

Bloomberg MSCI US Corporate Climate Paris Aligned ESG Select Index

The Bloomberg MSCI US Corporate Climate Paris Aligned ESG Select Index is designed to meet and exceed the minimum standards of the EU Paris Aligned Benchmark (PAB) label. The index sets an initial 50% decarbonization of absolute GHG emissions and carbon intensity relative to the standard Bloomberg US Corporate Index, followed by an annual 10% decarbonization trajectory of both measures. The index uses an optimization approach that aims to increase the weight of issuers that meet carbon reduction targets, increase the weight of green revenue versus fossil-fuel based revenue, and increase the ESG score of the index, while minimizing active total risk. To be included, securities must be investment grade, fixed-rate, USD-denominated, corporate bonds with a minimum MSCI ESG Rating of B. The index excludes issuers with a "red" MSCI ESG Controversy Score and negatively screens issuers that are involved in business activities that are restricted per Article 12 of the Delegated Acts. Additionally, issuers with involvement in nuclear weapons, civilian firearms, and unconventional oil and gas are also excluded. The index was created in March 2022, with history backfilled to August, 2019.

Rules for Inclusion

Sector	Corporate (industrial, utility, and financial institutions) issuers only.
Eligible Currencies	Principal and interest must be denominated in USD.
Quality	<p>Securities must be rated investment grade (Baa3/BBB-/BBB- or higher) using the middle rating of Moody's, S&P and Fitch; when a rating from only two agencies is available, the lower is used; when only one agency rates a bond, that rating is used. In cases where explicit bond level ratings may not be available, other sources may be used to classify securities by credit quality:</p> <ul style="list-style-type: none"> Expected ratings at issuance may be used to promote timely index inclusion or to properly classify split-rated issuers. Unrated securities may use an issuer rating for index classification purposes if available. Unrated subordinated securities are included if a subordinated issuer rating is available.
Amount Outstanding	USD300mn minimum par amount outstanding.
Coupon	<ul style="list-style-type: none"> Fixed-rate coupon. Callable fixed-to-floating rate bonds are eligible during their fixed-rate term only. Bonds with step-up coupons and those that change according to a predetermined schedule are also eligible.
Maturity	<ul style="list-style-type: none"> At least one year until final maturity, regardless of optionality. Bonds that convert from fixed to floating rate, including fixed-to-float perpetuals, will exit the index one year prior to conversion to floating-rate. Fixed-rate perpetual bonds are not included.
Market of Issue	Publicly issued in the global or regional markets.
Taxability	Only fully taxable issues are eligible.

Seniority of Debt	Senior and subordinated issues are included.	
Security Types	<p>Included</p> <ul style="list-style-type: none"> • Bullet, putable, sinkable/amortizing and callable bonds • Original issue zero coupon • Underwritten MTN • Fixed-rate and fixed-to-floating (including fixed-to-variable) capital securities 	<p>Excluded</p> <ul style="list-style-type: none"> • Treasuries, government-related, securitized, and covered bonds • Contingent capital securities, including traditional CoCos and contingent write-down securities • Bonds with equity type features (e.g. warrants, convertibles, preferreds) • Inflation-linked bonds, floating-rate issues • Fixed-rate perpetuals • Private placements, retail bonds • Structured notes, pass-through certificates • Illiquid securities with no available pricing

Environment, Social and Governance (ESG) Rules

MSCI Absolute GHG Emissions	<p>The index excludes issuers where MSCI does not have reported or estimated Scope 1, 2 and 3 absolute GHG emissions data.</p> <ul style="list-style-type: none"> • Where an issuer has only Scope 1 and 2 absolute GHG emissions data, but no Scope 3 data, the issuer will be excluded.
MSCI Carbon Intensity	<p>The index does not exclude issuers based on the availability of MSCI carbon intensity (calculated using Scope 1, 2 and 3) data.</p>
MSCI Business Involvement Screens	<p>The index excludes issuers involved in the following business lines/activities per Article 12 of the EU Delegated Acts:</p> <ul style="list-style-type: none"> • Controversial Weapons <ul style="list-style-type: none"> ◦ Cluster Munitions ◦ Landmines ◦ Depleted Uranium ◦ Biological/Chemical Weapons ◦ Blinding Lasers ◦ Non-Detectable Fragments ◦ Incendiary • Tobacco Producers • UNGC Violations • Environment Controversy Score of 0 or 1 • Thermal Coal revenue $\geq 1\%$ • Oil & Gas revenue $\geq 10\%$ • Power Generation revenue $\geq 50\%$

The index additionally excludes issuers that MSCI define as having a percentage of revenue from, or being involved in, business activities related to:

- Nuclear Weapons
- Civilian Firearm Producers
- Civilian Firearms revenue $\geq 5\%$
- Unconventional Oil & Gas revenue $\geq 5\%$
- Tobacco revenue $\geq 5\%$
- Conventional Weapons revenue $\geq 5\%$
- Weapons Systems/Components/Support Systems/Services revenue $\geq 15\%$

MSCI ESG Rating

The following criteria apply:

- Securities must have an MSCI ESG Rating of B or higher.
- Unrated issuers from sectors with ratings are excluded.
- Prior to April 2021, ratings were applied at the ticker level. Every bond within the same ticker had the same MSCI ESG Rating.
- MSCI ESG ratings are generally updated annually but may be reviewed more frequently as needed.

MSCI ESG Controversies Screens

Excludes any issuer with a "Red" MSCI ESG Controversies score (equal to zero), which measures an issuer's involvement in major ESG controversies and how well they adhere to international norms and principles (see pages 9-11 of the [Bloomberg MSCI ESG Fixed Income Methodology](#)).

Optimization Constraints and Calculations

Overview

- All qualifying securities are selected from the Bloomberg US Corporate Index ("Parent Index") and are grouped by Ticker
- The Bloomberg PORT Optimizer is used to select and weight each Ticker in the Index.
 - The optimizer runs once per month to calculate notional positions of each Ticker
 - This process will not impact bond prices and other security-level analytics
- The optimizer has one main goal:
 - Minimize Active Total Risk versus the Parent Index. This is the ex-ante (or predicted) tracking error based on the Bloomberg Fixed Income Multi-Factor Risk model

Optimization Constraints

Each of these constraints are hard constraints, meaning that the optimizer will only consider solutions within these bounds.

Climate Constraints	
Reduction in weighted average absolute GHG emissions relative to the Parent Index ^{1,8}	-50%
Minimum annual reduction in weighted average absolute GHG emissions relative to the absolute GHG emissions at Base Date ²	-10%
Reduction in weighted average carbon intensity relative to the Parent Index ^{1,3,8,9}	-50%
Minimum annual reduction in weighted average carbon intensity relative to the carbon intensity at Base Date ^{2,3,8}	-10%

Minimum increase in weighted average green revenue relative to the Parent Index ⁸	+100%
Minimum green to fossil-fuel based ratio relative to the Parent Index ⁸	4x
Minimum increase in weight for issuers setting carbon reduction targets relative to the Parent Index ⁴	+20%

ESG Constraint	
Minimum increase in the weighted average ESG score relative to the Parent Index ⁸	+20%

Investability Constraints	
Ticker cap	4.5%
Ticker weight relative to the Screened Parent Index ⁵	
- minimum	0.1x
- maximum	5x
Ticker weight relative to the Screened Parent Index	+/- 1%
DTS (duration times spread) relative to the Parent Index	+/- 5%
YTW (yield to worst) relative to the Parent Index	>=
OAD (option-adjusted duration) relative to the Parent Index	+/- 0.25
Bloomberg Class 3 sector weight relative to the Parent Index ^{6,8}	+/- 5%
Country of risk weight relative to the Parent Index ⁸	+/- 5%
Turnover relative to the initial portfolio ⁷	Parent Index +2%

Notes:

- At index inception ("Base Date"), the weighted average absolute GHG emissions (Scopes 1, 2 and 3), and carbon intensity (Scopes 1, 2 and 3), in the Bloomberg MSCI US Corporate Climate Paris Aligned ESG Select Index, must be reduced by 50% relative to the weighted average absolute GHG emissions, and carbon intensity, of the Parent Index.

$$\sum (Ticker \text{ weight in index}) * Ticker \text{ level GHG emission})$$

$$\sum (Ticker \text{ weight in index} * Ticker \text{ level carbon intensity})$$

Note: issuers with unreported emissions or intensity are excluded from the weighted average calculations.

- At each monthly rebalance, the weighted average absolute GHG emissions, and carbon intensity, in the Bloomberg MSCI US Corporate Climate Paris Aligned ESG Select Index, must be reduced by the lower of:
 - minimum reduction of 50% relative to the Parent Index (refer to formula in note 1); or
 - minimum decarbonisation trajectory of 10% relative to Base Date

$$W_t = W_1 \times 0.90^{\frac{(t-1)}{12}}$$

t = number of monthly index rebalances

W₁ = weighted average absolute GHG emission, or carbon intensity, of the PAB index at Base Date

3. At the end of each 12 month period, an inflation adjustment factor ("IAF") is applied to the benchmark carbon intensity in the following 12 month period for the purpose of accounting for changes in issuers EVIC.

IAF is calculated by dividing the average EVIC across all benchmark constituents that have reported intensity values (scope 1, 2 and 3) as of the current year (t), by the average EVIC of the index constituents of the benchmark as of the prior calendar period (s):

$$IAF = \frac{\sum_{i=1}^{n_t} EVIC_t^i}{n_t} / \frac{\sum_{i=1}^{n_s} EVIC_s^i}{n_s}$$

4. At each monthly rebalance, Tickers that meet carbon reduction targets receive a minimum 20% increase in weight relative to the Tickers' weight in the Parent Index. To achieve the weight increase, Tickers must meet the following requirements:
 - a. Must have reported absolute GHG emissions; and
 - b. Must have explicitly set carbon reduction targets; and
 - c. Must have achieved a minimum 7% year-on-year absolute GHG emissions reduction over the previous 4 years
5. The Screened Parent index is the PAB index after the business involvement and ESG exclusions have been applied, but prior to optimization.
6. BCLASS 3 Energy sector is excluded from the sector constraint.
7. Turnover constraint is applied at the Ticker level in the optimization task and not at the security level.
8. Absolute GHG emissions, carbon intensity, green revenue, fossil-fuel based revenue, ESG score, country of risk and BCLASS 3 sector classifications, are initially applied at the security level. For the optimization, this data is rolled up to the Ticker level. In cases where a Ticker has subsidiaries with different absolute GHG emissions, carbon intensity, green revenue, fossil-fuel based revenue, or ESG score, the higher value is used to represent the Ticker. If subsidiaries have different country of risk or BCLASS 3 sector classifications, the classification assigned to the highest number of securities is assigned to the Ticker.
9. Carbon intensity constraint is applied only to issuers that MSCI have reported or estimated Scope 1, 2 and 3 carbon intensity data.

Infeasible Optimizations

If, on any month, the optimization task is not feasible, certain constraints within the task are set as soft constraints. This means that the optimizer will consider solutions outside of the hard bounds (detailed in the above tables), with penalties for each violation. The trade-off values are used to specify the penalties for the violations compared to the main objective:

- Total Active Risk - trade-off value: 1
- ESG Score - trade-off value: 50
- DTS - trade-off value: 10
- Yield to Worst - trade-off value: 0.1
- OAD - trade-off value: 1
- BCLASS 3 - trade-off value: 10
- Country of risk - trade-off value: 10
- Turnover - trade-off value: 25

GHG Emission Trajectory Base Date

The index Base Date was reset on June 30, 2020 to align with the introduction of MSCI Scope 3 emission data. Previously, the index Base Date was set to July 30, 2019.

Rebalancing Rules

Application of Optimized Ticker Weights to Qualifying Securities

Optimized Ticker weights are applied pro-rata to each qualifying security. They are applied at the weight the security holds within its Ticker group of the Screened Parent Index.

Frequency

The composition of the index is rebalanced on the fifth last business day of each month and represents the fixed set of bonds on which index returns are calculated for the next month. Qualifying securities issued after the index has been rebalanced, but before month-end, will not be included in the index until the next rebalance.

Index Changes

During the month, indicative changes to securities (credit rating change, sector reclassification, amount outstanding changes, corporate actions, ticker changes, etc.) are reflected daily. These changes will affect the composition of the index at month-end only, when the index is next rebalanced.

Reinvestment of Cash Flows

Intra-month cash flows from interest and principal payments contribute to monthly index returns but are not reinvested at a short-term reinvestment rate between rebalance dates. At each rebalancing, cash is effectively reinvested into the Returns Universe for the following month so that index results over two or more months reflect monthly compounding.

New Issues

Qualifying securities issued/announced, but not necessarily settled, on or before the month-end rebalancing date (the fifth last business day of each month), qualify for inclusion in the index if required security reference information and pricing are readily available. Securities issued/announced after the month-end rebalancing date will not be included in the index until the following month.

Pricing and Related Issues

Sources & Frequency

All index-eligible bonds are priced on a daily basis by Bloomberg's evaluated pricing service, BVAL.

Pricing Quotes

Bonds are quoted as a percentage of par.

Timing

- 4 pm (New York time).
- On early market closes, prices are taken as of 1 pm (New York time), unless otherwise noted.
- If the last business day of the month is a US holiday, prices from the previous business day are used.

Bid or Offer Side

Bonds in the index are priced on the bid side. The initial price for new corporate issues entering the index is the offer side; after the first month, the bid price is used.

Settlement Assumptions

- T+1 calendar day settlement basis.
- At month-end, settlement is assumed to be the first calendar day of the following month, even if the last business day is not the last day of the month, to allow for one full month of accrued interest to be calculated.

Verification

Daily price moves for each security are analyzed by the index pricing team. Index users may also challenge price levels, which are then reviewed and updated as needed.

Calendar

The Bloomberg MSCI US Corporate Climate Paris Aligned ESG Select Index follows the US bond market holiday schedule. FX rates are updated daily using WM Reuters 4pm (London) rates. FX forwards are also sourced from WM Company.

Accessing Index Data**Bloomberg Terminal®**

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- INDE<GO> - The Bloomberg Indices dashboard page, which contains daily, monthly, and year-to-date index returns for key indices from each index family as well as a link to index publications.
- IN<GO> - The Bloomberg Index Browser displays the latest performance results and statistics for the indices as well as history. IN presents the indices that make up Bloomberg's global, multi-asset class index families into a hierarchical view, facilitating navigation and comparisons. The "My Indices" tab allows a user to focus on a set of favorite indices.
- DES<GO> - The index description page provides transparency into an individual index including membership information, aggregated characteristics and returns, and historical performance.
- INP<GO> - The Bloomberg Indices Publications page, which includes methodologies, factsheets, monthly reports, announcements and technical notes. A user may also subscribe to index publications via the "Actions" button.
- PORT<GO> - Bloomberg's Portfolio & Risk Analytics solution includes tools to analyze the risk, return, and current structure of indices. Analyze the performance of a portfolio versus a benchmark or use models for performance attribution, tracking error analysis, value-at-risk, scenario analysis, and optimization.

Bloomberg Indices Website

(www.bloomberg.com/indices)

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- Index methodology and factsheets
- Current performance numbers for select indices

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- Automatic delivery of files via email or SFTP following the completion of the index production process after market close
- Clients may receive standard files or may customize file contents
- Index data is also available via authorized redistributors

Index Ticker

I36927US: Total Return USD Unhedged

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