to a Climate Index</b> This is owing to no material difference of what is eligible in the portfolio vs the index.</li> </ol>	<ol style="list-style-type: none"> <li><b>1. Flexibility to Adapt</b> Likely to offer greater flexibility to adjust restrictions, targets and inputs as and when required by the investor.</li> <li><b>2. Green Bonds</b> Greater flexibility to incorporate specific rules e.g. making green bonds exempt from certain exclusionary screens typically applied in EU CTB and EU PAB designs based on equity models.</li> <li><b>3. Multiple ESG Sources</b> Greater freedom to incorporate multiple metrics from multiple ESG data sources into the ESG restrictions/targets and portfolio construction.</li> <li><b>4. Good Transparency</b> Greater transparency at the security level of ESG inclusion/exclusion factors.</li> <li><b>5. Lower Portfolio Turnover</b> Likelihood of lower turnover given greater visibility of forward looking investment universe eligibility.</li> </ol>
<b>Cons</b>	<ol style="list-style-type: none"> <li><b>1. Less Flexibility/Set &amp; Forget</b> Indices have less flexibility to rapidly change systematic restrictions and targets once set.</li> <li><b>2. ESG Sources</b> Climate benchmarks are typically limited to one/few ESG data sources to define the eligible investment universe.</li> <li><b>3. Cost</b> ESG indices may demand a higher index license fee.</li> <li><b>4. Low Transparency</b> Where the index is constructed using optimization it may be less transparent on what inclusions/exclusion and under/over-weighting where driven by ESG thresholds vs optimizer factors.</li> <li><b>5. High Portfolio Turnover</b> Possibility of higher turnover vs the index owing to poor visibility of forward looking investment universe visibility, especially during times of fundamental ESG data rebalance.</li> <li><b>6. Equity Centric</b> Current frameworks may be a simple application of a framework applied for equity indices with only minor adjustments made applicable to fixed income e.g. adjustments to the optimizer to account for duration, credit quality and sector risks. Currently no EU CTB or EU PAB applies special treatment for ESG-labelled bonds with environmental, climate or other similar sustainability related investment objectives (e.g. green bonds).</li> <li><b>7. Slow ESG Rebalance Frequency</b> Some climate benchmarks may only update the ESG screen once every 12 months.</li> </ol>	<ol style="list-style-type: none"> <li><b>1. Higher TEV of the Portfolio vs the Parent Index</b> This is owing to material differences of what is eligible in the portfolio vs the index.</li> <li><b>2. Active vs Indexing Management Concerns</b> It is possible that the portfolio is managed by an indexing portfolio management team, however owing to the determination of the degree of the tilt vs the benchmark it may be perceived by some stakeholders as an active management choice.</li> </ol>

Source: SSGA. As of April 2022.

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## Conclusion

Paris-Aligned Benchmarks have been developed by multiple index providers and this benchmark development is a critical step in market adoption as it builds common ground for comparison, market standardization and climate alignment. The benchmarks provide a robust and consistent framework for institutional investors to implement their views on climate risk mitigation and climate-related opportunities across asset classes within their portfolios. The benchmarks and the disclosures around them are predicated on the Paris Agreement framework to limit the global increase in temperatures to the 1.5°C scenario. As such, we hope they will help to further mobilise investor capital towards limiting climate change.

The indices all adhere to the minimum standards required by the regulation and, in some instances, go beyond the minimum and deliver improvements in the criteria or incorporate additional voluntary elements.

One key drawback of these benchmarks is their lack of recognition of the important role which green bonds play in changing issuer behaviors while vitally also funding their transition to a lower carbon pathway. In our research we prove that investors can target meaningful and increased exposure to green bonds versus the benchmark as part of their allocation while still delivering a risk and return profile that is consistent with a standard corporate bond index.

Forward-looking business and climate metrics are still in their infancy, though MSCI's PAB and CTB aligned indices do utilize their proprietary Low Carbon Transition Score.<sup>3</sup> The MSCI PAB also incorporates MSCI's Climate and Extreme Weather Value-at-Risk<sup>4</sup> measures, which with the information available makes them stand out from their peers, though further analysis should be performed to better assess this capability.

An important takeaway from our analysis above is that the resultant indexes differ quite materially in terms of not only their construction methodologies but also very importantly in terms of the data sources and data inputs used. As such, it is important that investors look deeply at these so they can understand the impact they have on the resulting benchmark exposures, its characteristics and also performance.

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## Endnotes

- 1 TCFD — Task Force on Climate-related Disclosures is a guiding framework that helps companies disclose climate-related financial risks to its investors. For more on State Street Global Advisors' support of these recommendations please refer to our [Statement of Support for the Task Force on Climate-Related Financial Disclosure](#) ([ssga.com](https://ssga.com)).
- 2 Page 12 of the [Handbook of climate transition benchmarks, Paris-aligned benchmark and benchmarks' ESG disclosures](#) ([europa.eu](https://europa.eu)).
- 3 MSCI has designed a proprietary low carbon scoring method called the MSCI Low Carbon Transition Risk Assessment which identifies potential leaders and laggards by holistically weighing risks and opportunities of the low carbon transition. For more on the Low Carbon Transition Score please refer to Appendix I in [MSCI Fixed Income Climate Paris Aligned Indexes Methodology](#) for PABs and Appendix II in [MSCI Fixed Income Climate Change Indexes Methodology](#) for CTBs.
- 4 The MSCI Value-at-Risk (VaR) measurement aims to help investors assess future costs related to climate change. Climate VaR aggregates costs related to specific climate risks over the next 15 years and calculates what these costs might signify about financial performance in the near future. For more please refer to Appendix II in [MSCI Fixed Income Climate Paris Aligned Indexes Methodology](#).

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- Invest as stewards
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\* Pensions & Investments Research Center, as of December 31, 2020.

<sup>†</sup> This figure is presented as of March 31, 2022 and includes approximately \$73.35 billion USD of assets with respect to SPDR products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Global Advisors are affiliated.

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