

FTSE Climate Risk-Adjusted Government Bond Index Series

v2.0



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Section 1

Introduction

1. Introduction

1.1 Overview

- 1.1.1 The FTSE Climate Risk-Adjusted Government Bond Index Series weights each country based on the market capitalization of its index eligible debt, as well as its relative climate risk assessment, measured across three distinct and quantitative, climate-related pillars. The growing risks of climate change and the scale of the transition to a 2 degree pathway is strengthening the thesis that the materiality of climate risk is growing for government bond issuers. The unique Climate-Risk Model that underpins the FTSE Climate Risk-Adjusted Government Bond Index Series is designed to mitigate against climate change related risks for the sovereign bond asset class.
- 1.1.2 The FTSE Climate Risk-Adjusted Government Bond Index Series takes account of ESG factors in its design.¹

1.2 FTSE Climate Risk-Adjusted Government Bond Index Series

- 1.2.1 The FTSE Climate Risk-Adjusted Government Bond Index Series measures the performance of fixed-rate, local currency, investment-grade sovereign bonds by incorporating a tilting methodology that adjusts index weights according to each country’s relative climate risk assessment. The series comprises:

FTSE Climate Risk-Adjusted Government Bond Index	Standard FTSE Government Bond Index
Climate World Government Bond Index (“Climate WGBI”)	World Government Bond Index (“WGBI”)
Climate World Government Bond Index ex-Japan (“Climate WGBI ex-Japan”)	World Government Bond Index ex-Japan (“WGBI ex-Japan”)
Climate European Monetary Union (EMU) Government Bond Index (“Climate EGBI”)	EMU Government Bond Index (“EGBI”)

- 1.2.2 The series follows the monthly rebalancing mechanics of the standard FTSE Government Bond Indexes with respect to universe membership, however, the market value weight for each security is tilted by its respective country’s climate score. Climate scores are calculated on an annual basis using input data through September 1, and are effective for each September month-end rebalance. The country climate scores are derived by assessing each country’s relative climate risk across three core climate risk pillars (each with multiple sub-indicators). The country climate risk methodology can be consulted here: [FTSE Climate Risk Assessment Methodology \(lseg.com\)](#)
- **Transition risk** represents the level of historical and forward-looking climate related risk exposure of the country’s economy as measured by GHG intensity compared to its peers and its Nationally Determined Contributions (NDCs) Implied Temperature Rise (ITR).
 - **Physical risk** represents the level of historical and forward-looking climate related risk exposure to the country and its economy from the physical effects of seven hazards induced by climate change from an economic sector perspective.

¹ If a tilting approach is used for an ESG data input, the objective is for the index methodology to overweight and/or underweight constituents according to specific ESG criteria. This approach will not remove any constituents on its own.

- **Resilience** represents a country's preparedness and actions to cope with its level of climate related risk exposure.

1.2.3 Countries are scored across each pillar and a single combined score is derived for each country. The country scores are used to reweight its index exposure to provide higher exposures to countries less exposed to climate change risks and lower exposures to countries that are more exposed to climate change risks.

1.3 FTSE Russell

1.3.1 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.

1.3.2 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.

1.3.3 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 Fixed Income LLC is the administrator of the index.²

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.

² 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 Benchmarks³, the European benchmark regulation⁴ and the UK benchmark regulation⁵. 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](#)

³ IOSCO Principles for Financial Benchmarks Final Report, FR07/13 July 2013.

⁴ 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.

⁵ The Benchmarks (Amendment and Transitional Provision) (EU Exit) Regulations 2019.

Section 4

Composition and design criteria

4. Composition and design criteria

4.1 Climate Government Bond Index Series (“Climate WGBI”)

4.1.1 The base universe for the FTSE Climate Risk-Adjusted World Government Bond Index (“Climate WGBI”) is the standard FTSE WGBI. The same logic applies to FTSE WGBI ex Japan. As of August 2024, index eligible markets include:

Americas		Asia Pacific and Japan	
Canada		Australia	
		China	
Mexico		Japan	
United States		Malaysia	
		New Zealand	
		Singapore	
EMEA			
Austria		Ireland	Poland
Belgium		Israel	Portugal ⁶
Denmark		Italy	Sweden
Finland		Netherlands	United Kingdom
France		Norway	
Germany		Spain	

4.1.2 To be eligible for the FTSE WGBI, markets must satisfy minimum market size, credit rating and market accessibility level criterion. These criteria are assessed on an annual basis each September, however, markets that no longer meet the minimum credit quality are removed from the index at the next month’s profile. Securities must also meet minimum amount outstanding requirements, have a fixed-rate, and at least one year to maturity.

For full details on the design criteria and calculation assumptions for the FTSE WGBI please refer to the [FTSE Fixed Income Index Guide](#).

Figure 1. FTSE Climate Risk-Adjusted World Government Bond Index design criteria & methodology

Weighting	Alternatively Weighted
Country Climate Scores	Updated annually and applied each September month-end rebalance. The cut-off for input data is September 1 of each year.
Country Climate Score Assessment Cohort	Local currency sovereign bond markets eligible for the WGBI.

⁶ Portugal included to the index from the November 2024 profiles.

Climate Pillars and tilt calibration	Geometric tilt – Transition risk: 0.25 – Physical risk: 1 – Resilience: 1
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, 2001

4.2 Climate Risk-Adjusted EMU Government Bond Index ("Climate EGBI")

4.2.1 The base universe for the FTSE Climate Risk-Adjusted EMU Government Bond Index ("Climate EGBI") is the standard FTSE EGBI, which consists of the Eurozone-participating countries that meet the WGBI criteria. As of August 2024, index eligible markets include:

EMEA	
Austria	Ireland
Belgium	Italy
Finland	Netherlands
France	Spain
Germany	Portugal

4.2.2 To be eligible for the FTSE EGBI, markets must satisfy minimum market size, credit rating and market accessibility level criterion. These criteria are assessed on an annual basis each September, however, markets that no longer meet the minimum credit quality are removed from the index at the next month's profile. Securities must also meet minimum amount outstanding requirements, have a fixed-rate, and at least one year to maturity.

For full details on the design criteria and calculation assumptions for the FTSE EGBI please refer to the [FTSE Fixed Income Index Guide](#)

Figure 2. FTSE Climate Risk-Adjusted EMU Government Bond Index design criteria & methodology

Weighting	Alternatively weighted
Country Climate Scores	Updated annually and applied each September month-end rebalance. The cut-off for input data is September 1 of each year.
Country Climate Score Assessment Cohort	Local currency sovereign bond markets eligible for the EGBI.
Climate Pillars and tilt calibration	Geometric tilt – Transition risk: 0.5 – Physical risk: 0.25 – Resilience: 0.5
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 website.
Base date	December 31, 2001

4.3 Climate Risk Assessment methodology

- 4.3.1 The climate risk assessment methodology is a unique quantitative, relative, and systematic approach, based on 15 indicators coming from public, private and proprietary sources, for 50 countries. The output are divided into three pillars of climate risk assessment (i.e., transition risk, physical risk and resilience).
- 4.3.2 For each indicator, a score is calculated on a yearly basis, starting from 2001. Each of the 15 indicators is the outcome of numerous adjustments – systematic to a large extent – to ensure countries are scored between 0 and 1. All indicators are aggregated to obtain a pillar score, which is derived from advanced statistical techniques. Please see [FTSE Climate Risk Assessment Methodology](#) for further details on the climate risk assessment methodology.

4.4 Tilting methodology

- 4.4.1 A single climate score is calculated for each sovereign and applied to the market value weight of each security in the underlying index to derive the adjusted weights⁷.
- 4.4.2 First, the three climate risk pillar scores are combined to derive a climate score for each country i :

$$CS_i = TR_i^\alpha \times PR_i^\beta \times R_i^\gamma$$

where,

TR , is the country's Transition Risk pillar score

PR , is the country's Physical Risk pillar score

R , is the country's Resilience pillar score

α , is the TR tilt power

β , is the PR tilt power

γ , is the R tilt power

CS , is the final country climate risk score

- 4.4.3 For each Climate Risk-Adjusted Government Bond Index in the series, tilt powers have been calibrated to:
- Achieve meaningful climate benefit for sensible deviations from the underlying index characteristics and minimal tracking error
 - Ensure other index characteristics (e.g. index yield, duration, turnover and market value weights) do not deviate significantly from the standard index characteristics.

- 4.4.4 Second, the climate scores are applied to each country's market value weight in the underlying index to derive the adjusted weights:

$$\theta_i = \frac{\omega_i CS_i}{\sum_{i=1}^n (\omega_i CS_i)}$$

where,

ω , is the county's market value weight in the underlying index

θ , is the county's weight in the Climate Risk-Adjusted index

⁷ 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.

4.5 Exchange rates

4.5.1 The closing Refinitiv Spot Rates and The Refinitiv Forward Rates, provided by Refinitiv, are used. WM takes several snapshots at regular intervals centered on the fixing time of 4:00 p.m. London time and selects the median rate for each currency. All rates are mid-market quotations.

4.6 Chronological summary of events

For details, please also refer to the [FTSE Fixed Income Index Guide](#).

Year	Highlights
2019	July: FTSE Climate Risk-Adjusted World Government Bond Index is introduced.
2020	January: FTSE Climate Risk-Adjusted EMU Government Bond Index and FTSE Climate Risk-Adjusted World Government Bond Index ex-Japan are launched.
	May: Israel is added to the Climate Risk-Adjusted World Government Bond Index. South Africa removed from the Climate Risk-Adjusted World Government Bond Index as it no longer meets the inclusion criteria due to its credit rating.
2022	November: New Zealand is added to the FTSE World Government Bond Index
2024	October: An enhanced methodology is used to analyse climate risk.

Section 5

ESG data inputs

5. ESG data inputs

5.1 The following ESG datasets are used in the construction of the indices.

ESG data inputs	Details	Used for selection, weighting or exclusion ⁸
LSEG Sovereign Sustainability – Climate KPIs	LSEG Sovereign Sustainability Climate KPIs consist in various indicators aiming to offer a broad assessment of sovereign climate risks across carbon intensity, transition, and physical risk metrics.	Weighting
LSEG Sovereign Sustainability – Climate Risk Assessment Methodology	LSEG Sovereign Sustainability – Climate Risk Assessment Methodology consists in various indicators aiming to offer a broad assessment of sovereign climate risks including transition risks, physical risks and resilience indicators. The methodology can be consulted here: FTSE Climate Risk Assessment Methodology (lseg.com)	Weighting

5.2 Further information on ESG data provided by FTSE Russell and third parties used in this index (index series) can be found in the following guide:

[Guide to FTSE and Third Party ESG Data used in FTSE Russell Indices](#)

This includes information on the data and standards used for these ESG data inputs. These data sets may include estimated data.

⁸ Definitions:
Selection- ESG data is used to select or rank constituents, or calculate minimum scores or thresholds.
Weighting- ESG data is used to calculate the weight of a constituent in an index.
Exclusion- ESG data is used to exclude securities from the index.

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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