Ground Rules

March 2025

FTSE Climate Risk-Adjusted World Inflation-Linked Securities Index Series (Climate WorldILSI)

v1.7



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Section 1 Introduction

1. Introduction

1.1 Overview

- 1.1.1 The FTSE Climate Risk-Adjusted World Inflation-Linked Securities Index Series is designed to quantitively incorporate climate risk considerations into an inflation-protected government bond portfolio. The global inflation-linked debt market is well established with its origins rooted to the UK Gilts market in the 1980s. Many developed and emerging markets have since issued inflation-linked bonds. It provides an opportunity to earn real rate of return adjusted for inflation and hedges against inflation uncertainty.
- 1.1.2 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 World Inflation-Linked Securities Index Series is designed to mitigate against climate change related risks for the sovereign bond asset class.
- 1.1.3 The FTSE Climate Risk-Adjusted Government Bond Index Series takes account of ESG factors in its design.¹

1.2 FTSE Climate Risk-Adjusted World Inflation-Linked Securities Index Series

- 1.2.1 The FTSE Climate Risk-Adjusted World Inflation-Linked Securities Index Series measures the performance of inflation-linked 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 World Inflation-Linked Securities Index (Climate WorldILSI).
- 1.2.2 The series follows the monthly rebalancing mechanics of the standard FTSE World Inflation-Linked Securities Index 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: <u>FTSE</u> <u>Climate Risk Assessment Methodology (lseg.com)</u>
 - 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.
 - Resilience represents a country's preparedness and actions to cope with its level of climate related risk exposure.

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.

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 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.
- 1.3.3 Index users who choose to follow this index series or to buy products that claim to follow this index series 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;
 - any inaccuracies in these Ground Rules;
 - 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 series².
- 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; and
 - disseminate the indices.

2.2 Amendments to these Ground Rules

- 2.2.1 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 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 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 <u>Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016</u> on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds (the European Benchmark Regulation) and <u>The Benchmarks (Amendment and Transitional Provision) (EU Exit) Regulations 2019</u> (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:

3.1 Queries and Complaints

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

FTSE_Russell_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 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 using 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 <u>fi.index@lseg.com</u>.

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 indexes, 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 Methodology overview

4.1.1 The base universe for the FTSE Climate Risk-Adjusted World Inflation-Linked Securities Index (Climate WorldILSI) is the FTSE World Inflation-Linked Securities Index (WorldILSI).

The FTSE WorldILSI measures the performance of fixed-rate, local currency, investment-grade, inflationlinked bonds. As of November 2024, the WorldILSI comprises sovereign debt from 13 countries and has more than 17 years of history available.

4.2 Base index universe: design criteria and calculation methodology

FTSE World Inflation-Linked Securities Index (WorldILSI) design criteria

Coupon	Fixed rate	
Minimum maturity	At least one year	
Minimum issue size	Americas Canada: CAD 2.5 billion (excludes Bank of Canada Cash Management bond buybacks) Mexico: MXN 10 billion United States: USD 5 billion public amount outstanding (excludes Federal Reserve holdings)	
	Europe, Middle East and Africa Germany: EUR 2.5 billion France: EUR 2.5 billion Italy: EUR 2.5 billion Spain: EUR 2.5 billion Israel: ILS 5 billion Sweden: SEK 25 billion United Kingdom: GBP 2 billion (excludes Bank of England holdings)	
	Asia-Pacific and Japan Australia: AUD 750 million Japan: JPY 500 billion; 20+ year bonds: JPY 450 billion (excludes Bank of Japan holdings and Ministry of Finance buybacks) New Zealand: NZD 750 million ⁶	

⁶ New Zealand was included to the WorldILSI from November 2022.

Minimum credit	Entry: A- by S&P and A3 by Moody's for all new markets.
quality ⁷	Exit: below BBB- by S&P and Baa3 by Moody's.
Composition	Inflation-linked sovereign debt denominated in the domestic currency. Eligible security types by market are listed in figure one. Variable rate, floating rate, fixed-to-floating rate, retail directed, bills, stripped zero coupon, convertibles and private placements are excluded.

Inflation-linked types by market

Country	Inflation-linked securities	Inflation index	
Australia	Treasury Indexed Bonds	Consumer Price Index (CPI), published by the Australian Bureau of Statistics (ABS)	
Canada	Real Return Bonds (RRB)	CPI (62-001-X, free), published by Statistics Canada	
France	OATi, OAT€i, BTAN€i	OATi: CPI ex-tobacco, published by National Institute of Statistics and Economic Studies (INSEE). OAT€i and BTAN€i: EU Harmonized Index of Consumer Prices (HICP) ex-tobacco, published by Eurostat	
Germany	BUND€I, BOBL€i	EU HICP ex-tobacco, published by Eurostat	
Israel	GALIL, CPI-Linked Government Bonds	CPI: published by the Central Bureau of Statistics (CBS)	
Italy	BTP€i	EU HICP ex-tobacco, published by Eurostat	
Japan	Inflation-Indexed Bonds (JGBi)	CPI, published by the Statistics Bureau and the Director- General for Policy Planning of Japan	
Mexico	UDIBONOS (Federal Government Bonds UDIS: Unidades de Inversion – value based on Consumer Price denominated in UDI)	Index, currently published by Instituto Nacional de Estadistica y Geografia (INEGI) and published by Banco de Mexico prior to 14 July 2011	
New Zealand	Inflation-Indexed Bonds (IIB)	CPI: measured and published quarterly by Statistics New Zealand	
Spain	OBL€I, BON€i	EU HICP ex-tobacco, published by Eurostat	
Sweden	Inflation-Linked Bonds	CPI, published by Statistics Sweden (Statistiska centralbyran – SCB)	
United Kingdom	Index-Linked GILTs (ILG)	Retail Price Index (RPI), published by Office for National Statistics (ONS)	
United States	US Treasury Inflation Protection Securities (TIPS)	US CPI published by US Bureau of Labor Statistics	

4.2.1 The index follows the general methodology as outlined in the index methodology of the <u>FTSE Fixed Income</u> <u>Index Guide</u>. More specifically, the following calculation rules apply to the index.

FTSE World Inflation-Linked Securities Index calculation methodology

Weighting	Market capitalisation	
Rebalancing	Drce a month at the end of the month.	
Reinvestment of cash flows	Intra-month cash flows from interest and principal payments are not reinvested as part of monthly index total return calculations ⁸ .	
Pricing	LSEG pricing service except for: Israel (provided by TASE) Mexico (provided by Proveedor Integral de Precios S.A. de C.V.) For more information on local market close, see the FTSE Fixed Income Index Guide.	

⁷ Each month, the upcoming month's index constituents are fixed on the profile fixing date. The credit qualifications of the index are treated as provisional in order to give market participants time to react to last-minute downgrades. A market will be removed from the index after the fixing if it becomes rated below investment-grade by both S&P and Moody's. This exception window is kept open until 17:00 New York time on the second-to-last business day of the month for removal only.

⁸ Prior to 1 November 2022, reinvestment income was included in the total recalculation.

Calculation frequency	Daily	
Settlement date	Monthly – settlement is on the last calendar day of the month. Daily – same-day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.	
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	30 April 2007	

4.3 Climate Risk-Adjusted index universe: design criteria and calculation methodology

FTSE Climate Risk-Adjusted World Inflation-Linked Securities 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 WorldILSI.	
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 <u>fixed-income-indices</u> website.	
Base date	December 31, 2001	

4.4 Climate Risk Assessment methodology

- 4.4.1 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).
- 4.4.2 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 <u>FTSE Climate Risk Assessment Methodology</u> for further details on the climate risk assessment methodology.

4.5 Tilting methodology

- 4.5.1 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 weights⁹.
- 4.5.2 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

⁹ 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.

- 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
- 4.5.3 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.
- 4.5.4 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

 $\boldsymbol{\theta}$, is the county's weight in the Climate Risk-Adjusted index

4.6 Exchange rates

4.6.1 The WMR Closing Spot Rates and WMR Closing Forward Rates are used. Snapshots are taken at regular intervals centred on the fixing time of 16:00 London time and the median rate for each currency is selected. All rates are mid-market quotations.

FTSE Climate Government Bond and Inflation-Linked Bond Index Series event summary

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: FTSE Advanced Climate Risk-Adjusted World Government Bond Index and FTSE Advanced Climate Risk- Adjusted EMU Government Bond Index are launched.	
2021	February: FTSE Climate Risk-Adjusted World Inflation-Linked Securities Index launched.	
2022	November: intra-month cash flows from interest and principal payments are not reinvested as part of monthly index total return calculations.	
2024	October: An enhanced methodology is used to analyse climate risk.	

Section 5 **ESG** data inputs

ESG data inputs 5.

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

ESG data inputs	Details	Used for selection, weighting or exclusion ¹⁰
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: <u>FTSE Climate Risk Assessment</u> <u>Methodology (lseg.com)</u>	Weighting

5.1.2 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.

¹⁰ 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 A 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 contact details, please visit the FTSE Russell website or contact FTSE Russell client services at <u>fi.index@lseg.com</u>.

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

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