Aligning Portfolios with the Paris Agreement

Climate Scenarios and the MSCI Climate Paris Aligned Index

Stuart Doole, Neeraj Kumar, Veronique Menou

October 2020

Executive Summary

The pressure on institutional investors to act on climate change and demonstrate its influence on their decision-making and portfolio construction continues to grow. Increasingly, the focus is on the alignment of client investment strategies with the decarbonization pathways required to deliver the global 1.5ºC increase targeted by the Paris Agreement.

This alignment may be achieved by overweighting companies on a credible path to decarbonization or offering green solutions, while in contrast underweighting those poorly positioned for the transition to a lower-carbon economy and by limiting exposure to the growing physical risks. Investors tackling this investment challenge are now supported by the MSCI Climate Paris Aligned Indexes. These indexes combine control of Climate Value-at-Risk (Climate VaR) with a comprehensive reduction in emissions (whether arising from operations, products or the supply chain) and a tilt toward companies with stronger green revenue and credible climate targets. Additionally, and most critically, the index methodology enforces a 10% year-on-year decarbonization ("self-decarbonization").

We can shock the MSCI Global Warming Potential model (our climate-scenario alignment model) to reflect this self-decarbonization and to show how the climate index then has a warming potential of 1.5ºC and hence can serve as the basis for investment products that work to meet Paris Agreement targets.

Introduction

Climate change is the clearest illustration of how environmental, social and governance (ESG) considerations can impact long-term risks and opportunities in financial markets.[1] An extensive body of scientific evidence has established that man-made factors are dominant in driving climate change on our planet.[2]

Climate-related risks, whether physical or related to a transition to a lower carbon economy, are changing the risk-return profile of individual companies and entire industries, leading to new and increased risks in investors' portfolios.[3] In turn, institutional investors are under pressure to align their strategies with a maximum global temperature increase of 1.5ºC as targeted by the Paris Agreement, raising questions about how to do so while respecting other investment constraints.

[1] "MSCI Principles of Sustainable Investing."

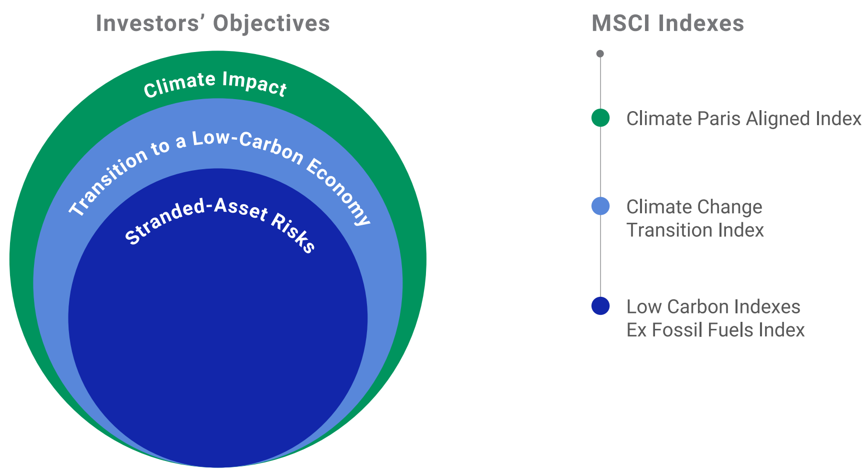
[2] For example, as summarized in the "Fourth National Climate Assessment - Volume II: Impacts, Risks, and Adaptation in the United States" or in "Global Warming of 1.5˚C." 2018. IPCC /

[3] Badani, J. et al. 2019. "Climate change and climate risk: An index perspective." MSCI Research Insight

Companies in carbon-intensive sectors are increasingly facing challenges due to lower demand for fossil fuels or their carbon-intensive products. Extreme weather events are damaging companies' assets and operations in high-risk regions (and the number of those regions is growing). In addition, regulators and civil society are pushing investors to act. In 2017, the Task Force on Climate-related Financial Disclosure (TCFD) released its recommendations to companies and investors, stressing the need for climate scenarios. In July 2020, the EU Commission proposed regulations[4] to set minimum standards that indexes must meet to be labelled as EU Climate Transition Benchmarks (CTB) and EU Paris-Aligned Benchmarks (PAB).[5]

Some investors have already started this climate-change investment journey by adopting low-carbon strategies that have enabled them to reduce their exposure to carbon stranded-asset risks. Others have addressed transition risks more broadly by shifting capital from fossil fuel-based to green assets. How can climate indexes fit into this fast-evolving picture? Whether they are used as a benchmark for active managers or the basis of investment products, climate indexes may need to extend beyond solely addressing stranded-asset risk and instead be efficient and comprehensive in how they reduce climate risk and reweight in favor of companies whose activities or operations support economic transition or a positive impact on the environment.

Exhibit 1: How Can Climate Index Objectives Reflect Investor Needs?



[4] "Commission Delegated Regulation of 17.7.2020." European Commission, July 17, 2020.

[5] The pressure on issuers has also intensified via, for example, the EU Sustainable Finance Disclosures Regulations or with proposed changes to accounting standards. See "IFRS Foundation Trustees consult on global approach to sustainability reporting and on possible Foundation role" IFRS Foundation press release, Sept. 30, 2020.

How are MSCI Climate Paris Aligned Indexes Constructed?

The MSCI Paris Aligned Climate Indexes are designed to meet the needs of investors seeking to reduce their exposure to transition and physical climate risks and who wish to pursue opportunities arising from the transition to a lower-carbon economy while aligning with the Paris Agreement requirements. This new index series not only incorporates the TCFD recommendations but is designed to exceed the minimum standards of the EU Paris-aligned Benchmark designation.[6]

The MSCI Paris Aligned Climate Indexes follow a rules-based optimized methodology. This incorporates the following objectives:

- Align with a 1.5°C climate scenario as gauged by the MSCI Climate Value at Risk (Climate VaR) and a "self-decarbonization" rate of 10% year on year[7]
- Shift index weight from fossil fuel-based to green assets using the MSCI Low Carbon Transition score and by excluding categories of fossil-fuel-linked companies[8]
- Underweight high-carbon emitters assessed using scope 1, 2 and 3 emissions[9]
- Halve the assessment of physical risk from extreme weather events
- Support companies with credible carbon-reduction targets and track records through the weighting scheme
- Achieve a modest tracking error to the cap-weighted parent index and turnover

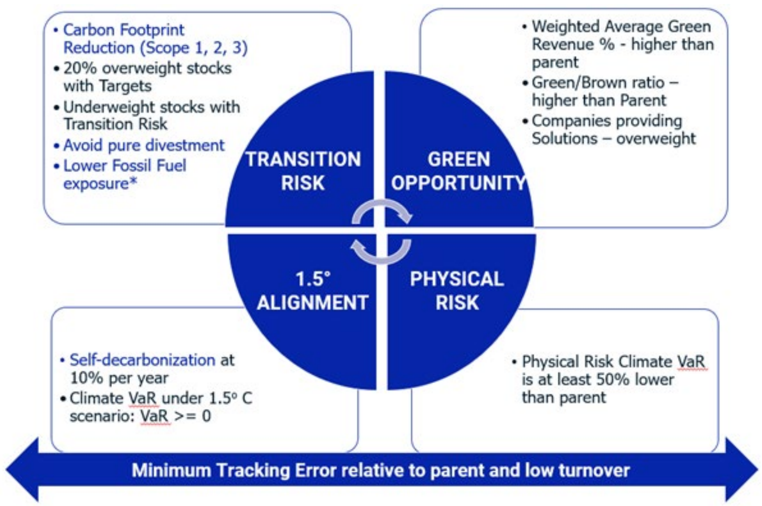
[6] MSCI Paris-Aligned Climate Indexes are part of the MSCI Climate Toolkit which includes tools for climate reporting, risk management, portfolio construction and engagement.

[7] This 10% self-decarbonization significantly exceeds the minimum standards for the EU Paris-aligned Benchmark.

[8] Additionally, there is no exposure to companies violating global norms (UNGC, controversial weapons)

[9] The carbon footprint assessment takes into product and supply chain emissions (Scope 3) as well as production and utility emissions (Scopes 1 and 2).

Exhibit 2: Key Features of the MSCI Climate Paris Aligned Index



Methodology elements shown in blue are required for the EU Paris-aligned Benchmark designation

Consistency of the Index with a 1.5°C Climate Scenario

What's the "temperature" of your climate index? What does aligned with the Paris Agreement even mean? The MSCI Global Warming Potential framework[10] aims to answer this by measuring how a given portfolio (or company) contributes to a projected global temperature rise above the pre-industrial average using: company climate targets; scope 1, 2 and 3 emissions and estimates of current and future green revenues as inputs into projected climate pathways. Understanding the calculated warming potential of a broad and diversified index is not easy as still relatively few companies have sufficiently ambitious and credible targets[11] and hence few are currently aligned with a 1.5°C scenario (based on MSCI Global Warming Potential framework).

Within the index methodology, the reweighting toward green revenues and other more "climate-friendly" assets and specified exclusions may be useful for indexed investors to support their active ownership programs but in themselves are not sufficient to achieve a 1.5°C warming potential at the index level. A positive Climate VaR adjusts index weightings for physical risk but the key element is the self-decarbonization feature of the index: the enforced reduction year-on-year of the

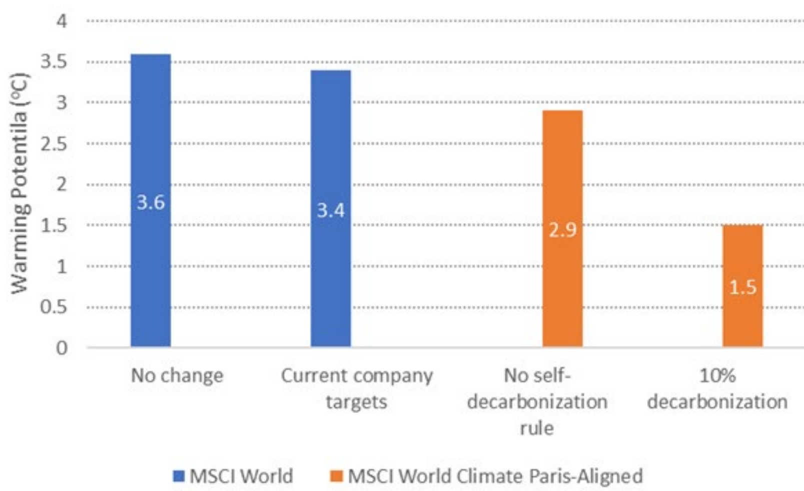
[10] An introduction to the Climate Value-at-Risk model

[11] For example, as of October 2020, only 9% of MSCI ACWI have Science-Based Targets (https://sciencebasedtargets.org/) and a further 10% have quantitative targets, based on MSCI ESG research estimates.

index's carbon footprint. We have tested a range of company-level self-decarbonization rates between 5% and 15%, which is the range of global carbon emissions reduction required year on year to be net zero between 2050 and 2100 (see exhibit 3).[12]

Ignoring self-decarbonization, the basic warming potential calculation says the MSCI World Climate Paris Aligned Index has a temperature of 2.9°C, as shown in Exhibit 3. We cannot easily embed the decarbonization in the warming potential model directly, but — as a shorthand — if we suppose every stock decarbonizes at the index methodology rate, then the current index is indeed 1.5°C aligned. By applying a 10% self-decarbonization shock through 2030, we have achieved a consistent picture: a warming potential of 1.5°C for the MSCI World Paris Aligned Climate Index alongside a positive 1.5°C Climate VaR. If some companies fall short of such upgraded targets and lag this climate pathway over the next 10 years, the index may naturally become more concentrated around the climate-solutions companies.

Exhibit 3: 10% Self-Decarbonization Drives Index Temperature Alignment



Data as of June 1, 2020

Performance and Climate Characteristics

The MSCI World Climate Paris Aligned Index outperformed its market-cap-weighted parent (the MSCI World Index) by 1.6% per year with 0.2% lower risk, relatively low tracking error (1.0%) and modest annualized turnover (11.7%), based on simulated index performance between November 2013 and September 2020.[13] Only about half of the outperformance can be attributed to the index's exposure to industries —

[12] "UNEP: 1.5C climate target 'slipping out of reach.'" CarbonBrief, Nov. 26, 2019.

[13] The simulation period reflects the available data history for the index methodology.

particularly underexposure to oil and gas companies — and to style factors.[14] More critically, the MSCI World Climate Paris Aligned Index's climate-risk profile compared favorably to the MSCI World Index (see Exhibit 4) across the following measures:

- More than 50% carbon-footprint reduction (scopes 1, 2 and 3)
- Three times more exposure to companies generating 20% or more revenue from clean technologies
- Three times more exposure to low-carbon transition risk solutions companies
- Significantly lower (almost 90% lower) exposure to companies with any fossil-fuel reserves and no exposure to thermal coal-mining stocks
- Fifty percent lower exposure to physical risk

Exhibit 4: Climate Risk of MSCI World vs. MSCI World Climate Paris Aligned Indexes

	MSCI World Index	MSCI World Climate Paris Aligned Index
MSCI Climate Paris Aligned Index Objectives*		
Scope 1+2+3 Carbon Emissions Intensity (tCO2/$M EVIC adj)	475	227
Low-carbon transition score	6.1	6.7
Potential carbon emissions (t CO2e/$M invested)	1748	0
Clean technologies solutions revenue (wtd avg %)	4.0	10.4
Green/fossil fuel-based net revenue exposure	1.1	129.0
Aggregate Climate VaR (wtd avg %)	-10.9	2.1
Extreme Weather Climate VaR - Aggressive Scenario (wtd avg %)	-5.5	-2.7
Low-carbon transition risks**		
Solutions (%)	7.0	21.0
Product & operational transition (%)	13.3	0.7
Clean technologies solutions (> 20% revenue)	5.1	16.0
Asset stranding (%)	0.1	0
Exposure to asset stranding risks**		
Fossil fuel-reserves (%)	4.2	0.6
Thermal coal mining (%)	0.9	0
Thermal coal-based power generation (%)	3.2	0.6

** As of May 2020 Semi-Annual Index Review*

*** As of July 31, 2020*

[14] Active return attribution using the MSCI Global Equity Model for Long-Term Investors.

Conclusion

As investors adapt their climate-aware investment strategies to cope with the physical, social and economic challenges of climate change, a holistic approach that embeds forward-looking measures of climate risk and return may help on their journey to decarbonizing their portfolios. The MSCI Climate Paris Aligned Index is a complementary tool for such institutional investors as a benchmark and as the basis of indexed allocations.

The authors thank Oliver Marchand and Phanos Hadjikyriakou for their assistance with the MSCI Global Warming Potential model and the calculated scenarios.

Contact us

clientservice@msci.com

AMERICAS

Americas	1 888 588 4567 *
Atlanta	+ 1 404 551 3212
Boston	+ 1 617 532 0920
Chicago	+ 1 312 675 0545
Monterrey	+ 52 81 1253 4020
New York	+ 1 212 804 3901
San Francisco	+ 1 415 836 8800
São Paulo	+ 55 11 3706 1360
Toronto	+ 1 416 628 1007

EUROPE, MIDDLE EAST & AFRICA

Cape Town	+ 27 21 673 0100
Frankfurt	+ 49 69 133 859 00
Geneva	+ 41 22 817 9777
London	+ 44 20 7618 2222
Milan	+ 39 02 5849 0415
Paris	0800 91 59 17 *

ASIA PACIFIC

China North	10800 852 1032 *
China South	10800 152 1032 *
Hong Kong	+ 852 2844 9333
Mumbai	+ 91 22 6784 9160
Seoul	00798 8521 3392 *
Singapore	800 852 3749 *
Sydney	+ 61 2 9033 9333
Taipei	008 0112 7513 *
Thailand	0018 0015 6207 7181 *
Tokyo	+ 81 3 5290 1555

* = toll free

ABOUT MSCI

MSCI is a leading provider of critical decision support tools and services for the global investment community. With over 45 years of expertise in research, data and technology, we power better investment decisions by enabling clients to understand and analyze key drivers of risk and return and confidently build more effective portfolios. We create industry-leading research-enhanced solutions that clients use to gain insight into and improve transparency across the investment process.

To learn more, please visit www.msci.com.

The process for submitting a formal index complaint can be found on the index regulation page of MSCI's website at: https://www.msci.com/index-regulation.

Notice and disclaimer

This document and all of the information contained in it, including without limitation all text, data, graphs, charts (collectively, the "Information") is the property of MSCI Inc. or its subsidiaries (collectively, "MSCI"), or MSCI's licensors, direct or indirect suppliers or any third party involved in making or compiling any Information (collectively, with MSCI, the "Information Providers") and is provided for informational purposes only. The Information may not be modified, reverse-engineered, reproduced or redisseminated in whole or in part without prior written permission from MSCI.

The Information may not be used to create derivative works or to verify or correct other data or information. For example (but without limitation), the Information may not be used to create indexes, databases, risk models, analytics, software, or in connection with the issuing, offering, sponsoring, managing or marketing of any securities, portfolios, financial products or other investment vehicles utilizing or based on, linked to, tracking or otherwise derived from the Information or any other MSCI data, information, products or services.

The user of the Information assumes the entire risk of any use it may make or permit to be made of the Information. NONE OF THE INFORMATION PROVIDERS MAKES ANY EXPRESS OR IMPLIED WARRANTIES OR REPRESENTATIONS WITH RESPECT TO THE INFORMATION (OR THE RESULTS TO BE OBTAINED BY THE USE THEREOF), AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, EACH INFORMATION PROVIDER EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES (INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF ORIGINALITY, ACCURACY, TIMELINESS, NON-INFRINGEMENT, COMPLETENESS, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) WITH RESPECT TO ANY OF THE INFORMATION.

Without limiting any of the foregoing and to the maximum extent permitted by applicable law, in no event shall any Information Provider have any liability regarding any of the Information for any direct, indirect, special, punitive, consequential (including lost profits) or any other damages even if notified of the possibility of such damages. The foregoing shall not exclude or limit any liability that may not by applicable law be excluded or limited, including without limitation (as applicable), any liability for death or personal injury to the extent that such injury results from the negligence or willful default of itself, its servants, agents or sub-contractors.

Information containing any historical information, data or analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. Past performance does not guarantee future results.

The Information should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. All Information is impersonal and not tailored to the needs of any person, entity or group of persons.

None of the Information constitutes an offer to sell (or a solicitation of an offer to buy), any security, financial product or other investment vehicle or any trading strategy.

It is not possible to invest directly in an index. Exposure to an asset class or trading strategy or other category represented by an index is only available through third party investable instruments (if any) based on that index. MSCI does not issue, sponsor, endorse, market, offer, review or otherwise express any opinion regarding any fund, ETF, derivative or other security, investment, financial product or trading strategy that is based on, linked to or seeks to provide an investment return related to the performance of any MSCI index (collectively, "Index Linked Investments"). MSCI makes no assurance that any Index Linked Investments will accurately track index performance or provide positive investment returns. MSCI Inc. is not an investment adviser or fiduciary and MSCI makes no representation regarding the advisability of investing in any Index Linked Investments.

Index returns do not represent the results of actual trading of investible assets/securities. MSCI maintains and calculates indexes, but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the index or Index Linked Investments. The imposition of these fees and charges would cause the performance of an Index Linked Investment to be different than the MSCI index performance.

The Information may contain back tested data. Back-tested performance is not actual performance, but is hypothetical. There are frequently material differences between back tested performance results and actual results subsequently achieved by any investment strategy.

Constituents of MSCI equity indexes are listed companies, which are included in or excluded from the indexes according to the application of the relevant index methodologies. Accordingly, constituents in MSCI equity indexes may include MSCI Inc., clients of MSCI or suppliers to MSCI. Inclusion of a security within an MSCI index is not a recommendation by MSCI to buy, sell, or hold such security, nor is it considered to be investment advice.

Data and information produced by various affiliates of MSCI Inc., including MSCI ESG Research LLC and Barra LLC, may be used in calculating certain MSCI indexes. More information can be found in the relevant index methodologies on www.msci.com.

MSCI receives compensation in connection with licensing its indexes to third parties. MSCI Inc.'s revenue includes fees based on assets in Index Linked Investments. Information can be found in MSCI Inc.'s company filings on the Investor Relations section of www.msci.com.

MSCI ESG Research LLC is a Registered Investment Adviser under the Investment Advisers Act of 1940 and a subsidiary of MSCI Inc. Except with respect to any applicable products or services from MSCI ESG Research, neither MSCI nor any of its products or services recommends, endorses, approves or otherwise expresses any opinion regarding any issuer, securities, financial products or instruments or trading strategies and MSCI's products or services are not intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such. Issuers mentioned or included in any MSCI ESG Research materials may include MSCI Inc., clients of MSCI or suppliers to MSCI, and may also purchase research or other products or services from MSCI ESG Research. MSCI ESG Research materials, including materials utilized in any MSCI ESG Indexes or other products, have not been submitted to, nor received approval from, the United States Securities and Exchange Commission or any other regulatory body.

Any use of or access to products, services or information of MSCI requires a license from MSCI. MSCI, Barra, RiskMetrics, IPD and other MSCI brands and product names are the trademarks, service marks, or registered trademarks of MSCI or its subsidiaries in the United States and other jurisdictions. The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of MSCI and Standard & Poor's. "Global Industry Classification Standard (GICS)" is a service mark of MSCI and Standard & Poor's.

MIFID2/MIFIR notice: MSCI ESG Research LLC does not distribute or act as an intermediary for financial instruments or structured deposits, nor does it deal on its own account, provide execution services for others or manage client accounts. No MSCI ESG Research product or service supports, promotes or is intended to support or promote any such activity. MSCI ESG Research is an independent provider of ESG data, reports and ratings based on published methodologies and available to clients on a subscription basis. We do not provide custom or one-off ratings or recommendations of securities or other financial instruments upon request.

Privacy notice: For information about how MSCI ESG Research LLC collects and uses personal data concerning officers and directors, please refer to our Privacy Notice at https://www.msci.com/privacy-pledge.