



FTSE MTS Eurozone Inflation-Linked Bond Index Series

v2.3



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Section 1

Introduction

1.0 Introduction

1.1 The FTSE MTS Index Structure

1.1.1 FTSE MTS Indexes are a set of benchmarks for the European sovereign bond market. The indexes are calculated and distributed by FTSE Russell, using pricing data from the MTS platform. All quotes made on the consolidated inter-dealer platform are live and tradable to member dealers. Additionally, market data from the order book is widely distributed via data vendors.

1.2 The FTSE MTS Eurozone Inflation-Linked Bond Index Series 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 MTS Eurozone Inflation-Linked 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 using 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 errors or 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 errors or 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 MTS Eurozone Inflation-Linked Bond Index Series.

1.7 FTSE Russell

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 MTSNext Limited), Mergent, Inc., FTSE Fixed Income LLC, The Yield Book Inc and Beyond Ratings.

1.8 Index Series Objectives

1.8.1 The FTSE MTS Eurozone Inflation-Linked Bond Indexes are designed to be a measure of the Eurozone Inflation-Linked Bond market. They are transparent indexes, 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 MTS Indexes are published in real-time between 09:00 CET and 17:15 CET, with three snapshots at 11:00 CET, 16:00 CET and 17:15 CET. Bond prices used for the 11:00, 16:00 and 17:15 CET snapshots are published on the website. Real time bond prices directly from the MTS platform are available from data vendors. These bond prices are distributed with a higher frequency than the 30 second index updates. Underlying bond portfolio composition and weights are also published on the FTSE MTS Index website.

1.10 The base currency of the benchmark is EUR.

1.11 FTSE MTS Eurozone Inflation-Linked Bond Indexes

The FTSE MTS Eurozone Inflation-Linked Bond Index Series is a family of indexes comprised of inflation-linked bonds issued by Eurozone sovereign governments. The all-maturity FTSE MTS Eurozone Inflation-Linked Bond Index is comprised of all Eurozone sovereign inflation-linked bonds, was launched on 3 June 2004 and has been published in real-time since October 2004.

The indexes have historic index values and analytics back to the introduction of their respective underlying bonds (earliest history dates from 31 Dec 1998).

The all-maturity FTSE MTS Eurozone Inflation-Linked Bond Index is published together with a 'Break-Even' index. The break even index comprises of a portfolio of nominal bonds chosen to match the maturity and issuer of each inflation-linked bond. This allows a direct comparison between the inflation-linked and nominal bond markets.

The FTSE MTS Eurozone Inflation-Linked Bond Index series is organised by classifying the universe of Eurozone sovereign inflation-linked bonds according to (a) underlying inflation reference, (b) to maturity range and (c) to issuer.

In March 2011, the FTSE MTS Eurozone Inflation-Linked Bond IG Index was added to the index range. The selection criteria for this index mirrors that of the FTSE MTS Eurozone Inflation-Linked Bond Index, with the exception that only bonds from Eurozone issuers must have at least two investment grade ratings from the three main ratings agencies will be eligible.

1.12 Price and Total Return indexes

1.12.1 Price and Total Return indexes 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 indexes are calculated on every day that is a TARGET Business and a MTS market trading 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

2.0 Management Responsibilities

2.1 FTSE International Limited (FTSE)

2.1.1 FTSE is the benchmark administrator of the index series.¹

2.1.2 FTSE Russell is responsible for the daily calculation, production and operation of the FTSE MTS Eurozone Inflation-Linked Bond Index 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 Product 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 using 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 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 Product Governance Board before approval is granted.

2.3.2 As provided for in the Statement of Principles for FTSE Fixed Income Indexes, 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

¹ 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).

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 latest intra-day value, if available. If an intra-day value is unavailable the previous end of day value will be used.

2.5 Interruption of Live Pricing from MTS Platform

- 2.5.1 The FTSE MTS Indexes are calculated based on executable bids and offers sourced from the MTS inter-dealer platform. The MTS platform is not controlled by FTSE Russell and should the platform be unable to disseminate live prices for any reason, the FTSE MTS Indexes will not be updated during that period. Index users who choose to follow the FTSE MTS Indexes should be aware of this possibility and make suitable contingency arrangements.



Section 3

FTSE Russell Index Policies

3.0 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 using the following link:

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

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

Indexes 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 Indexes 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 Product Governance Board.

The Statement of Principles for Fixed Income Indexes can be accessed using the following link:

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

3.3 FTSE MTS Pricing Methodology Guide

3.3.1 For further information, please see the FTSE MTS Pricing Methodology Guide which is available using the following link:

[FTSE MTS Pricing Methodology Guide](#)

3.4 Recalculation Policy and Guidelines

The Recalculation Policy and Guidelines for Fixed Income Indexes 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](#)

3.5 Policy for Benchmark Methodology Changes

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

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

Section 4

Eligibility Criteria

4.0 Eligibility Criteria

4.1 Eligible Bonds

To be eligible for the index, bonds must meet the following eligibility criteria.

- Inflation-linked bonds issued by a sovereign government belonging to the Eurozone (for the Investment Grade Index, such issuers must have at least two investment grade ratings from the three main ratings agencies)
- At least €2 billion in size
- Quoted on the MTS Platform
- The principal and coupon payments are linked to either the EMU HICP or Domestic CPI inflation rates.

4.2 Selection Criteria

All Eligible Bonds automatically become Selected Bonds.



Section 5

Price Sources

5.0 Price Sources

5.1 FTSE MTS Indexes are priced using live quotes from the MTS inter-dealer platform. Each bond quoted on the MTS platform is supported by multiple dealers supplying continuous quotes. These quotes are widely distributed for information to the market via data vendors.

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-indexes.

Selected indexes 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 The prices used to update the indexes are taken from the MTS market in real time. 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 For further information, please see the FTSE MTS Pricing Methodology Guide which is available using the following link:

[FTSE MTS Pricing Methodology Guide](#)

Section 6

Index Rebalancing

6.0 Index Rebalancing

6.1 Monthly Rebalancing

- 6.1.1 FTSE MTS Indexes are rebalanced every calendar month. New selections for the index portfolios and their amounts are established using market data at 11:00 CET on the first day that is a TARGET business day and a MTS market trading 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 effective at the open of the first business day of the month. Effective 30th November 2020, index rebalance time will move from 11:00 CET to 17:15 CET of the last business day of the 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.

6.2 Amounts

- 6.2.1 The amount of each Selected bond i is determined using data from 11:00 CET on the first business day following the 15th day of the month immediately preceding the effective month₁. This time is denoted t_0 . All weights are published to 3 decimal places. Bond eligibility and selections are established by applying the relevant criteria for each index at the same time t_0

Appendix A: Calculations

Index level calculations

Total Return Index

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

Price Index

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

Index Yield

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

Market Value

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

TRI Divisor

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

Divisor

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

Macaulay Duration

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

Modified Duration

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

Convexity

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

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

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

Index Notional

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

Index Cash

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

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
<i>TR</i>	Total return index
<i>PR</i>	Price Index
<i>IndexYield</i>	Average yield to maturity of the index
<i>MarketValue</i>	Total market value of the index
<i>TRIDivisor</i>	Total return index divisor for the total return index
<i>Divisor</i>	Price index divisor for the price index
<i>Duration</i>	Average Macaulay duration of the index
<i>ModDuration</i>	Average modified duration of the index
<i>Convexity</i>	Average convexity of the index
<i>Coupon</i>	Average coupon of the index
<i>TimeToMaturity</i>	Average time to maturity of the index
<i>IndexNotional</i>	Total amount outstanding of the index
<i>Cash</i>	Total cash held in the index as a result of coupon payments
<i>P_i</i>	Clean price of the bond <i>i</i> used for index calculation
<i>AI_i</i>	Accrued interest if the bond <i>i</i>
<i>N_i</i>	Amount outstanding of the bond <i>i</i> used for index calculation
<i>WF_i</i>	Weight adjustment factor of the bond <i>i</i>
<i>E_i</i>	The exchange rate required to convert the security's currency into the index's base currency
<i>IR_i(t)</i>	Inflation ratio of the bond <i>i</i>
<i>Y_i</i>	Annualised yield to maturity of the bond <i>i</i>
<i>MV_i</i>	Total market value of the bond <i>i</i>
<i>MD_i</i>	Modified duration of the bond <i>i</i>
<i>D_i</i>	Macaulay duration of bond <i>i</i>
<i>D_i(sd, pcd_i)</i>	Calendar days between the index settlement date and the previous coupon date of the bond <i>i</i> , based on day count basis
<i>D_i(cp_i)</i>	Number of days in the coupon period of the bond <i>i</i> , based on day count basis
<i>Cvxt_i</i>	Convexity of bond <i>i</i>
<i>C_i</i>	Coupon rate of bond <i>i</i>
<i>TTM_i</i>	Time to maturity of bond <i>i</i>
<i>X_i</i>	Coupon payment marker of bond <i>i</i> , will be 1 if coupon payment date else 0
<i>D_i</i>	Days applicable to bond <i>i</i>
<i>DP_i</i>	Dirty price of bond <i>i</i>
<i>f_i</i>	Coupon payment frequency of bond <i>i</i>
<i>CF_i</i>	Cash flow amount of bond <i>i</i>
<i>SY_i</i>	Annualised yield to maturity of the bond <i>i</i> , simple interest basis. Calculated only when the bond is in its final coupon period.
<i>FV_i</i>	Face value of bond <i>i</i>
<i>n_i</i>	Total number of remaining cash flows of bond <i>i</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 B: Further Information

A Glossary of Terms used in FTSE Russell's Ground Rule documents can be found using the following link:
[Fixed Income Glossary of Terms.pdf](#)

For further information on the FTSE MTS Eurozone Inflation-Linked Bond Index Ground Rules please visit
<https://www.ftserussell.com/products/indices/ftsemets> or e-mail info@ftserussell.com.

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