

FTSE Eurozone Government Bond Index Series

v3.0



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Section 1

Introduction

1. Introduction

1.1 FTSE Eurozone Index structure

- 1.1.1 FTSE Eurozone Indices¹ are a set of benchmarks for the European sovereign bond market. The indices are calculated and distributed by FTSE Russell using pricing data from the Refinitiv Evaluated Pricing Service (REPS)².
- 1.1.2 The FTSE Eurozone Government Bond Index Series does not take account of ESG factors in its index design.
- 1.1.3 The base currency of the benchmark is EUR.

1.2 IOSCO

- 1.2.1 FTSE International Limited (FTSE) considers that the FTSE Eurozone Government Bond Index Series (the Index Series) meets the IOSCO Principles for Financial Benchmarks as published in July 2013.

Full details can be accessed at www.iosco.org.

Details of FTSE Russell's Statement of Compliance with respect to the IOSCO Principles can be accessed through the following link:

[IOSCO Statement of Compliance](#)

- 1.3 FTSE Russell hereby notifies users of the index series that it is possible that circumstances, including external events beyond the control of FTSE Russell, may necessitate changes to, or the cessation of, the index series and therefore, any financial contracts or other financial instruments that reference the index series or investment funds which use the index series to measure their performance should be able to withstand, or otherwise address the possibility of changes to, or cessation of, the index series.
- 1.4 Index users who choose to follow this index series or to buy products that claim to follow this index should assess the merits of the index's rule-based methodology and take independent investment advice before investing their own or client funds. No liability whether as a result of negligence or otherwise is accepted by FTSE Russell nor its group companies (or any person concerned with the preparation or publication of these Ground Rules) for any losses, damages, claims and expenses suffered by any person as a result of:
 - any reliance on these Ground Rules, and/or
 - any inaccuracies in these Ground Rules, and/or
 - any non-application or misapplication of the policies or procedures described in these Ground Rules, and/or
 - any inaccuracies in the compilation of the Index or any constituent data in the FTSE Eurozone Government Bond Index Series.

¹ With effect from 1 April 2022 rebranded from FTSE MTS Indices.

² With effect from 10, October 2022, REPS replaced prices from MTS platform.

1.5 These Ground Rules

1.5.1 This document sets out the Ground Rules for the construction and management of the FTSE Eurozone Government Bond Index Series.

1.6 FTSE Russell

1.6.1 FTSE Russell is a trading name of FTSE International Limited, Frank Russell Company, FTSE Global Debt Capital Markets Limited (and its subsidiaries FTSE Global Debt Capital Markets Inc. and FTSE Fixed Income Europe Limited), FTSE Fixed Income LLC, FTSE (Beijing) Consulting Limited, Refinitiv Benchmark Services (UK) Limited, Refinitiv Limited and Beyond Ratings.

1.7 Index series objectives

1.7.1 The FTSE Eurozone Government Bond Index Series is designed to be a measure of the Eurozone Government Bond market. They are transparent indices, and are designed to be replicable with individual security holdings and prices disclosed electronically each day.

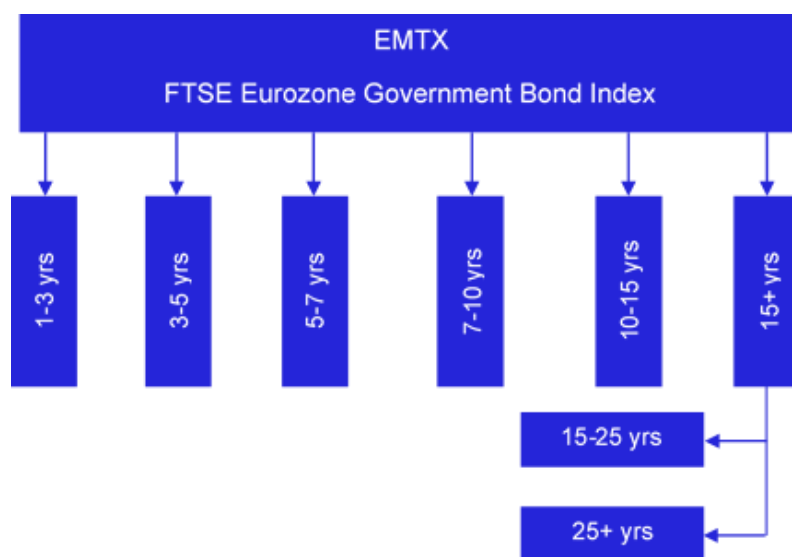
1.8 Publication of index and underlying data

1.8.1 FTSE Eurozone Indices are published on an end of day basis following market close at 17:15 CET.

1.9 FTSE Eurozone Government Bond Index Series

1.9.1 The FTSE Eurozone Government Bond Index Series is designed to improve index replicability by limiting each Eurozone sovereign issuer to two bonds per maturity range, with the exception of the 15+ years range.

The structure of FTSE Eurozone Government Bond Index Series is shown below:



There is a parallel series of indices which includes investment grade issues only, as defined in Section 4.

1.10 Price and Total Return indices

1.10.1 Price and Total Return indices are calculated.

Total Return Index: Coupons paid out on any bond in an index portfolio are reinvested overnight in the index itself. No deduction is made to a coupon before it is reinvested in the index i.e. no withholding tax is applied.

1.11 Index analytics

1.11.1 In addition to the Capital Index and Total Return Index, the following index analytics are also calculated:

- Average coupon
- Average yield to maturity
- Average time to maturity
- Average Macaulay duration
- Average modified duration
- Average convexity

1.12 Index calculation

The indices are calculated on every day that is a TARGET business day. The index calculation will use the T+2 settlement convention for the valuation of index constituents and the calculation of index analytics.

Section 2

Management responsibilities

2. Management responsibilities

2.1 FTSE International Limited (FTSE)

2.1.1 FTSE is the benchmark administrator of the index.³

2.1.2 FTSE Russell is responsible for the daily calculation, production and operation of the FTSE Eurozone Government Bond Index Series and will:

- maintain records of all the constituents;
- be responsible for the addition and deletion of bonds and changes of nominal amounts, in accordance with the Ground Rules.

2.2 FTSE EMEA Fixed Income Advisory Committee

2.2.1 The FTSE EMEA Fixed Income Advisory Committee has been established by FTSE Russell. The Committee may recommend changes to the Ground Rules for approval by the FTSE Russell Index Governance Board.

2.2.2 The Terms of Reference of the FTSE EMEA Fixed Income Indices Advisory Committee are set out on the FTSE Russell website and can be accessed through the following link:

[FTSE EMEA Fixed Income Advisory Committee.pdf](#)

2.3 Amendments to these Ground Rules

2.3.1 These Ground Rules shall be subject to regular review (at least once a year) by FTSE Russell to ensure that they continue to best reflect the aims of the index series. Any proposals for significant amendments to these Ground Rules will be subject to consultation with the FTSE EMEA Fixed Income Advisory Committee and other stakeholders if appropriate. The feedback from these consultations will be considered by the FTSE Russell Index Governance Board before approval is granted.

2.3.2 As provided for in the Statement of Principles for FTSE Fixed Income Indices, where FTSE Russell determines that the Ground Rules are silent or do not specifically and unambiguously apply to the subject matter of any decision, any decision shall be based as far as practical on the Statement of Principles. After making any such determination, FTSE Russell shall advise the market of its decision at the earliest opportunity. Any such treatment will not be considered as an exception or change to the Ground Rules, or to set a precedent for future action, but FTSE Russell will consider whether the Rules should subsequently be updated to provide greater clarity.

³ The term administrator is used in this document in the same sense as it is defined in [Regulation \(EU\) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds](#) (the European Benchmark Regulation) and [The Benchmarks \(Amendment and Transitional Provision\) \(EU Exit\) Regulations 2019](#) (the UK Benchmark Regulation).

2.4 Market disruption

- 2.4.1 If the value of one or more constituents is not published due to a suspension or a market disruption event, the index will be calculated taking the latest intra-day value, if available. If an intra-day value is unavailable, the previous end of day value will be used.

Section 3

FTSE Russell index policies

3. FTSE Russell index policies

These Ground Rules should be read in conjunction with the following policy documents which can be accessed using the links below:

3.1 Queries and Complaints

FTSE Russell's complaints procedure can be accessed through the following link:

[Benchmark Determination Complaints Handling Policy.pdf](#)

3.2 Statement of Principles for FTSE Fixed Income Indices (the Statement of Principles)

Indices need to keep abreast of changing markets and the Ground Rules cannot anticipate every eventuality. Where the Ground Rules do not fully cover a specific event or development, FTSE Russell will determine the appropriate treatment by reference to the Statement of Principles for FTSE Fixed Income Indices which summarises the ethos underlying FTSE Russell's approach to index construction. The Statement of Principles is reviewed annually and any changes proposed by FTSE Russell are presented to the FTSE Russell Policy Advisory Board for discussion before approval by the FTSE Russell Index Governance Board.

The Statement of Principles for Fixed Income Indices can be accessed through the following link:

[Statement of Principles Fixed Income Indices.pdf](#)

3.3 Recalculation Policy and Guidelines

The Recalculation Policy and Guidelines for Fixed Income Indices document is available from the FTSE Russell website using the link below or by contacting info@ftserussell.com.

[Fixed Income Recalculation Policy and Guidelines.pdf](#)

3.4 Index Policy in the Event Clients are Unable to Trade a Market or a Security

3.4.1 Details of FTSE Russell's treatment can be accessed through the following link:

[Index Policy in the Event Clients are Unable to Trade a Market or a Security.pdf](#)

3.5 Policy for Benchmark Methodology Changes

3.5.1 Details of FTSE Russell's policy for making benchmark methodology changes can be accessed through the following link:

[Policy for Benchmark Methodology Changes.pdf](#)

3.6 FTSE Russell Governance Framework

- 3.6.1 To oversee its indices, FTSE Russell employs a governance framework that encompasses product, service and technology governance. The framework incorporates the London Stock Exchange Group's three lines of defence risk management framework and is designed to meet the requirements of the IOSCO Principles for Financial Benchmarks⁴, the European benchmark regulation⁵ and the UK benchmark regulation⁶. The FTSE Russell Governance Framework can be accessed through the following link:

[FTSE Russell Governance Framework.pdf](#)

3.7 Real Time Status Definitions

- 3.7.1 Please refer to the following guide for details of real time status definitions for indices that are calculated in real time.

[Real Time Status Definitions.pdf](#)

⁴ IOSCO Principles for Financial Benchmarks Final Report, FR07/13 July 2013.

⁵ Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds.

⁶ The Benchmarks (Amendment and Transitional Provision) (EU Exit) Regulations 2019.

Section 4

Eligibility criteria

4. Eligibility criteria

4.1 Selection process

The constituent selection process for the FTSE Eurozone Government Bond Index Series comprises two steps:

1. Establish all Eligible Bonds for each sub-index, as per the eligibility criteria in Rule 4.2 and Rule 4.3.
2. Select a limited number of Eligible Bonds for the index ('Selected Bonds'), depending on the maximum number of bonds per issuer. For most maturity sub-indices, this maximum is two. If there are more than two bonds available for selection, the bond with the largest amount outstanding and residual maturity is selected. The detailed selection procedure is described in Appendix A.

4.2 Eligible bonds

To be eligible for the FTSE Eurozone Government Bond Index bonds must meet the following eligibility criteria:

- Nominal, fixed coupon bullet-maturity bonds denominated in euros and having no embedded options or convertibility;
- Quoted on the Refinitiv Evaluated Pricing Service (REPS);
- Issued by the sovereign government of one of the following Eurozone countries: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Netherlands, Portugal and Spain;
- A minimum outstanding amount of €2 billion.

4.3 Credit ratings

For the investment grade sub-indices, eligible bonds must have an investment grade issuer rating from at least two of the following rating agencies: Fitch, Moody's and S&P.

Section 5

Price sources

5. Price sources

- 5.1 FTSE Eurozone Indices are priced using the Refinitiv Evaluated Pricing Service (REPS).
- 5.2 Index updates are calculated using best bid prices. New bonds entering the index for the first time use the best offer price, replicating the bid-offer spread experienced by a fund tracking the index. This applies to both the all-maturity and the individual maturity sub-indices.
- 5.3 Selected indices of each series are also available in mid-priced versions, where existing constituents are valued using mid prices. In order to replicate the bid-offer spread incurred when tracking the mid-priced index, new constituents enter the mid-priced index using their respective offer prices, and leave the index using their respective bid prices. The mid-price is calculated as the arithmetic average of the respective bid and offer price pair.
- 5.4 Prior to being used in the index calculation, the prices are subject to a multi-step verification process which aims to remove stale or off-market prices. The verification procedure includes:
- Comparing the bid and offer spreads against country thresholds
 - Comparing price movements in individual bonds against pre-defined thresholds.

Any price that successfully completes the verification process is referred to as the Last Good Price (LGP) and is subsequently used in the index calculation. In the event that the verification process disqualifies all prices for a particular bond the LGP is used, until a new price is available.

5.5 Verification and price challenges

- 5.5.1 Statistical techniques are used to identify pricing anomalies based on bid-ask spreads, day-over-day changes and comparisons across peer groups by maturity, asset type, etc.
- 5.5.2 Any price challenges from index users and possible outliers from the verification process are reviewed with our pricing provider.
- 5.5.3 In the event that an issue is not able to be resolved in a timely manner, FTSE Russell may exercise expert judgement and roll prices from the previous day. Any exercise of expert judgement is recorded.

Section 6

Index rebalancing

6. Index rebalancing

6.1 Monthly rebalancing

- 6.1.1 FTSE Eurozone Indices are rebalanced every calendar month. New selections for the index portfolios and their weights are established using market data at 17:15 CET on the first day that is a TARGET business day and following the 15th day of the month prior to the effective date of the new selections (such business day being the “Selection Day”). The first settlement day of a newly issued bond must be on or before Selection Day in order for it to be eligible for the new monthly selections.
- 6.1.2 The monthly rebalance is applied post close on the last business day of the month with prices from 17:15 CET, i.e. with effect from open on the first business day of the following month. In the event that there are no Eligible Bonds available to be selected for a new monthly index portfolio, the current (populated) index portfolio is held constant until a new bond(s) becomes eligible.

6.2 Notional amounts

- 6.2.1 The notional amount of each Selected bond i is determined using data from 17:15 CET on the first business day following the 15th day of the month immediately preceding the effective month 1. This time is denoted t_0 . Bond eligibility and selections are established by applying the relevant criteria for each index at the same time t_0 .
- 6.2.2 For historical reasons, some of the sub-indices belonging to the FTSE Eurozone Government Bond Index Series includes only a subset of all Eligible Bonds as Selected Bonds (see Appendix A for details). Additionally, Selected Bonds for the all-maturity FTSE Eurozone Government Bond Index are simply those that are selected for the maturity sub-indices (i.e. a combination of some and all Eligible Bonds in respect of each sub-index).
- 6.2.3 The notional amounts of the bonds in the FTSE Eurozone Government Bond sub-indices in which only a subset of Eligible Bonds become Selected Bonds, are adjusted so that their weight in each sub-index is equal to the weight of the eligible bonds of that issuer, relative to all of the eligible bonds for each sub-index.
- Note that if a bond is selected in more than one sub-index, then:
- The bond is selected for the all-maturity index only once;
 - The weight of the bond in the wider sub-index is used in calculating the weight in the all-maturity index (i.e. for a 17 year bond, the 15+ years sub-index is considered and the 15-25 years sub-index is not used).

Appendix A

FTSE Eurozone Government Bond Index Series

Base dates and selection criteria:

Index	Maturity range	Base date (Index = 100)	Selection criteria
FTSE Eurozone Government Bond Index	> 1 year	31 Dec 98	All Selected Bonds in maturity sub-indices below
FTSE Eurozone Government Bond 1-3Y Index	1-3 years	31 Dec 98	2 eligible bonds per issuer
FTSE Eurozone Government Bond 3-5Y Index	3-5 years	31 Dec 98	2 eligible bonds per issuer
FTSE Eurozone Government Bond 5-7Y Index	5-7 years	31 Dec 98	2 eligible bonds per issuer
FTSE Eurozone Government Bond 7-10Y Index	7-10 years	31 Dec 98	2 eligible bonds per issuer
FTSE Eurozone Government Bond 10-15Y Index	10-15 years	31 Dec 98	2 eligible bonds per issuer
FTSE Eurozone Government Bond 15-25Y Index	15-25 years	31 Dec 98	All eligible bonds
FTSE Eurozone Government Bond 25Y+ Index	25+ years	31 Dec 98	All eligible bonds
FTSE Eurozone Government Bond Index	15+ years	31 Dec 98	All eligible bonds

If a bond is included in more than one maturity sub-index (e.g. in both the 15-25 years sub-index and the 15+ years sub-index), it is included only once in the all-maturity FTSE Eurozone Government Bond Index. For maturity sub-indices with a selection limit of two bonds per issuer, Selected Bonds from the previous monthly selections that continue to be Eligible, automatically become Selected Bonds for the new month.

For maturity sub-indices with a selection limit of two bonds per issuer but having less than two Selected Bonds inherited from the previous month for any given issuer, any available eligible bond with a suitable maturity and issuer is selected. If there is more than one suitable eligible bond, the bond that most closely meets the following criteria becomes the Selected Bond:

Outstanding Amount x Residual Maturity within the maturity range

Appendix B

Calculations

Index level calculations

Total return index

$$TR(t) = \frac{\sum_{i=1}^n \left((P_i(t) + AI_i(t)) \times N_i(r) \right) \times WF_i(r) \times E_i(t) + Cash(t)}{TRIDivisor(t)}$$

Price index

$$PR(t) = \frac{\sum_{i=1}^n P_i(t) \times N_i(r) \times WF_i(r) \times E_i(t)}{Divisor(t)}$$

Index yield

$$IndexYield(t) = \frac{\sum_i^n Y_i(t) \times MV_i(t) \times MD_i(t) \times WF_i(r) \times E_i(t)}{\sum_i^n MV_i(t) \times MD_i(t) \times WF_i(r) \times E_i(t)}$$

Market value

$$MarketValue(t) = \sum_{i=1}^n (P_i(t) + AI_i(t)) \times N_i(r) \times WF_i(r) \times E_i(t)$$

TRI divisor

$$TRIDivisor(t+1) = \begin{cases} \frac{\sum_{i=1}^n (P_i(t) + AI_i(t)) \times N_i(r) \times WF_i(r) \times E_i(t)}{TR(t)}, & t <> \text{day before rebalance effective day} \\ \frac{\sum_{i=1}^n (P_i(t) + AI_i(t)) \times N_i(r+1) \times WF_i(r+1) \times E_i(t)}{TR(t)}, & t = \text{day before rebalance effective day} \end{cases}$$

Divisor

$$Divisor(t+1) = \frac{\sum_{i=1}^n P_i(t) \times N_i(r+1) \times WF_i(r+1) \times E_i(t)}{PR(t)}$$

Macauley duration

$$Duration(t) = \frac{\sum_i^n MV_i(t) \times D_i(t) \times WF_i(r) \times E_i(t)}{\sum_i^n MV_i(t) \times WF_i(r) \times E_i(t)}$$

Modified duration

$$ModDuration(t) = \frac{\sum_i^n MV_i(t) \times MD_i(t) \times WF_i(r) \times E_i(t)}{\sum_i^n MV_i(t) \times WF_i(r) \times E_i(t)}$$

Convexity

$$Convexity(t) = \frac{\sum_i^n MV_i(t) \times Cvx_{t_i}(t) \times WF_i(r) \times E_i(t)}{\sum_i^n MV_i(t) \times WF_i(r) \times E_i(t)}$$

Average coupon

$$Coupon(t) = \frac{\sum_i^n N_i(t) \times C_i(t) \times WF_i(r) \times E_i(t)}{\sum_i^n N_i(r) \times WF_i(r) \times E_i(t)}$$

Average time to maturity

$$TimeToMaturity(t) = \frac{\sum_i^n N_i(t) \times TTM_i(t) \times WF_i(r) \times E_i(t)}{\sum_i^n N_i(r) \times WF_i(r) \times E_i(t)}$$

Index notional

$$IndexNotional(t) = \sum_i^n N_i(r) \times WF_i(r) \times E_i(t)$$

Index cash

$$Cash(t) = \sum_i^n C_i(t) \times N_i(r) \times X_i(t) \times WF_i(r) \times E_i(t)$$

Bond level calculations

Accrued interest

$$AI_i(t) = \frac{D_i(sd, pcd_i)}{D_i(cpi)} \times \frac{C_i(t)}{f_i}$$

Gross price

$$DP_i(t) = P_i(t) + AI_i(t)$$

Market value

$$MV_i(t) = DP_i(t) \times N_i(r)$$

Yield to maturity

$$DP_i(t) = \sum_{k_i=tc_i}^{n_i} \frac{CF_i}{\left(1 + \frac{Y_i(t)}{f_i}\right)^{k_i}}$$

Simple yield

$$SY_i(t) = \frac{\left(\frac{FV_i}{DP_{i(t)}} - 1\right)}{TTM_i(t)}$$

Macaulay duration

$$D_i(t) = \frac{\sum_{k_i=tc_i}^{n_i} \frac{CF_i \times k_i}{\left(1 + \frac{Y_i(t)}{f_i}\right)^{k_i}}}{DP_i(t)}$$

Modified duration

$$MD_i(t) = \frac{D_i(t)}{\left(1 + \frac{Y_i(t)}{f_i}\right)}$$

Convexity

$$Cnvxt_i(t) = \frac{1}{4 \times DP_i(t)} \times \sum_{k_i=tc_i}^{n_i} \frac{(k_i^2 + k_i) \times CF_i}{\left(1 + \frac{Y_i(t)}{f_i}\right)^{k_i+2}}$$

Key to terms

Key	Description
TR	Total return index
PR	Price Index
IndexYield	Average yield to maturity of the index
MarketValue	Total market value of the index
TRIDivisor	Total return index divisor for the total return index
Divisor	Price index divisor for the price index
Duration	Average Macaulay duration of the index
ModDuration	Average modified duration of the index
Convexity	Average convexity of the index
Coupon	Average coupon of the index
TimeToMaturity	Average time to maturity of the index
IndexNotional	Total amount outstanding of the index
Cash	Total cash held in the index as a result of coupon payments
P_i	Clean price of the bond <i>i</i> used for index calculation
AI_i	Accrued interest if the bond <i>i</i>
N_i	Amount outstanding of the bond <i>i</i> used for index calculation
WF_i	Weight adjustment factor of the bond <i>i</i>
E_i	The exchange rate required to convert the security's currency into the index's base currency
Y_i	Annualised yield to maturity of the bond <i>i</i>
MV_i	Total market value of the bond <i>i</i>
MD_i	Modified duration of the bond <i>i</i>
D_i	Macaulay duration of bond <i>i</i>
D_i(sd,pcd_i)	Calendar days between the index settlement date and the previous coupon date of the bond <i>i</i> , based on day count basis
D_i(cp_i)	Number of days in the coupon period of the bond <i>i</i> , based on day count basis
Cvxt_i	Convexity of bond <i>i</i>
C_i	Coupon rate of bond <i>i</i>
TTM_i	Time to maturity of bond <i>i</i>
X_i	Coupon payment marker of bond <i>i</i> , will be 1 if coupon payment date else 0
D_i	Days applicable to bond <i>i</i>
DP_i	Dirty price of bond <i>i</i>
f_i	Coupon payment frequency of bond <i>i</i>
CF_i	Cash flow amount of bond <i>i</i>

Key	Description
SY_i	Annualised yield to maturity of the bond i , simple interest basis. Calculated only when the bond is in its final coupon period
FV_i	Face value of bond i
n_i	Total number of remaining cash flows of bond i
k_i	Time to each cash flow of bond i
t	Calculation date
$t - 1$	Previous calculation date
$t + 1$	Next calculation date
r	Index rebalance-effective date
$r + 1$	Next index rebalance-effective date

Appendix C

Further information

A glossary of terms used in FTSE Russell's Ground Rule documents can be found through the following link:

[Fixed Income Glossary of Terms.pdf](#)

For further information on the FTSE Eurozone Government Bond Index Ground Rules please visit www.lseg.com/en/ftse-russell/ or e-mail info@ftserussell.com.

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