Ground Rules

July 2026

FTSE Carry Tilt Government Bond Index Series

v1.0

FTSE RUSSELL
An LSEG Business

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Section 1

Introduction

1. Introduction

1.1 Overview

The FTSE Carry Tilt Government Bond Index Series is designed to quantitively capture Carry factor exposure in government bond indices by reweighting security market values based on their expected carry and roll down return.

1.2 FTSE Carry Tilt Government Bond Index Series

The FTSE Carry Tilt Government Bond Index Series comprises:

FTSE Carry Tilt Government Bond Index	Standard FTSE Government Bond Index
FTSE Carry Tilt World Government Bond Index (“Carry Tilt WGBI”)	World Government Bond Index (“WGBI”)
FTSE Carry Tilt EMU Government Bond Index (“Carry Tilt EGBI”)	EMU Government Bond Index (“EGBI”)
FTSE Carry Tilt UK Government Bond Index (“Carry Tilt UK GBI”)	UK Government Bond Index (“UK GBI”)
FTSE Carry Tilt US Treasury Index (“Carry Tilt US Treasury Index”)	US Treasury Index (“US Treasury Index”)

1.2.1 The series follows the monthly rebalancing mechanics of the standard FTSE Government Bond Indices with respect to universe membership; however, incorporates a tilting methodology to adjust the index weights of government bonds according to each bond’s relative Carry factor score. The factor score is used to reweight the indices to provide higher Carry exposure.

1.3 The FTSE Carry Tilt Government Bond Index Series does not take account of ESG factors in its index design.

1.4 FTSE Russell

1.4.1 FTSE Russell hereby notifies users of the index that it is possible that factors, including external factors 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.

1.4.2 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 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.

Section 2

Management responsibilities

2. 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 is responsible for the daily calculation, production and operation of the index series and will:

- maintain records of the index weightings of all constituents;
- make changes to the constituents and their weightings in accordance with the Ground Rules;
- carry out the periodic index reviews of the index series and apply the changes resulting from the reviews as required by the Ground Rules;
- disseminate the indices.

2.2 Amendments to these Ground Rules

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

2.2.2 As provided for in the Statement of Principles for FTSE Russell 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 Ground Rules should subsequently be updated to provide greater clarity.

[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) 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 using the links below or by contacting fi.index@lseg.com. These policies are reviewed annually and any changes are approved by the FTSE Russell Product Governance Board.

3.1 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 Index Advisory Board for discussion before approval by the FTSE Russell Product Governance Board.

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

Statement_of_Principles_Fixed_Income_Indices.pdf

3.2 Queries and Complaints

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

Benchmark_Determination_Complaints_Handling_Policy.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 fi.index@lseg.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 using 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

Details of FTSE Russell's policy for making benchmark methodology changes can be accessed using 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 Benchmarks[2], the European benchmark regulation[3] and the UK benchmark regulation[4]. The FTSE Russell Governance Framework can be accessed using 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

[2] IOSCO Principles for Financial Benchmarks Final Report, FR07/13 July 2013.
[3] 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.
[4] The Benchmarks (Amendment and Transitional Provision) (EU Exit) Regulations 2019.

Section 4

Composition and design criteria

4. Composition and design criteria

4.1 Base universes for the FTSE Carry Tilt Government Bond Index Series

4.1.1 The base universe for the FTSE Carry Tilt WGBI is the market capitalisation weighted FTSE World Government Bond Index (“WGBI"). The FTSE WGBI measures the performance of fixed-rate, local currency, investment-grade sovereign bonds and comprises sovereign debt from over 20 countries.

4.1.2 The base universe for the FTSE Carry Tilt EGBI is the FTSE EMU Government Bond Index (EGBI). The FTSE EGBI measures the performance of fixed-rate, local currency, investment-grade sovereign bonds issued by the EMU-participating countries that meet the WGBI inclusion criteria.

4.1.3 The base universe for the FTSE Carry Tilt UK GBI is the market capitalisation weighted FTSE UK Government Bond Index (“UK GBI”).

4.1.4 The base universe for the FTSE Carry Tilt US Treasury Index is the market capitalisation weighted FTSE US Treasury Index (“US Treasury Index”).

4.1.5 For full details on the design criteria and calculation assumptions for the WGBI, EGBI, UK GBI, and US Treasury Index, please refer to the FTSE Fixed Income Index Guide.

Figure 1. FTSE Carry Tilt Government Bond Index Series design criteria and methodology

Weighting	Alternatively weighted
Carry Factor Scores	Calculated once a month at the end of the month
Carry Factor Score Assessment Cohort	Government bond markets are divided into cohorts based on weighted average life and country of issuance.
Carry Factor Tilt Calibration	A geometric tilt power strength of 1 is applied for all indices
Rebalancing	Once a month at the end of the month
Calculation frequency	Daily
Fixing date	Each month, the upcoming month’s index constituents are “fixed” on the profile fixing date. Each year’s scheduled fixing dates are published on the fixed-income-indices website.
Base date	December 31, 2013

4.2 Carry factor definition

4.2.1 For each bond, the Carry factor score is determined by the projected returns, computed by setting the settlement date forward by twelve months, and assuming constant yield curves and option-adjusted spreads. Currency-hedged projected returns are derived from the local projected returns, after adjusting for expected exchange rate movements based on current spot FX and forward FX.

4.2.2 The Index Series follows the monthly rebalancing mechanics of each base universe index with respect to security-level membership. The Carry factor scores are calculated once a month at month end. The market value weight for each security is tilted by its relative Carry factor score in the index.

4.2.3 If a new security becomes eligible for the base universe index, it will be included in the cohort of securities for relative scoring as of the month-end prior to it entering the index.

4.3 Carry factor scoring

4.3.1 For index in the series, its universe of bonds are divided into cohorts based on maturity sectors and each country of issuance in the base index. The maturity sectors are: 1-3 years, 3-5 years, 5-7 years, 7-10 years, 10-20 years, 20-30 years, and 30+ years.

4.3.2 The Carry factor score of each bond is converted into Z-scores relative to the cohort within each country and maturity sector grouping.

$$Z_{c,i} = \frac{F_i - \mu_c}{\sigma_c} \tag{1}$$

where,

c *is the cohort defined by maturity sector and country of issuance*

F_i *is the factor score of the* i^{th} *bond*

μ_c *and* σ_c *are the cross-sectional mean and standard deviation, respectively*

Z-scores that are greater (less) than three (minus three) are truncated to a value of three (minus three). Post-truncation, individual Z-scores are renormalized by the re-application of equation (1). All Z-scores, including truncated ones, are included in this re-application. This process is repeated until all Z-scores lie in a range between plus and minus three.

4.3.3 Z-scores are mapped to a score $\boldsymbol{S_{c,i}} \in [\mathbf{0}, \mathbf{1}]$, using the cumulative normal distribution with mean zero and standard deviation one. An additional linearization process is applied to the S-score between 0.1 and 1 to introduce a floor for any given cohort. For cases where there is only one bond for a cohort, the bond is assigned a Z-score of 0, which is equivalent to a post-linearization score of 0.55.

4.4 Tilting methodology

4.4.1 The index Carry factor tilt is calculated for each security and applied to its market value weight in the underlying index to derive the adjusted weights[5]. The Carry factor tilt is determined by:

$$Carry_i = S_{c,i}^{\alpha_c} \tag{2}$$

where,

[5] A similar tilting methodology to that employed in the FTSE Global Factor Index Series is used with some modifications to cater for the differences between equity and fixed income indices.

$S_{c,i}$ is the standardized factor score of the i^{th} bond determined in (1) and 4.3.3 based on its cohort c

α_c is the Carry tilt power of cohort c

$Carry_i$ is the final Carry factor tilt of the i^{th} bond

4.4.2 The index Carry factor tilts are applied to each bond's market value weight in the underlying index to derive the adjusted weights:

$$\theta_i = \frac{w_i \, Carry_i}{\sum_{i=1}^{n}(w_i \, Carry_i)} \tag{3}$$

where,

w_i is the market value weight of bond i in the base index

θ_i is the bond's weight in the Carry-tilted index

4.5 Maturity

4.5.1 In addition to the broad categories published, sub-sector breakdowns are also provided for many of the fixed income indices. One such sub-division is based on the remaining maturity of the underlying securities. The maturity sector buckets are defined by including all underlying issues with a remaining average life at least equal to the lower bound, but less than the upper bound of the particular category. For example, the one-year to three-year sector of the WGBI includes all securities in the WGBI with a remaining average life of at least one year, but less than three years. The set of bonds is then held constant for the calculation month, even if the average life drops below the lower bound of the maturity bucket.

4.6 Index quality

4.6.1 An index quality is assigned to each index bond as of profile fixing. The quality is first mapped to the Standard & Poor's Financial Services LLC ("S&P") rating. If a bond is not rated by S&P but it is rated by Moody's Investors Service, Inc. ("Moody's"), the S&P equivalent of the Moody's rating is assigned to the index quality. If a bond is rated by neither S&P nor Moody's, the bond is not assigned an index quality. If a bond is rated as investment-grade by one rating agency and high-yield by the other, the S&P equivalent of the investment-grade rating is assigned to the index quality. These ratings remain unchanged for the entire performance month.

4.7 Exchange rates

4.7.1 The closing WMR Spot Rates and Forward Rates are used. Several snapshots are taken at regular intervals centered on the fixing time of 4:00 p.m. London time and the median rate for each currency is selecte4d. All rates are mid-market quotations.

4.8 Return computation

4.8.1 Total returns are computed on the assumption that each security is purchased at the beginning of the period and sold at the end of the period. An issue's total rate of return is the percentage change in its total value over the measurement period. The components of total return for each security are price change, principal payments, coupon payments and accrued interest. The total returns are market capitalisation weighted using the security's beginning-of-period market value (see Figure 2). In the case of multi-currency or non-base indices, the total return also includes currency movement (see Figure 3).

Figure 2. Total rate of return calculation methodology

Beginning-of-Period Value

(Beginning Price + Beginning Accrued) x Beginning Par Amount Outstanding

End-of-Period Value

[(Ending Price + Ending Accrued) x (Beginning Par Amount Outstanding - Principal Payments)] + Coupon Payments + Principal Payments[6]

Total Rate of Return (%)

$$\left[\left(\frac{\text{End-of-Period Value}}{\text{Beginning-of-Period Value}}\right)-1\right]\times 100$$

A note on precision: Returns are computed to at least six decimal places but reported to a maximum of five. In addition, owing to rounding errors inherent in computer floating-point arithmetic, the last digit in any reported value may sometimes be off by one from its true value.

Figure 3. Total rate of return calculation methodology for base currency returns, unhedged

Total Rate of Return (%)

$$\left\{\left[1+\left(\frac{\text{Local Currency Return}}{100}\right)\right]\times\left(\frac{\text{End-of-Month Spot Rate}}{\text{Beginning-of-Month Spot Rate}}\right)-1\right\}\times 100$$

This equation holds true only if the spot rates are quoted as base currency per unit of foreign currency.

4.8.2 The monthly currency-hedged return is calculated by using a rolling one-month forward exchange contract as a hedging instrument. The face value of the contract is equal to the estimated end-of-month full market value. To calculate this value, the bond's yield is assumed to be unchanged from the beginning of the month. Any known cash flows are then taken into account, such as coupon or principal payments, and interest expected to accrue for the period is also added in. This calculation leaves the intra-month changes in bond prices from yield movements unhedged. Any principal movement resulting from yield change is then settled at end-of-month spot exchange rates. Figure 4 gives an example of the calculation formula from the point of view of a US investor.

Figure 4. Total rate of return calculation methodology, currency-hedged

Beginning-of-Period Value

$$[(\text{Beginning Price} + \text{Beginning Accrued})\times\text{Beginning Par Outstanding}]\times\left[\left(\begin{array}{c}\text{Beginning-of-Period}\\\text{Spot Exchange Rate}\end{array}\right)\left(\frac{\text{US Dollar}}{\text{Local Currency}}\right)\right]$$

End-of-Period Value

$$\left[\left[\left(\begin{array}{c}\text{End-of-}\\\text{Period}\\\text{Local}\\\text{Currency}\\\text{Value,}\\\text{Assuming}\\\text{Unchanged}\\\text{Yield}\end{array}\right)+\left(\begin{array}{c}\text{Known}\\\text{Intra-Month}\\\text{Cash Flows}\\\text{and Interest}\\\text{Expected}\\\text{to Accrue}\end{array}\right)\right]\times\left[\left(\begin{array}{c}\text{Beginning-}\\\text{of-Period}\\\text{One-Month}\\\text{Forward}\\\text{Exchange}\\\text{Rate}\end{array}\right)\left(\frac{\text{US Dollar}}{\text{Local Currency}}\right)\right]+\left[\left(\begin{array}{c}\text{Change}\\\text{in Market}\\\text{Value of}\\\text{Principal}\\\text{Amount}\\\text{Due to}\\\text{Yield}\\\text{Change}\end{array}\right)\times\left(\begin{array}{c}\text{End-of-}\\\text{Period}\\\text{Spot}\\\text{Exchange}\\\text{Rate}\end{array}\right)\left(\frac{\text{US Dollar}}{\text{Local Currency}}\right)\right]\right]$$

This equation holds true only if the spot rates are quoted as base currency per unit of foreign currency.

4.9 Ticker for the FTSE Carry Tilt Government Bond Index Series

Ticker	Index
CTWGBI	**FTSE Carry Tilt World Government Bond Index**
CTEGBI	**FTSE Carry Tilt EMU Government Bond Index**
CTGBTSY	**FTSE Carry Tilt UK Government Bond Index**
CTUSTSY	**FTSE Carry Tilt US Treasury Index**

[6] Prior to 1 November 2022, reinvestment calculation was included in the total return calculation.

4.10 Chronological summary of events

FTSE Carry Tilt Government Bond Index Series event summary

For details, please also refer to the FTSE Fixed Income Index Guide.

Year	Highlights
2026	**July 2026:** FTSE Carry Tilt Government Bond Index Series is launched.

Appendix

Further information

For contact details, please visit the FTSE Russell website or contact FTSE Russell client services at info@ftserussell.com.

Website: www.lseg.com/en/ftse-russell/

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