

# INDEX RULES



# ECPI GLOBAL BOND INDEX FAMILY

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## INTRODUCTION

The present document describes the index methodology for the construction and calculation of the ECPI Global Bond Index Family.

The ECPI Global Bond Index Family is composed of:

- ECPI Global Developed ESG Corporate Bond Index
- ECPI Euro ESG Corporate Bond Ex Military Index
- ECPI Global Developed ESG Corporate Ex Financials Bond Index
- ECPI Global Developed ESG Corporate Financials Bond Index
- ECPI Global Developed ESG High Yield Corporate Bond Index
- ECPI Emerging Markets ESG Corporate Bond Index
  
- ECPI Global Developed Governance Government Bond Index
- ECPI EMU Governance Government Bond Index
- ECPI Global Developed ex EMU Governance Government Bond Index
- ECPI US Governance Government Bond Index
- ECPI Emerging Markets ESG Government Bond Index

The ECPI Global Developed ESG Corporate Bond Index selects investment grade global corporate bond issues denominated in major currencies which have a positive ESG rating according to ECPI ESG Rating Methodology.

**Bloomberg Ticker:** ECAPGCB Index

The ECPI Euro ESG Corporate Bond Ex Military Index selects investment grade global corporate bond issues denominated in Euro which have a positive ESG rating according to ECPI ESG Rating Methodology and excludes issuers involved in armaments production.

**Bloomberg Ticker:** ECAPCEXM Index

The ECPI Global Developed ESG Corporate Ex Financials Bond Index selects non-financials bonds which are members of the ECPI Global Developed ESG Corporate Bond Index (ECAPGCB).

**Bloomberg Ticker:** ECAPGCXF Index

The ECPI Global Developed ESG Corporate Financials Bond Index selects financial sector bonds which are members of the ECPI Global Developed ESG Corporate Bond Index (ECAPGCB).

**Bloomberg Ticker:** ECAPGCF Index

The ECPI Global Developed ESG High Yield Corporate Bond Index selects non-investment grade ('BB' to 'B') global corporate bond issues denominated in major currencies which have a positive ESG rating according to ECPI ESG Rating Methodology.

**Bloomberg Ticker:** ECAPHYCB Index

The ECPI Emerging Markets ESG Corporate Bond Index is composed of emerging markets investment grade ('AAA' to 'BBB') and non-investment grade ('BB' to 'B') global corporate bond issues denominated in EUR and USD which have a positive ESG rating according to ECPI ESG Rating Methodology.

**Bloomberg Ticker:** ECAPEMCB Index

The ECPI Global Developed Governance Government Bond Index selects developed countries investment grade government bonds which are eligible investments according to ECPI Government Governance Rating Methodology.

**Bloomberg Ticker:** ECAPDGB Index

The ECPI EMU Governance Government Bond Index selects bonds in the ECPI Global Developed Governance Government Bond Index (ECAPDGB) issued by EMU country members which are eligible investments according to ECPI Government Governance Rating Methodology.

**Bloomberg Ticker:** ECAPGGE Index

The ECPI Global Developed ex EMU Governance Government Bond Index The Index selects bonds in the ECPI Global Developed Governance Government Bond Index (ECAPDGB) issued by non-EMU countries which are eligible investments according to ECPI Government Governance Rating Methodology..

**Bloomberg Ticker:** ECAPGGXE Index

The ECPI US Governance Government Bond Index is composed of bonds in the ECPI Global Developed Governance Government Bond Index issued by the U.S. Government.

**Bloomberg Ticker:** ECAPUSGB Index

The ECPI Emerging Markets ESG Government Bond Index is composed of emerging markets investment grade ('AAA' to 'BBB') and non-investment grade ('BB' to 'B') government and sub-sovereign bond issues denominated in EUR and USD which have a positive rating according to ECPI Government and Supranational ESG Rating Methodology.

**Bloomberg Ticker:** ECAPEMGB Index

For a description of the sustainability analysis, please see the ECPI ESG Rating Methodology and the ECPI Government and Supranational Rating Methodology.

## SELECTION CRITERIA

The selection criteria for the inclusion of bonds in the ECPI Global Bond indices are:

- Bond Type
- Bond Classification
- Credit Rating
- Time to maturity
- Amount Outstanding
- Eligible Countries
- Eligible Currencies
- Sustainability

### BOND TYPE

General inclusion criteria: only fixed rate bonds whose cash flow can be determined in advance are eligible for the indices.

In particular, bonds with the following characteristics are included:

- Fixed coupon bonds
- Zero coupon bonds
- Step-ups
- Event-driven bonds, such as rating- or tax-driven bonds with a maximum of one coupon change per period
- Dated and undated callable corporate bonds, including fixed-to-floater bonds that change to a floating rate note at or after the first call date. Undated bonds must be callable. In the index calculation, these bonds are always assumed to redeem at the first call date

The following bonds are specifically excluded: inflation- and other index-linked bonds, sinking funds and amortizing bonds, other callable and undated bonds, floating rate notes and other fixed-to-floater bonds, convertible bonds, private placements, subordinated bank or insurance debt with mandatory contingent conversion features or with any conversion options before the first call date, CDOs (Collateralized Debt Obligations) and bonds collateralized by CDOs, covered bonds (bonds secured by a general pool of assets).

### BOND CLASSIFICATION

Each bond is classified into one of the three categories: Sovereigns, Sub-Sovereigns and Corporate Bonds as well as a number of category-specific subsectors.

- **Sovereigns:** bonds issued by a central government
- **Sub-sovereigns:** bonds issued by local governments (e.g. German Bundeslaender) and bonds guaranteed or issued by entities guaranteed by governments such as government agencies (e.g. Cades, KfW), public banks or supranational entities (e.g. EIB, World Bank), bonds issued by unguaranteed financial institutions with an irrevocable and explicit guarantee issued by the government of the issuer country that covers amount and timeliness of all interest and principal payments until the maturity of the bond. The two main sub-sovereign sectors are: agencies and supranationals. Agency's bonds are issued by entities whose major business is to fulfill a government-sponsored role to provide public services. Supranational bonds are issued by supranational entities, i.e. entities that are owned by more than one central government.
- **Corporate bonds:** bonds issued by public or private corporations. The bonds are further classified by sectors: ECPI uses the Bloomberg Industry Classification System (BICS) for sector classification.

### RATING

All bonds in the ECPI Global Bond index family must be rated investment grade by at least one of the following rating agencies: Standard & Poor's, Moody's or Fitch. If a bond is rated by several agencies, then an average rating/score is calculated to determine eligibility. If a tranche is not rated, the rating of its parent is applied.

## Calculation of Average Rating

A numerical score is given to each rating provided by the relevant rating agency. The table below provides the numerical translation for the three agencies currently considered:

FITCH	MOODY'S	STANDARD & POOR'S	SCORE
AAA	Aaa	AAA	1
AA+	Aa1	AA+	2
AA	Aa2	AA	3
AA-	Aa3	AA-	4
A+	A1	A+	5
A	A2	A	6
A-	A3	A-	7
BBB+	Baa1	BBB+	8
BBB	Baa2	BBB	9
BBB-	Baa3	BBB-	10
BB+	Ba1	BB+	11
BB	Ba2	BB	12
BB-	Ba3	BB-	13
B+	B1	B+	14
B	B2	B	15
B-	B3	B-	16
CCC+	Caa1	CCC+	17
CCC	Caa2	CCC	18
CCC-	Caa3	CCC-	19
CC	Ca	CC	20
C	C	C	21
D/RD	D		22

Where more than one rating is available, the numerical average of all scores will be calculated and rounded up to the nearest integer. The resulting score is used to determine eligibility:

SCORE	ELIGIBLE
1 - 10	Investment Grade Indices
10. - 16	High Yield Indices
>16	No

## TIME TO MATURITY

All bonds must have a minimum remaining time to maturity of at least one year at the rebalancing date. For callable bonds, the first call date is always assumed to be the expected redemption date. The expected remaining life is calculated as the number of days between the rebalancing date and the expected redemption date.

## AMOUNT OUTSTANDING

All bonds require a specific minimum amount outstanding in order to be eligible for the indices, as shown below. The minimum amount outstanding is defined for each bond classification used and for each eligible currency:

### GLOBAL DEVELOPED GOVERNMENT BONDS

- AUD, CAD, EUR, GBP, SEK, USD: 2bn
- CHF, DKK, ILS, NOK, NZD: 1bn
- JPY: 150bn

## EMERGING MARKETS GOVERNMENT BONDS

- EUR, USD: 500mln

## INVESTMENT GRADE AND HIGH YIELD CORPORATE BONDS

- AUD, CAD, CHF, DKK, EUR, ILS, NOK, NZD, SEK, USD: 500mln
- GBP: 250mln
- JPY: 50bn

## GLOBAL DEVELOPED ELIGIBLE COUNTRIES

The following list reports the eligible countries of incorporation for indices belonging to the ECPI Global Developed Indices:

- |             |                  |
|-------------|------------------|
| ▪ Australia | ▪ Japan          |
| ▪ Austria   | ▪ Luxembourg     |
| ▪ Belgium   | ▪ Netherlands    |
| ▪ Canada    | ▪ New Zealand    |
| ▪ Denmark   | ▪ Norway         |
| ▪ Finland   | ▪ Portugal       |
| ▪ France    | ▪ Spain          |
| ▪ Germany   | ▪ Sweden         |
| ▪ Greece    | ▪ Switzerland    |
| ▪ Ireland   | ▪ United Kingdom |
| ▪ Israel    | ▪ United States  |
| ▪ Italy     |                  |

Sovereigns and Sub-sovereigns incorporated in countries not belonging to the Global Developed Eligible Countries' list are eligible for inclusion in the ECPI Emerging Markets ESG Government Bond Index.

## ELIGIBLE CURRENCIES

The following list reports the eligible currencies for indices belonging to the ECPI Global Developed Index Family:

- AUD
- CAD
- CHF
- DKK
- EUR
- GBP
- ILS
- JPY
- NOK
- NZD
- SEK
- USD

## WEIGHTING

The market value of each bond is used to calculate its index weight. The indices are capitalization-weighted.

## SUSTAINABILITY SCREENING

All bonds included in the ECPI Global Bond Index Family are issued by entities that are eligible according to ECPI ESG Rating Methodology/ECPI Government Governance Rating Methodology.

## PERIODIC REVIEW

The indices are reviewed and re-balanced on a monthly basis. This includes:

### BOND SELECTION

The universe of bonds is reviewed monthly; the issues meeting the criteria described above at the end of the month are included in the indices. The cut-off date for meeting the amount outstanding criteria is three business days prior to month-end. The rating information includes all rating actions published three trading days before the end of the month. Intra-month rating changes are reflected at the beginning of the following month. The time to maturity is measured from the rebalancing date to the final specified maturity date of the bond.

### INDEX COMPOSITION

All bonds are assigned to the indices according to their classification. The assignment of a bond to a certain maturity bucket is based on its expected remaining life. The expected remaining life is expressed in years and calculated as follows:

- For plain vanilla bonds, the expected remaining life of the bond is its time to maturity, calculated as the number of days between the last calendar day of the current month and its maturity;
- For dated and undated callable bonds, the first call date is always assumed to be the expected redemption date. The expected remaining life is calculated as the number of days between the last calendar day of the month and the expected redemption date.

All bonds remain in their maturity bucket for the entire month.

### WEIGHTING ADJUSTMENTS

Within an index, each bond is weighted according to its market value. Intra-month changes of the amount outstanding for each bond are reflected in the index through the rebalancing procedure at the beginning of the next month.

### COUPON ADJUSTMENTS

Coupon changes to corporate bonds are taken into account in the calculation of the indices from the exact date on which the coupon was altered.

### RE-BALANCING TIMEFRAME

About 15 business days before the end of each month, a preliminary list of securities entering and exiting the index is published (Preview). Two business days before the end of each month, a final list of securities entering and exiting the index is published (Review).



## INDEX CALCULATION

### CALCULATING THE INDICES

The indices are calculated based on bid prices. Bonds that currently are not in the index but become eligible at the next rebalancing will enter the indices at their ask price. The preferred pricing source is Bloomberg BVAL. If necessary, other pricing sources may be selected by ECPI in order to guarantee representativeness and the quality of the index.

### CURRENCY OF CALCULATION

The indices are calculated in EURO using 4pm WM Reuters spot rates for conversion.

A hedged into EURO version of the indices is also calculated for multicurrency indices: for details please see the ECPI hedging algorithm document.

### MINIMUM NUMBER OF BONDS

An index is calculated if at least one available bond matches all index criteria. If no more bonds qualify for an index, that index is no longer calculated and the index level remains at the last published level. If at least one bond qualifies again, calculation of the index is resumed.

### MATURITY BUCKETS

All bonds are categorized into maturity buckets. As a principle, the bands are defined as 1-3, 1-5, 1-10, 1-20, 3-5, 5+, 5-7, 5-10, 5-15, 7+, 7-10 and 10+ years.

### BONDS TRADING FLAT OF ACCRUED

If a bond is identified as trading flat of accrued, the accrued interest of the bonds is set to 0 in the total return index calculation and the bond is excluded from the calculation of all bond and index analytical values.

### REINVESTMENT OF CASH

Payments from coupons and scheduled partial and unscheduled full redemptions are held as cash until the next rebalancing when the cash is reinvested in the index.

### SETTLEMENT CONVENTIONS

The settlement convention is t+0.

### INDEX FORMULAS

The ECPI Global Developed Bond indices are calculated as basket indices based on real bonds. All indices are published as total return indices.

The ECPI Global Developed Bond indices are calculated on a capitalization-weighted basis that recognizes the relative changes in value compared to the beginning of each month. The composition and weightings of the index are adjusted at the beginning of each month.

### TOTAL RETURN INDEX

For total return indices the monthly adjustment involves the reinvestment of coupon payments into the index at the beginning of the new month. Total return indices are calculated as follows:

$$TR_t = TR_{t-s} \frac{\sum_{i=1}^n (P_{i,t} + A_{i,t} + XD_{i,t-s} * (CP_{i,t} + G_{i,t})) * N_{i,t-s}}{\sum_{i=1}^n (P_{i,t-s} + A_{i,t-s} + XD_{i,t-s} * CP_{i,t-s}) * N_{i,t-s}}$$

**NOTATION**

- $A_{i,t}$  Accrued interest of bond  $i$  at time  $t$
- $A_{i,t-s}$  Accrued interest of bond  $i$  on the last calendar day of the previous month
- $CP_{i,t}$  Value of the next coupon payment of bond  $i$  during an ex-dividend period (because the next coupon is separated from the bond during the ex-dividend period). Outside the ex-dividend period, the value is 0
- $CP_{i,t-s}$  Value of the next coupon payment of bond  $i$  (at the last re-balancing) during an ex-dividend period (because the next coupon is separated from the bond during the ex-dividend period). Outside the ex-dividend period, the value is 0;
- $G_{i,t}$  Coupon payment received from bond  $i$  between the day of the payment and month-end. If none the value is set to 0
- $n$  = Number of bonds resp. number of future cash flows in the index
- $N_{i,t-s}$  Notional of bond  $i$  at the last rebalancing
- $P_{i,t}$  Price of bond  $i$  at time  $t$ ;
- $P_{i,t-s}$  Closing price of bond  $i$  on the last trading day of the previous month
- $PI_t$  Price index level at time  $t$ ;
- $PI_{t-s}$  Closing price index level on the last calendar day of the previous month
- $s$  = Time since last rebalancing
- $t$  = Time of calculation
- $TR_t$  Total return index level at time  $t$
- $TR_{t-s}$  Closing total return index level on the last calendar day of the previous Month
- $XD_{i,t-s}$  0, if the bond enters the index during its current ex-dividend period (to ensure that the next coupon payment is not included in the total return calculation)
- $XD_{i,t-s}$  1, if (a) the bond does to have ex-dividend conventions, (b) has not entered the index during an ex-dividend period, or (c) entered the index during a previous ex-dividend period.

## HEDGED INDICES

International multi-currency bond indices are also available in the hedged to EUR version:

- ECPI Global Developed ESG Corporate Hedged Bond Index - ECAPGCBH Index
- ECPI Global Developed ESG Corporate Ex Financials Hedged Bond Index - ECAPGXFH Index
- ECPI Global Developed ESG Corporate Financials Hedged Bond Index - ECAPGCFH Index
- ECPI Global Developed ESG High Yield Corporate Hedged Bond Index - ECAPHYCH Index
- ECPI Global Developed ex EMU Governance Government Hedged Bond Index - ECAPGXEH Index
- ECPI US Governance Government Hedged Bond Index - ECAPUSGH Index
- ECPI Emerging Markets ESG Government Hedged Bond Index - ECAPEMGH Index
- ECPI Emerging Markets ESG Corporate Hedged Bond Index - ECAPEMCH Index

### HEDGING ALGORITHM

The hedged index performance is calculated as the performance of the unhedged index in the base currency plus the hedge impact in the base currency, as derived from the forward positions.

The hedge impact (HI) is calculated according to the following formula:

$$HI(t) = NAF \times \sum_{i=1}^n \left\{ Weight_{i,M-2} \times FXRate_{i,M-2} \times \left( \frac{1}{FFRate_{i,M-1}} - \frac{1}{FFRate_{i,old-days_t}} \right) \right\}$$

Where

T = Index calculation date

$$NAF = \frac{HedgedIndex_{M-2}}{HedgedIndex_{M-1}}$$

M = First calendar day of the month

HI(t) = Index Hedge Impact at time t

$Weight_{i,M-2}$  = Currency weight in the index 2 days before next month first day

$FXRate_{i,M-2}$  = Spot rate of the currency i two business days before the start of the current calendar month. This term determines the notional amount of the foreign currency to be sold corresponding to its weight in the index

$FFRate_{i,M-1}$  = 1-month Forward for the currency i one business day before the start of the current calendar month (or last business day of the previous calendar month)

$FFRate_{i,old-days_t}$  = Interpolated odd-days forward rate of the currency i on day t.

The interpolated odd-days forward rate is calculated according to the following formula:

$$FFRate_{odd-days_t} = FXRate_t + \left\{ (FFRate_{1-month_t} - FXRate_t) \times \frac{Odd-days_t}{TotNbOfCalcDaysDuringMonth} \right\}$$

Where

$FXRate_t$  = Spot rate at time t

$FFRate_{1-month_t}$  = 1 month forward rate at time t

$Odd-Days_t$  = Number of days until the last business day of the current month (not counting t)

The performance of the hedged index total return net is calculated as:

$$Hedged\ Index = \frac{I(TRNet)_t}{I(TRNet)_{M-1}} - 1 + HI(t)$$

## INTRA MONTH EVENTS

### **CALLED BONDS**

Bonds that are called during the month are treated immediately: the value of the called bond is kept constant at the call price plus accrued interest as of the call date and brought forward until the next rebalancing.

### **FUNGED BONDS**

Bonds may be issued in several tranches. The different tranches are initially legally separate and therefore trade independently for a certain period. On and after the funge date, the tranches will be combined into one bond, i.e. the parent tranche will contain the original security, as well as the additional notional(s) from the new tranche(s). After the funge date, the prices for both the securities are the same, because they constitute one uniform bond. This is reflected in the indices as follows:

- After the funge date, the price from the parent tranche is used for the funged tranche;
- Funged tranche leaves the index at the next rebalancing and parent amount outstanding increases accordingly.

### **EX-DIVIDEND CONVENTION**

Some markets have ex-dividend conventions. Ex-dividend means that the next coupon is detached from the bond several days in advance of the coupon payment date. The date on which the next coupon is detached is the ex-dividend date and the period between the ex-dividend date and the coupon payment date is the ex-dividend period. If a bond is in the ex-dividend period, the next coupon payment will not be paid to a buyer of this bond, but will be paid to the original bond holder.

The treatment of such bonds is as follows:

- At the rebalancing: a bond is not included as a new component of the index if it is under the ex-dividend period
- For index components with ex-dividend conventions: the index calculation will consider the coupon on the relevant payment date.

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**Bloomberg: ECPS**  
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