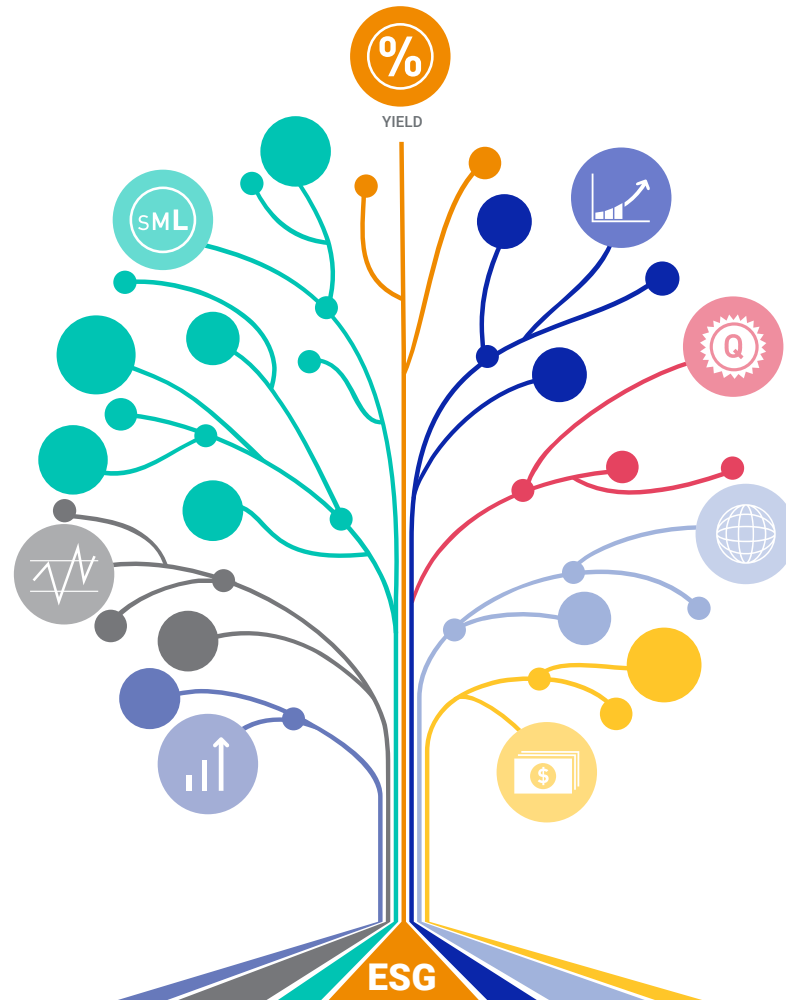
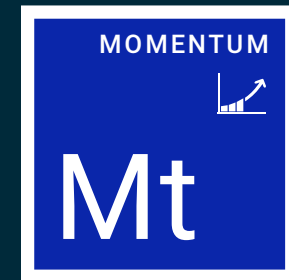
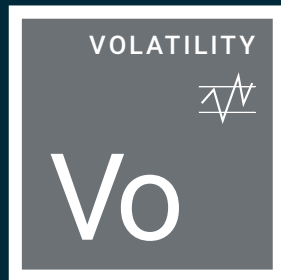


High Dividend Yield ESG Reduced Carbon Target Select Indexes



Elements of performance™

Factors by MSCI



Factors are the building blocks of many portfolios – the elements capable of turning data points into actionable insights.



Introduction

Equity yield strategies have long been the cornerstone of many portfolios for various reasons. Some investors might simply favour equity dividends as a source of income in the prolonged low-yield environment, while others may view strong dividend yield as an indicator of robust financial management, or future earnings growth. Accordingly, the Yield factor remains a significant contributor to the growing trend towards factor indexes, with factor ETF assets alone crossing \$1.5 trillion, as of December 2021¹.

The growth in ESG (environmental, social and governance) is similarly strong, with the number of UN Principles for Responsible Investment (PRI) signatories reaching 3,800 as of 2021².

ESG investors have long focused on the exclusion of weapons, alcohol, or tobacco producers. Today, we are seeing a more holistic view of ESG being used to manage risk, placing ESG principles within factor models in the risk management toolbox.

With Factor and ESG investing becoming mainstream, there has been increased demand from professional investors to incorporate both Factor and ESG principles to manage and attribute risk. In fact, according to our findings in the MSCI Investments Insights 2021³, nearly 1-in-2 institutional clients state that Factors are central to their asset allocation and fully 52% of investors are adopting an ESG framework.

For many investment managers and product providers, the key challenge of combining Factor and ESG into a single portfolio has been to construct an appropriate methodological framework to balance the desired factor exposure while meeting ESG considerations. This balance has historically been even more elusive for dividend yield portfolios, as these indexes tended to have positive bias towards high carbon emitting sectors such as Utilities and Energy. MSCI is at the forefront of the integration of ESG into factor portfolios to enable investors to better manage key drivers of risk and return with an extensive set of risk factor models, ESG research and factor and ESG indexes⁴.

1. All data as of November 2021; Source: Refinitiv Lipper. Only primary listing, not cross/listing, are counted. MSCI does not guarantee the accuracy of third-party data.
2. United Nations Principles for Responsible Investing. <http://www.unpri.org/>
3. MSCI Investment Insights 2021: Global Institutional Investor Survey
4. ESG research, rating and data are produced by MSCI ESG Research LLC. MSCI ESG Indexes and Analytics utilize information from, but are not provided by, MSCI ESG Research LLC. MSCI Indexes and Analytics are products of MSCI Inc. MSCI Indexes are administered by MSCI Limited (UK).



Index methodology⁵

review

The MSCI High dividend yield ESG Reduced Carbon Target Select Indexes are designed to represent the performance of a strategy that seeks systematic integration of environmental, social and governance (ESG) norms and maximize its exposure to the Yield factor.

The Indexes are constructed by selecting constituents of a market capitalization weighted index (the 'Parent Index') through an optimization process that aims to maximize exposure to the Yield factor, minimize tracking error, minimize carbon equivalent exposure to CO₂ and other GHG as well as reduce its exposure to potential emissions risk of fossil fuel reserves by thirty percent (30%) and improve the weighted-average industry-adjusted ESG score of the Index by 20% with respect to their respective underlying market capitalization weighted indexes (the 'Parent Index').

Constructing the Indexes involves the following steps:

- › **Defining the parent index and the base currency for optimization**
Construction of the MSCI High Dividend Yield ESG Reduced Carbon Target Select Indexes begins with identifying the Parent Index and the eligible universe for optimization. The Parent Index serves as the universe of eligible securities for optimization.
 - › **Defining the exclusion criteria**
 - ›› **Controversy-based exclusion criteria**
Securities of companies involved in "Very Severe" business controversies as defined by the MSCI ESG Controversies Methodology are not eligible for inclusion in the Indexes. This is implemented by excluding constituents of the Parent Index with ESG Controversy Score = 0 ('Red Flag' companies).
 - ›› **Business exclusion criteria**
Companies that are involved in specific businesses which have high potential for negative social and/or environmental impact are ineligible for inclusion in the index.
 - › Controversial Weapons
 - › Conventional Weapons
 - › Nuclear Weapons
 - › Civilian Firearms
 - › Tobacco
 - › Thermal Coal
 - › Oil Sands
- In addition to the above, companies that fail to comply with the United Nations Global Compact Principles are also excluded from the Indexes. Please refer to Appendix II for more details on these criteria.
- ›› **Other exclusion criteria**
 - › Missing Controversy Score – Companies not assessed by MSCI ESG Research's MSCI ESG Controversy Scores are excluded from the index.
 - › Missing ESG Rating or ESG Score – Companies which are not rated by MSCI ESG Research for an MSCI ESG Rating are excluded from the index

5. MSCI High Dividend Yield ESG Reduced Carbon Target Select Indexes methodology



review

› Dividend Yield-Related screens

› Dividend sustainability screening

Securities with zero or negative payout ratios⁶ are not considered for inclusion in the MSCI High Dividend Yield ESG Reduced Carbon Target Select Indexes. Additionally, within each sector, securities in top 5% ranked in descending order of payout ratio within the universe of securities with positive payout, are not considered eligible for inclusion in the Index.

› Dividend persistence screening

Securities with a negative 5-year dividend per share (5Y DPS) growth rate⁷ are also excluded from the index. Securities which have insufficient data to calculate a 5Y DPS growth rate are not excluded from the Index.

› Quality screening

Securities with negative sector-relative Quality z-score are not considered for inclusion in the Indexes. The sector-relative Quality z-scores are calculated using fundamental variables such as Return on Equity, Earnings Variability and Debt to Equity. For the details on computation of the Quality z-scores, please refer to the Section 2.2 of the MSCI Quality Indexes Methodology (for details about the methodology, please refer to: <https://www.msci.com/index-methodology>).

› Price performance screening

Within each sector, securities in the bottom 5% of the universe of securities ranked by negative 1-year price performance are excluded from the Index.

› Defining the security level carbon exposure

The carbon exposure of a security is measured in terms of its greenhouse gas emissions and its potential carbon emissions from fossil fuel reserves. The Indexes use MSCI Climate Change Metrics data from MSCI ESG Research

› Greenhouse gas emissions

MSCI ESG Research collects company-specific direct (Scope 1) and indirect (Scope 2) greenhouse gas (GHG) emissions data from company public documents and/or the Carbon Disclosure Project. If a company does not report GHG emissions, then MSCI ESG Research uses its proprietary methodology to estimate Scope 1 and Scope 2 GHG emissions. For newly added companies to the

5. MSCI High Dividend Yield ESG Reduced Carbon Target Select Indexes methodology

6,7. Please refer to Appendix of MSCI High Dividend Yield Indexes Methodology for definition of Payout Ratio and 5Y DPS growth and their calculation.



review

Index which do not report emission data and where MSCI ESG Research has not estimated the greenhouse gas emissions yet, MSCI uses the average emissions per dollar of issuer market capitalization for the companies in the same industry group, multiplied by the market capitalization of the company as the estimated emission for the company.

» **Potential carbon emissions from fossil fuels**

MSCI ESG Research collects fossil fuel reserves data where relevant for companies which have reserves, typically in the Oil & Gas, Coal Mining and Electric Utilities industries. Fossil fuel reserves can be used for several applications including energy or industrial (e.g. coking coal used for steel production). For the Indexes, only fossil fuel reserves used for energy are taken into account. The data is updated on an annual basis and based on information disclosed by companies. Sources include company publications, other public records and third party data providers. For newly added companies to the index where data is not available yet, MSCI uses zero fossil fuel reserves. The size of reserves of a company typically influences its market valuation, and hence MSCI normalizes for size by dividing the potential carbon emissions of the company by its market capitalization. To convert reserves data to potential carbon emissions, MSCI ESG Research applies a formula from the Potsdam Institute for Climate Impact Research⁸.

› **Defining The Optimization Setup**

The optimization objective is to maximize the sector-relative gross dividend yield zscore of the index⁹, while controlling the ex-ante tracking error relative to the Parent Index at the time of rebalancing. The optimization is performed from a base currency perspective and does not allow short selling of securities. The default currency is the US Dollar.

» **Calculation of the sector relative grossed-up dividend yield zscore**

The sector-relative grossed-up dividend yield z-score for each security is calculated using the formulae defined in Appendix III of methodology book.

5. [MSCI High Dividend Yield ESG Reduced Carbon Target Select Indexes methodology](#)

8. Malte Meinshausen, Nicolai Meinshausen, William Hare, Sarah C. B. Raper, Katja Frieler, Reto Knutti, David J. Frame & Myles R. Allen. Greenhouse-gas emission Target for limiting global warming to 2 °C. Nature 458, 1158-1162 (30 April 2009) | doi: 10.1038/nature08017; Received 25 September 2008; Accepted 25 March 2009. Supplementary Information, p. 7.

9. Weighted-average sector-relative gross dividend yield z- score of the Index



Index methodology⁵

review

» Optimization constraints

At each Semi-Annual Index Review (SAIR), the following optimization constraints are employed, which aim to ensure replicability and investability:

- › The weighted-average dividend yield of the Index will be targeted to be 50% more (soft constraint) and constrained to be at least 30% more (hard constraint) than the weighted-average dividend yield of the Parent Index at the time of rebalancing
- › The ex-ante tracking error of the Index, relative to the Parent Index will be constrained to be equal to or less than 5%
- › The maximum weight of an index constituent will be restricted to the lower of (the weight of the security in the Parent Index + 2%) and 10 times the weight of the security in the Parent Index. The minimum weight of an index constituent will be restricted to be the higher of the (weight of the security in the Parent Index - 2%) and 0
- › For countries with weight greater than 2.5% in a composite Parent Index, the weight in the Index will not deviate more than +/-20% from the country weight in the Parent Index
- › For countries with weight less than 2.5% in a composite Parent Index, the weight in the Index will be capped at 3 times their weight in the Parent Index
- › The above country weight constraint will also apply on China A Stock Connect listings as a group separately in addition to the usual country weight constraint on China
- › The sector weights of Index will not deviate more than +/-5% from the sector weights of the Parent Index
- › The weighted-average industry-adjusted ESG score of the Index will be at least 20% more than the weighted-average industry-adjusted ESG score of the Parent Index at the time of rebalancing
- › The minimum reduction in the Weighted Average Carbon Emission Intensity relative to the Parent Index will be 30%
- › The minimum reduction in the Potential Emissions per dollar of market capitalization relative to the Parent Index will be 30%
- › The one-way turnover of the Index is constrained to a maximum of 20% at each SAIR

5. MSCI High Dividend Yield ESG Reduced Carbon Target Select Indexes methodology



Maintaining the Index

Semi-annual index reviews

The MSCI High Dividend Yield ESG Reduced Carbon Target Select Indexes are rebalanced on a semi-annual basis, usually as of the close of the last business day of May and November, coinciding with the May and November Semi-Annual Index Reviews (SAIRs) of the MSCI Global Investable Market Indexes. Fundamental variables and Barra Equity Model data as of the end of April and October are used respectively. In general, MSCI uses MSCI ESG Research data (including MSCI ESG Ratings, MSCI ESG Controversies Scores, MSCI Business Involvement Screening Research and MSCI Climate-change metrics) as of the end of the month preceding the Index Reviews for the rebalancing of the Index.

Index review

We simulated the index methodology from February 2012 through March 2021 comparing the risk, return and ESG characteristics of the MSCI World High Dividend Yield ESG Reduced Carbon Target Select Indexes relative to the standard MSCI World High Dividend Yield Index and the parent MSCI World Index¹⁰. Over this period the MSCI World High Dividend Yield ESG Reduced Carbon Target Select Indexes generated higher returns than the MSCI World High Dividend Yield Index, with an improved return over risk ratio (of 0.72 versus 0.68) as shown in Table 1.

10. This paper contains analysis of historical data, which may include hypothetical, backtested or simulated performance results. There are frequently material differences between backtested or simulated performance results and actual results subsequently achieved by any investment strategy. The analysis and observations in this paper are limited solely to the period of the relevant historical data, backtest or simulation. Past performance – whether actual, backtested or simulated – is no indication or guarantee of future performance. None of the information or analysis herein is intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision or asset allocation and should not be relied on as such.



Table 1 - Key metrics

	MSCI World Index	MSCI World High Dividend Yield Index	MSCI World HDY ESG Reduced Carbon Target Select Index
Total return* (%)	10.9	8.2	9.4
Total risk (%)	13.2	12.1	13.2
Return / risk	0.83	0.68	0.72
Sharpe ratio	0.78	0.63	0.67
Active return (%)	0.0	-2.7	-1.5
Tracking error (%)	0.0	4.6	3.7
Information Ratio	nan	-0.59	-0.41
Historical beta	1.00	0.86	0.96
Number of constituents***	1623	300	171
Turnover** (%)	1.8	18.4	39.6
Price to book***	2.3	2.3	2.3
Price to earnings***	19.1	15.5	14.8
Dividend yield*** (%)	2.4	3.9	4.1

Period: Feb 29, 2012 to Mar 31, 2022

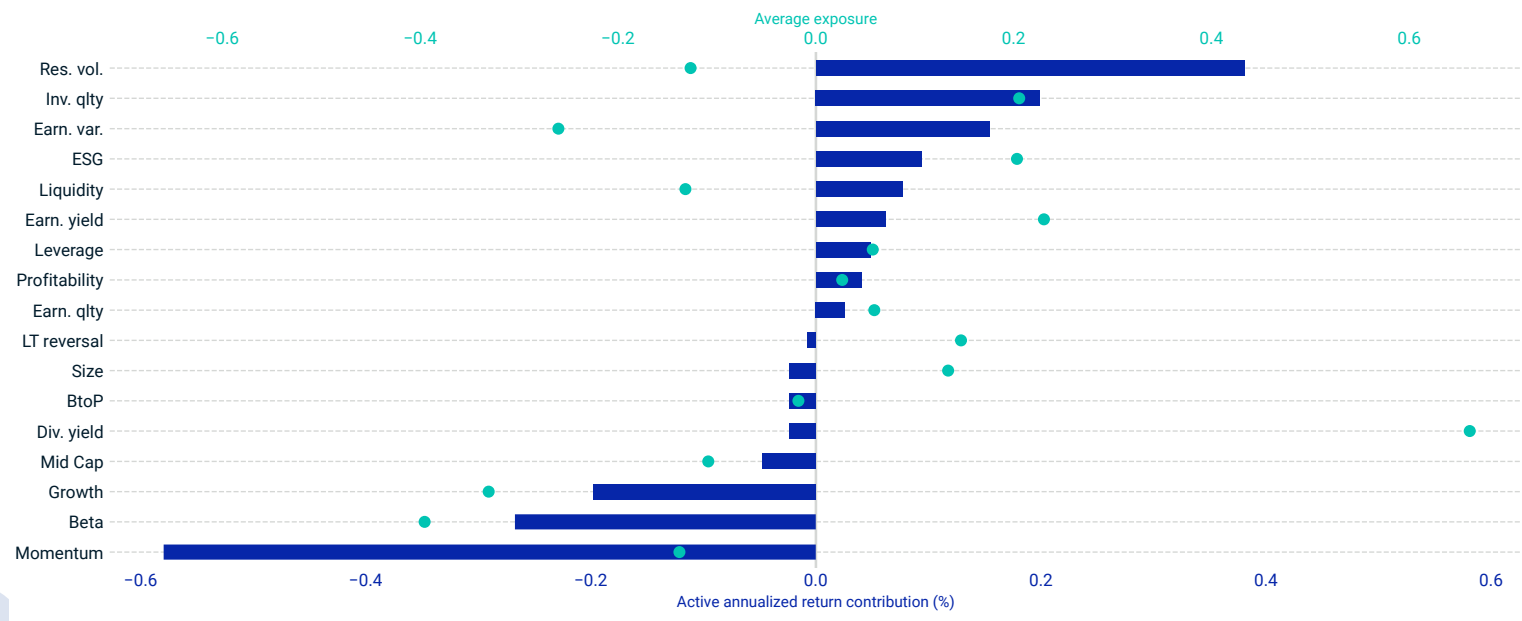
* Net returns annualized in USD

** Annualized one-way index turnover over index reviews

*** Monthly averages



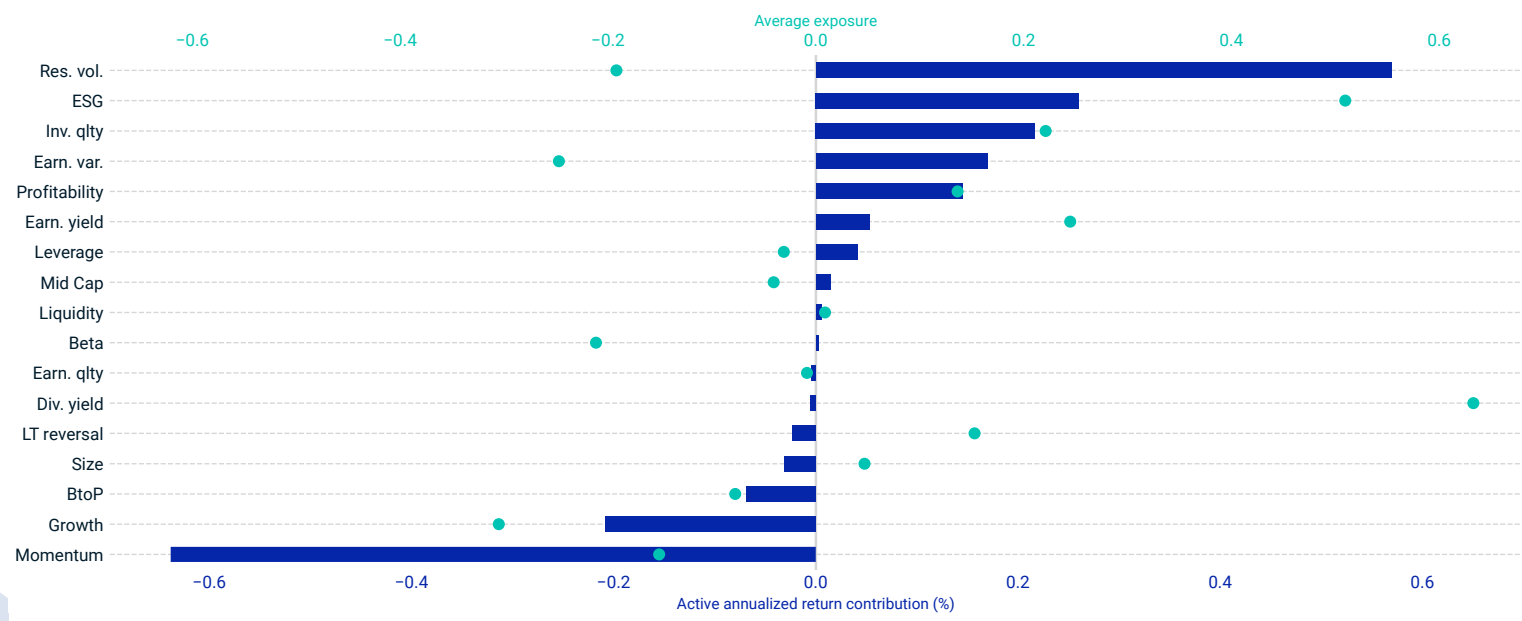
MSCI World High Dividend Yield Index



Period: Feb 29, 2012 to Mar 31, 2022



MSCI World High Dividend Yield ESG Reduced Carbon Target Select Index



Period: Feb 29, 2012 to Mar 31, 2022



Table 2 - ESG Metrics > Climate Change

	MSCI World Index	MSCI World High Dividend Yield Index	MSCI World HDY ESG Reduced Carbon Target Select Index
Climate Footprint			
Carbon Emissions (t CO2e/\$M Invested)	63	90	62
Carbon Intensity (t CO2e/\$M Sales)	154	160	100
Wtd Avg Carbon Intensity (t CO2e/\$M Sales)	144	206	93
Low Carbon Transition Risks			
Low Carbon Transition Score	6.2	6.0	6.2
Solutions (%)	9.2	4.2	9.2
Product & Operational Transition (%)	14.6	19.9	11.7
Asset Stranding (%)	0.4	0.4	0.6
Exposure to Asset Stranding Risks			
Potential Carbon Emissions (t CO2e/\$M Invested)	1066	529	772
Fossil Fuel Reserves (%)	5.9	4.1	4.4
Thermal Coal Mining (%)	1.0	3.3	1.4
Thermal Coal-Based Power Generation (%)	2.9	4.5	1.5
Unconventional Oil & Gas Extraction (%)	3.4	0.3	2.7
Exposure to Clean Technology Solutions			
Clean Technologies Solutions (> 20% Revenue)	10.4	6.0	11.1
Clean Technologies Solutions Revenue (wtd Avg %)	5.6	3.2	4.9
Green/fossil Fuel-Based Net Revenue Exposure	2.5	1.7	7.6
Other Climate Metrics			
Exposure to Carbon-Related Assets (%)	7.0	8.0	6.6
Climate-Related Controversies (%; Score ≤ 4)	0.2	0.5	0.0
Low Carbon Transition Management Score (% Top Quartile)	71.6	77.9	82.2

As of March 31, 2022



Potential **applications**

Indexes are often used as performance benchmarks for active managers. Investors may also use policy benchmarks in their strategic asset allocation to define eligible markets and the universe of eligible securities for their portfolios. At the same time, they may use them to define active or passive allocations when implementing their asset allocation strategies.

Conclusion

Addressing corporate ESG considerations and the risks of not transitioning to low carbon portfolio exposure has become increasingly important for many global investors. At the same time, an increasing number of European regulators are requiring institutional investors to consider ESG and carbon risks that may be financially relevant to their investment processes. Simultaneously, Yield indexes are uniquely designed to reflect the Yield premium and have been used to provide risk-adjusted performance while maintaining strong investability.

The MSCI High Dividend Yield ESG Reduced Carbon Target Select Indexes are designed to help investors get exposure to Yield strategies combined with ESG principles. These indexes were constructed to preserve the factor exposure and have historically provided higher risk-adjusted returns vs cap-weighted indexes, improved ESG scores and reduced carbon footprints. In addition, these indexes exclude business activities that are commonly seen as controversial, such as tobacco production and weapons manufacturing.



About MSCI Inc.

MSCI is a leading provider of critical decision support tools and services for the global investment community. With over 50 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/esg-investing.

The information contained herein (the "Information") may not be reproduced or disseminated in whole or in part without prior written permission from MSCI. The Information may not be used to verify or correct other data, to create indexes, risk models, or analytics, or in connection with issuing, offering, sponsoring, managing or marketing any securities, portfolios, financial products or other investment vehicles. Historical data and analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. None of the Information or MSCI index or other product or service constitutes an offer to buy or sell, or a promotion or recommendation of, any security, financial instrument or product or trading strategy. Further, none of the Information or any MSCI index is 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. The Information is provided "as is" and 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 MSCI INC. OR ANY OF ITS SUBSIDIARIES OR ITS OR THEIR DIRECT OR INDIRECT SUPPLIERS OR ANY THIRD PARTY INVOLVED IN THE MAKING OR COMPILING OF THE INFORMATION (EACH, AN "MSCI PARTY") MAKES ANY WARRANTIES OR REPRESENTATIONS AND, TO THE MAXIMUM EXTENT PERMITTED BY LAW, EACH MSCI PARTY HEREBY EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. WITHOUT LIMITING ANY OF THE FOREGOING AND TO THE MAXIMUM EXTENT PERMITTED BY LAW, IN NO EVENT SHALL ANY OF THE MSCI PARTIES 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.

©2022 MSCI Inc. All rights reserved | CBR0622