

FTSE Eurozone Target Maturity Government Bond Index

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 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 Target Maturity Government Bond Indices are designed to assist the operators of UCITS whose aim is to replicate the index to comply with the requirements of Article 53 of the UCITS Directive³.

1.2 The FTSE Eurozone Target Maturity Government Bond Index does not take account of ESG factors in its index design.

1.3 IOSCO

1.3.1 FTSE International Limited (FTSE) considers that the FTSE Eurozone Target Maturity 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](#)

1.4 FTSE Russell hereby notifies users of the index 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 and therefore, any financial contracts or other financial instruments that reference the index or investment funds which use the index to measure their performance should be able to withstand, or otherwise address the possibility of changes to, or cessation of, the index.

1.5 Index users who choose to follow this index or to buy products that claim to follow this index should assess the merits of the index's rules-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

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.

³ Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS).

- 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.

1.6 These Ground Rules

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

1.7 FTSE Russell

1.7.1 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.

1.8 Index Series objectives

1.8.1 The FTSE Eurozone Target Maturity Government Bond Indices are designed to be a measure of the selected Eurozone government bond markets, targeting the 10 Year maturity range. They are transparent indices and are designed to be replicable with individual security holdings and prices disclosed electronically each day.

1.9 Publication of index and underlying data

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

1.10 The base currency of the benchmark is EUR.

1.11 FTSE Eurozone Target Maturity Government Bond Index

The FTSE Eurozone Target Maturity Government Bond Indices are a family of sovereign bond indices grouped by issuer and a targeted maturity of 10 years.

The FTSE Eurozone Target Maturity Government Bond Italy Index and the FTSE Eurozone Target Maturity Government Bond Spain Index were launched on 25 June 2013. Each index is supplied with a history of index values dating back to 31 December 1998.

1.12 Price and total return indices

1.12.1 Price and total return indices are calculated.

1.12.2 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.

1.13 Index analytics

1.13.1 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

1.14 Index calculation

1.14.1 The indices are calculated on every day that is a TARGET Business. 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 index⁴.

2.1.2 FTSE Russell is responsible for the daily calculation, production and operation of the FTSE Eurozone Target Maturity 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 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. 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.

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 previous end of day value.

⁴ 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).

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 through 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 Guide to the Calculation Methods for the FTSE Fixed Income Indices

3.2.1 For a description of the methodology used to calculate the index and bond level analytics, please consult the Guide to Calculation Methods for FTSE Fixed Income indices, which can be found through the following link:

[FTSE Fixed Income Index Guide to Calculation.pdf](#)

3.3 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](#)

3.4 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 Recalculation Policy and Guidelines

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

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

3.6 Policy for Benchmark Methodology Changes

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

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

3.7 FTSE Russell Governance Framework

3.7.1 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 Benchmarks⁵, the European benchmark regulation⁶ and the UK benchmark regulation⁷. The FTSE Russell Governance Framework can be accessed through the following link:

[FTSE Russell Governance Framework.pdf](#)

3.8 Real Time Status Definitions

3.8.1 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](#)

⁵ IOSCO Principles for Financial Benchmarks Final Report, FR07/13 July 2013.

⁶ 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.

⁷ The Benchmarks (Amendment and Transitional Provision) (EU Exit) Regulations 2019.

Section 4

Eligibility criteria

4. Eligibility criteria

4.1 Eligible bonds

All the constituents in the FTSE Eurozone Target Maturity Government Bond Indices are drawn from the eligible universe of the FTSE Eurozone Government Index Series, which has the following Eligibility Criteria.

- Nominal, fixed coupon bullet-maturity bonds denominated in local currency and having no embedded options or convertibility;
- Quoted on the Refinitiv Evaluated Pricing Service (REPS);
- Issued by the sovereign government of the following countries: Italy or Spain;
- A minimum outstanding amount of €2 billion.

Once the list of eligible bonds has been determined, the final index constituents are identified using the selection process described in Section 6.0.

Section 5

Price sources

5. Price sources

5.1 FTSE Eurozone Indices are priced using the Refinitiv Evaluated Pricing Service (REPS).

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.

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-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.

5.2 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.

5.3 Verification and price challenges

5.3.1 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.

5.3.2 Any price challenges from index users and possible outliers from the verification process are reviewed with our pricing provider.

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/selection

- 6.1.1 FTSE Eurozone Indices are rebalanced every calendar month. New selections for the index portfolios and their amounts are established using market data at 17:15 CET on the first day that is a TARGET business day, 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 bond following issuance 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.
- 6.1.3 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.
- 6.1.4 Eligible bonds are determined in accordance with the criteria for each respective FTSE Eurozone Government Bond Index. From the eligible universe, the final selections for the constituents of the FTSE Eurozone Target Maturity Government Bond Indices are made according to the process described below.

6.2 Additional maturity/size criteria:

- Minimum amount outstanding: EUR 5 Billion
- Remaining time to maturity: between 5 and 25 years

6.3 Input parameters:

- Target maturity = $3680 (10 \times 365 + 30)$ at selection day
- Fixed component count = 6
- 10 Year Benchmark Bond = The current country benchmark bond for 10 years maturity range within the existing FTSE Eurozone Indices and traded on MTS Cash on selection date
- Lower target maturity buffer: 3375
- Upper target maturity buffer: 3925

6.4 Selection and weighting procedure:

- 6.4.1 The aim is to minimise changes to the selected components avoiding portfolio turnover at any rebalancing time. Therefore the current composition is only changed if the aggregate weighted days-to-maturity of the index is below the lower buffer and only one bond is exchanged with another at any rebalancing time. Under ordinary market conditions enabling regular issuance of bonds, the selection composition updates will have no issue to respect the upper buffer limit. Exceptions may occur. Under special conditions leading to exceptional cases the components can be frozen until new bonds are issued that would enable the regular updating of index compositions.

Step 1: Check if a change of component is required in the 10 year Benchmark Bond.

Step 2: Check the weighted average days-to-maturity (calculated based on the new inputs and weights) to decide if an update to the composition is required using the (Lower) target maturity buffer.

Step 3: If Step 1 or Step 2 triggers a composition update, exclude the short-end bond and include the new benchmark bond or a longer dated bond to end up between the two target maturity buffers and near the target maturity.

6.5 Capping

6.5.1 At the monthly review the weight of each bond in the FTSE Eurozone Target Maturity Government Bond Index is capped at 30%.

6.5.2 The capping is implemented only during the monthly rebalance and therefore it is possible that during the month some of the constituent bonds may rise above the capping limits, due to normal market fluctuations.

6.6 Capping methodology

6.6.1 Any bond whose weight is greater than 30% is reduced to 30%

6.6.2 The weight by which capped bonds have been reduced is redistributed among uncapped bonds in proportion to their market capitalisation.

6.6.3 This process is repeated until no bond has an index weight of greater than 30%.

Appendix A

Calculations

Index level calculations

Total return index

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

Index yield

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

Market value

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

Macaulay duration

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

Modified duration

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

Convexity

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

Average coupon

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

Average time to maturity

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

Index notional

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

Index cash

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

Bond level calculations

Accrued interest

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

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
IndexYield	Average yield to maturity of the index
MarketValue	Total market value of the 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 used for index calculation
AI_i	Accrued interest if the bond i
N_i	Amount outstanding of the bond i used for index calculation
WF_i	Weight adjustment factor of the bond i
Y_i	Annualised yield to maturity of the bond i
MV_i	Total market value of the bond i
MD_i	Modified duration of the bond i
D_i	Macaulay duration of bond i
$D_i(sd,pcd_i)$	Calendar days between the index settlement date and the previous coupon date of the bond i , based on day count basis
$D_i(cp_i)$	Number of days in the coupon period of the bond i , based on day count basis
$Cvxt_i$	Convexity of bond i
C_i	Coupon rate of bond i
TTM_i	Time to maturity of bond i
X_i	Coupon payment marker of bond i , will be 1 if coupon payment date else 0
D_i	Days applicable to bond i
DP_i	Dirty price of bond i
f_i	Coupon payment frequency of bond i
CF_i	Cash flow amount of bond i
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
r	Index rebalance-effective date

Appendix B

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 Target Maturity Government Bond Index Ground Rules please visit <http://www.lseg.com/en/ftse-russell/> or e-mail info@ftserussell.com.

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