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Climate Investment Insights

Roads to Paris alignment - Climate Transition Pathways and Indices

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How does one align a portfolio with the economic and regulatory forces driving decarbonisation and climate goal alignment whilst maintaining fiduciary duties? We discuss investment implications of climate pathways in portfolio alignment. By looking across granular, science-based climate transition pathways, investors can be more efficient at mitigating transition risks whilst meeting climate objectives.

A Landmark Pledge with a Global Response

Through the 2015 Paris Agreement, 196 countries have committed to limiting global warming to well below 2°C – and preferably to 1.5°C – compared to pre-industrial levels.[1] In practice, this means that global greenhouse gas emissions (GHG) ideally reach net zero by 2050. By directing capital flows sensibly, investors can play an important role in achieving international net-zero targets. The task is not without challenges. Investors looking to provide transition finance to companies and governments to meet their net-zero commitments, will want to ensure that these investments earn sufficient compensation in the future.

This is where benchmarks come in. They provide investors with a broad investment opportunity set that is consistent with a pre-specified set of objectives, such as aligning to net-zero and/or mitigating climate risks. The benchmark returns can furthermore be easily replicated through exchange traded funds (ETF). Within the EU, the concept of climate target-aligned benchmarks has been regulated in a delegated act to the EU Benchmark Regulation, which prescribes minimum criteria for the EU Climate Transition Benchmark (EU CTB) or Paris-aligned Benchmark (EU PAB).[2] The Net-Zero Asset Owner Alliance set out several key best practices for constructing net-zero aligned benchmarks for asset owners globally.[3]

Meaningful Climate Benchmarks

There are several ways to align with a climate goal within an index. One approach is to set a single, global emissions pathway for the entire index (for example, reducing index GHG intensity by 7% annually). These target reductions can then be achieved within the index methodology through techniques such as optimization, tilting, or exclusions. We call these One-Size-Fits-All (OSFA) indices.

However, more often than not, the speed and shape of decarbonisation differs by region and activity. We argue that investors can make better use of tracking error, and transition risk can be mitigated more efficiently, if consideration is given to the representative decarbonization trajectories of the sectors and countries that the index represents.[4] We call indices based on this approach Granular Representative Energy Transition Aligned (GRETA) indices.

To establish representative pathways for GHG emissions of different countries and sectors, we turn to the emissions pathways collected in the Sixth Assessment Report (AR6) by the Intergovernmental Panel on Climate Change (IPCC).[5] The term net-zero is often used to refer to pathways that are consistent with 1.5°C climate targets. Since reducing emissions faster early on will result in greater chances of achieving climate targets, we consider the set of 97 most stringent emission pathways to demonstrate our approach.[6] This approach can however be adapted to align with other emission pathways, depending on investment objectives.

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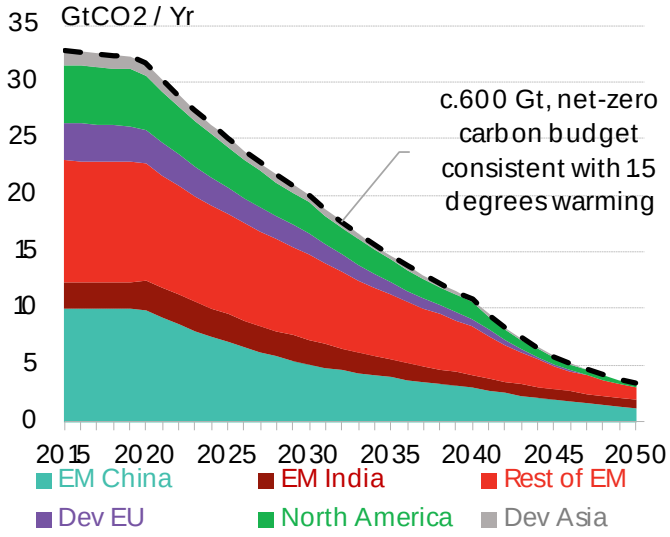
[1] United Nations (2015). *Paris Agreement*.
[2] Commission Delegated Regulation (EU) 2020/1818.
[3] Development and Uptake of Net-Zero-Aligned Benchmarks (November 2022).
[4] A similar approach is suggested by the Net Zero Asset Owners Alliance in its recent report, Development and Uptake of Net-Zero-Aligned Benchmarks (November 2022).
[5] Sixth Assessment Report — IPCC.
[6] Consistent with 1.5°C of global warming with no or limited overshoot.

To ensure that the regional and sectoral emissions pathways are mutually consistent and reflect the same technological and socio-economic assumptions, we select just one of the 97 global pathways in AR6 and then use the sectoral and regional breakdown of the emissions pathways generated by the corresponding model. Figure 1 (left) shows emissions pathways across regions under a projection that takes a middle-of-the-road view on the technology mix of the future.

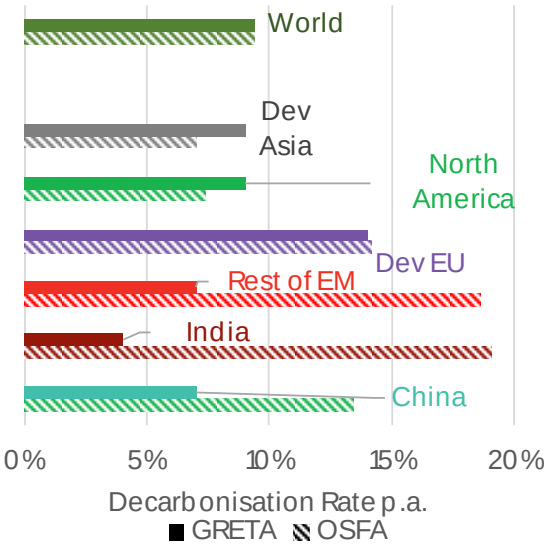
Using these regional emissions pathways, together with a set of sectoral pathways from the same model, we construct a GRETA-type index. We compare the investment implications of this index with an index that uses only the global emissions pathway (OSFA index). The eligible investment universe is the Bloomberg World Index, representing ~85% of the global market. Bloomberg emissions data, which fully covers the Bloomberg World Index, is used to determine companies' operational carbon emission footprints. Figure 1 (right) shows that between 2020 and 2030 the global decarbonisation rate for the OSFA and GRETA index is similar at c.7% p.a., but the regional decarbonisation rates are quite different. Given that the regional compositions in the GRETA and OSFA index are comparable with the underlying benchmark, this suggests that the OSFA index achieves emission reductions through underweighting higher emitting assets in Emerging Markets.

Figure 1 (Left): Emissions pathways across regions in a representative 1.5°C scenario with no or limited overshoot.



Source: Byers et al. (2022), using REMIND-MAgPIE 2.1-4.2, EN_NPi2020_600_COV
Source: Bloomberg

Figure 1 (Right): Annual decarbonisation rate by region (2020- 2030) in GRETA and OSFA.



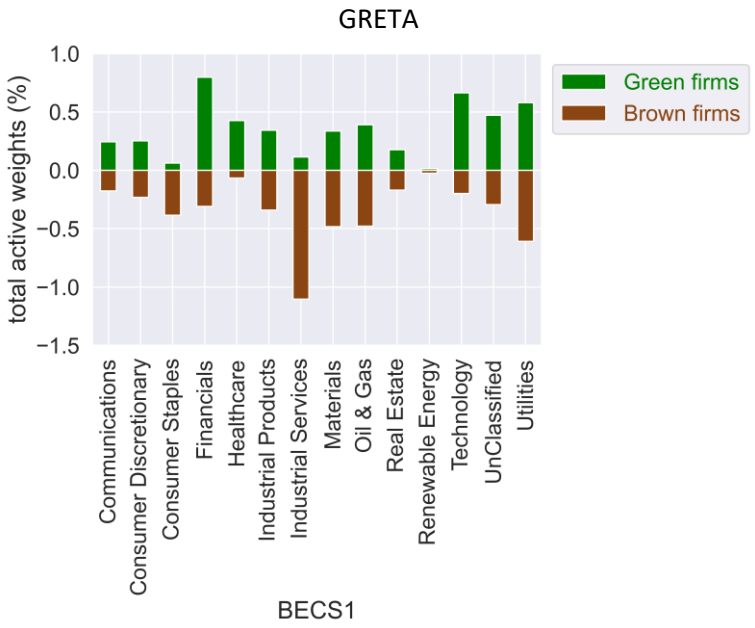
Source: Bloomberg

Transition Risks

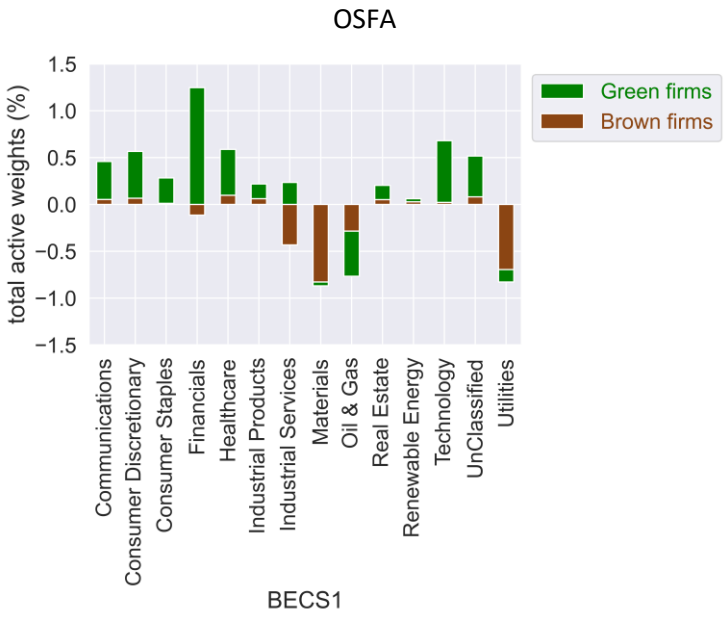
One of the key reasons for implementing net-zero aligned portfolios is to mitigate transition risks. For illustration, we define a simple transition-risk indicator where firms whose emission intensity is below the sector average are categorised as "Green," and those above as "Brown." Figure 2 shows the average active weights for Green and Brown in GRETA and OSFA. It is evident that OSFA underweights carbon-intensive sectors, irrespective of whether the

constituents are Brown or Green. With GRETA, on the other hand, we observe positive active weights for Green and negative active weights for Brown, across sectors. Given that companies in carbon-intensive sectors could also be the ones that reap the benefits of low-carbon technologies, it is more efficient to discriminate between leaders and laggards in a given sector.

Figure 2: Granular sector pathways more efficiently mitigate transition risks



Source: Bloomberg



Source: Bloomberg

Making Better Use of the Tracking Error

Table 1 shows the historical trade-off between tracking error and carbon reductions during the backtest period in 2015 and 2022. Despite similar tracking errors and carbon reductions, GRETA exhibits greater dispersion between Green and Brown. OSFA underweights Green in several carbon-intensive sectors. We therefore believe that investors can make better use of tracking error when the portfolio is aligned to emission pathways on a granular level.

Table 1: Tracking error is better used when aligning to granular regional and sectoral pathways.

	Tracking Error (p.a.)	Emission cut relative to base year (=2015)	Dispersion: Average active wt for Green - Brown	Average active wt for Green in O&G, Material, Utilities
GRETA	0.40%	55%	10%	1.3%
OSFA	0.40%	55%	6%	-0.7%

Source: Bloomberg

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