

FTSE Advanced Climate Risk-Adjusted World Government Bond Index ex Japan – Japanese Investment Trust

v1.4



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Section 1

Introduction

1. Introduction

1.1 FTSE Advanced Climate Risk-Adjusted World Government Bond Index ex Japan – Japanese Investment Trust

1.1.1 This document sets out the Ground Rules for the construction and management of the FTSE Advanced Climate Risk-Adjusted World Government Bond Index ex Japan – Japanese Investment Trust. Copies of these Ground Rules are available from FTSE International Limited (FTSE).

1.1.2 The FTSE Advanced Climate World Government Bond Index ex Japan – Japanese Investment Trust (“Index”) measures the performance of fixed-rate, local currency, investment-grade sovereign bonds based on the market capitalisation of its index eligible debt, as well as by incorporating a tilting methodology that adjusts index weights according to each country’s relative climate risk performance, measured across three distinct and quantitative, climate-related pillars: transition risk; physical risk; and resilience.

1.1.3 The Index is designed to serve as a benchmark for performance evaluation by Japanese investment trusts. The calculation methodology is based on the evaluation standards of the Investment Trusts Association of Japan.

1.2 The FTSE Advanced Climate Risk-Adjusted World Government Bond Index ex Japan – Japanese Investment Trust Index takes account of ESG factors in its index design.

If a tilting approach is used for an SI data input, the objective is for the index methodology to overweight and/or underweight constituents according to specific SI criteria. This approach will not remove all companies with exposure to a specific SI activity or sector.

1.3 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 FTSE Fixed Income Europe Limited), FTSE Fixed Income LLC, FTSE (Beijing) Consulting Limited, Refinitiv Benchmark Services (UK) Limited, Refinitiv Limited and Beyond Ratings.

1.4 Index Objective and Intended Use

1.4.1 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.

- 1.4.2 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 or any members of the FTSE Russell Policy Advisory Board (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
 - 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 Fixed Income LLC (“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). FTSE Fixed Income LLC administers the Index Series in line with the third country transitional provisions contained within Article 51(5) of the European Benchmark Regulation and the third country transitional provisions as amended by Article 42(5) of 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 info@ftserussell.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 Benchmarks² and the European benchmark regulation³. The FTSE Russell Governance Framework can be accessed using the following link:

[FTSE Russell Governance Framework.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.

Section 4

Composition and design criteria

4. Composition and design criteria

- 4.1 The FTSE Advanced Climate World Government Bond Index ex Japan – Japanese Investment Trust (“Index”) measures the performance of fixed-rate, local currency, investment-grade sovereign bonds based on the market capitalisation of its index eligible debt, as well as by incorporating a tilting methodology that adjusts index weights according to each country’s relative climate risk performance, measured across three distinct and quantitative, climate-related pillars: transition risk; physical risk; and resilience.
- 4.2 The Index measures the performance of the bonds that are in the excluding Japan segment of FTSE World Government Bond Index – Japanese Investment Trust (WGBI-JIT). The Index is designed to serve as a benchmark for performance evaluation by Japanese investment trusts. The calculation methodology is based on the evaluation standards of the Investment Trusts Association of Japan.
- 4.3 For full details on the design criteria and calculation assumptions for WGBI-JIT, please refer to the FTSE Fixed Income Index Guide which can be accessed using the following link: [FTSE Fixed Income Index Guide](#)
- 4.4 **Design criteria and calculation assumptions for the FTSE Advanced Climate Risk-Adjusted World Government Bond Index ex Japan – Japanese Investment Trust**

Weighting	Alternatively weighted. The country weights of the Index are determined by Climate scores and pillars.
Country climate scores	Updated annually and applied each May month-end rebalance. The cut-off for input data is May 1 of each year.
Country climate scores Assessment Cohort	Local currency sovereign bond markets eligible for the WGBI.
Climate Pillars and tilt	Geometric tilt – Transition risk:1 – Physical risk: 1 – Resilience: 1
Rebalancing	Once a month at the end of the month
Pricing	Previous local market close
Exchange Rate	MUFG Bank telegraphic transfer spot middle rate (TTM) as quoted at 10:00 a.m. Tokyo time ⁴
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	January 1, 2002

⁴ Refinitiv’s quotes are used for currencies during periods in which MUFG Bank quotes are not available.

4.5 Climate Pillars and underlying indicators

- 4.5.1 Country climate scores are derived from assessments across three climate pillars: Transition risk, Physical risk and Resilience. Each pillar contains multiple underlying indicators. Raw data inputs are typically normalised to ensure countries are scored between 0 and 1 for each indicator. Within each climate pillar, the underlying indicators are equally weighted.
- 4.5.2 For full details on the definitions of climate pillars and underlying indicators, please refer to the Ground Rules of FTSE Climate Risk-Adjusted World Government Bond Index which can be accessed using the following link: [FTSE Climate WGBI Ground Rules](#)

4.6 Climate Pillar scoring

- 4.6.1 Indicator values are combined for each pillar and are then converted into z-scores that have been mapped to s-scores that range from 0 to 1 using a cumulative normal distribution function. Some sub-indicators, where there are significant outlier country scores, have been windsorised before normalisation with values above the 95th percentile and below the 5th percentile set to the 95th percentile and the 5th percentile, respectively.

4.7 Tilting methodology

- 4.7.1 A single climate score is calculated for each sovereign and applied to the market value weight of each security in the underlying index, FTSE World Government Bond Index (WGBI) to derive the adjusted weights⁵.
- 4.7.2 First, the three pillars are combined to derive a climate score for each country:

$$CS = TRI^{\alpha} \times PRI^{\beta} \times RI^{\gamma}$$

where,

TRI, is the country's Transition Risk Index value

PRI, is the country's Physical Risk Index value

RI, is the country's Resilience Index value

α , is the TRI tilt power

β , is the PRI tilt power

γ , is the RI tilt power

CS, is the final country climate score

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

$$\theta_i = \frac{\omega_i CS_i}{\sum_{i=0}^n (\omega_i CS_i)}$$

where,

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

θ , is the country's weight in the Climate Adjusted Index

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.

4.8 Market Value computation

4.8.1 The following notations are used in the formulas. The notation of FTSE World Government Bond Index (WGBI) and FTSE World Government Bond Index – Japanese Investment Trust (WGBI-JIT) refers to the returns and analytics of each individual bond in the excluding Japan segment of the two indices.

Notation	
t	Today
m	Current month
e	Last business day of previous month
P_WGBI	WGBI clean price
A_WGBI	WGBI accrued interest
P_WJIT	WGBI-JIT clean price
A_WJIT	WGBI-JIT accrued interest
WGBI_PAR	WGBI par amount
WGBI_MODDUR	WGBI modified duration
WGBI_RORP	WGBI daily principal return
WGBI_MTDROP	WGBI month-to-date principal return
WGBI_MTDROI	WGBI month-to-date income return
WGBI_HGAMT	WGBI hedged amount
WJIT_RORP	WGBI-JIT daily principal return
WJIT_MTDROP	WGBI-JIT month-to-date principal return
WJIT_MTDROI	WGBI-JIT month-to-date income return
WJIT_MTDRT	WGBI-JIT month-to-date total return
WJIT_HGAMT	WGBI-JIT hedged amount

4.8.2 For the WGBI, the current month's index profile market value is calculated using the prices and accrued interests of the last business day of the previous month for all its constituents. For the WGBI-JIT, the prices of the previous business day would be applied.

Here, WGBI_PAR refers to par amount of each individual bond in the FTSE Advanced Climate Risk-Adjusted World Government Bond Index ex Japan.

$$WJIT_MKV(m) = (P_WJIT(m) + A_WJIT(m)) \times WGBI_PAR(m) = (P_WGBI(e-1) + A_WGBI(e)) \times WGBI_PAR(m)$$

4.8.3 To convert the market value into JPY, the spot exchange rates used are the telegraphic transfer middle (TTM) rates provided by MUFG Bank.

$$WJIT_MKV(m)_{JPY} = WJIT_MKV(m) \times FX_SPOT(e)$$

4.9 Return computation

4.9.1 The returns are computed by modifying the previous day's principal return as well as the current day's income return.

4.9.2 Month-to-date returns in local currency terms

Step 1: Calculate the first business day principal return

The first business day principal returns of WGBI-JIT constituents are computed first as they will be utilised throughout the WGBI-JIT calculations. For the existing bonds of the WGBI/WGBI-JIT, their principal returns of the first day are calculated using on the WGBI prices and accrued interests of the last two business days before month end.

$$WJIT_RORP(1) = \frac{P_WGBI(e) - P_WGBI(e-1)}{P_WGBI(e-1) + A_WGBI(e)} \times 100$$

For the bonds that are newly added to the WGBI/WGBI-JIT, their principal returns of the first day are calculated based on the WGBI-JIT principal returns of the bonds that have the closest WAL (weighted average life) to each of them respectively. These WGBI-JIT principal returns are adjusted by duration ratios to account for the differences in modified duration.

$$WJIT_RORP(1) = WGBI_RORP_{CLOSEST(1)} \times \left(\frac{WGBI_MODDUR(m)}{WGBI_MODDUR_{CLOSEST(m)}} \right)$$

Step 2: Calculate the month-to-date principal return

The month-to-date principal return is calculated by compounding the previous day's WGBI_MTDROP and the first business day's WJIT_RORP. This is equivalent to shifting the prices of all securities by one day.

$$WJIT_MTDRORP(t) = WJIT_RORP(1) + WGBI_MTDRORP(t-1) \times \left[1 + \left(\frac{WJIT_RORP(1)}{100} \right) \right]$$

Step 3: Calculate the month-to-date income return

The month-to-date income return is calculated based on the current month's market value at the beginning of the month. It is adjusted by the first business day principal return.

$$WJIT_MTDRORI(t) = WGBI_MTDRORI(t) \times \left[1 + \left(\frac{WJIT_RORP(1)}{100} \right) \right]$$

Step 4: Calculate the month-to-date total return

The total return is the sum of the month-to-date WGBI-JIT principal and income returns.

$$WJIT_MTDRORT(t) = WGBI_MTDRORP(t) + WJIT_MTDRORI(t)$$

4.9.3 Month-to-date total return in JPY terms

The WGBI-JIT uses the same standard calculation to convert the local currency returns to base currency returns. The exchange rates used are the telegraphic transfer middle (TTM) rates provided by MUFG Bank. If the TTM rates are not available, the Refinitiv's rates are used.

$$WJIT_MTDRORT(t)_{JPY} = \left\{ \left[1 + \left(\frac{WJIT_MTDRORT(t)_{LCL}}{100} \right) \right] \times \left[1 + \left(\frac{CRCY_RTN(t)_{TTM}}{100} \right) \right] - 1 \right\} \times 100$$

4.9.4 Hedge amount computation

The calculation of the hedge amount of the WGBI-JIT follows the standard index methodology as defined in the FTSE Fixed Income Index Guide.

1. Reduce the par amount of the bond by any sinking fund payments, calls, prepaids, etc.
2. Allow for these cash receipts plus any re-investment income on these amounts to the end-of-period date.
3. Add any coupons that will be paid during the period, together with re-investment income
4. Re-price the remaining par amount, using the beginning-of-month yield and the end-of-period date as the new settlement date, including Accrued Interest on this date.
5. The sum of these amounts (2, 3 and 4) will be the amount of foreign currency sold forward.
6. This amount, converted back to base currency at the appropriate forward rate to give the "assumed hedged value," will be the predominant component of the end-of-period value in currency-hedged base-currency terms.

Note that in step 4, the beginning-of-month yield of the WGBI-JIT is the WGBI yield of the previous business day before month-end. For the bonds that are newly added to the WGBI, the WGBI-JIT hedge amounts are calculated based on the WGBI hedge amounts adjusted by the WGBI-JIT principal returns of the first business day.

$$WJIT_HGAMT_{(t)} = WGBI_HGAMT_{(t)} / [1 + (WJIT_RORP_{(1)} / 100)]$$

4.9.5 Month-to-date returns in JPY terms (hedged)

In order to calculate WGBI-JIT in JPY (Hedged) return, we use forward rates that are consistent with publication timing of TTM spot rates.

$$WJIT_MTDRORT_{(t)JPY_HEDGED} = WJIT_MTDRORT_{(t)JPY} + \{[WJIT_HGAMT_{(t)} \times (FX_FWD_{(e,t)} - FX_SPOT_{(t)})] / WJIT_MKV_{(m)JPY}\} \times 100$$

Note that intra-month forward rates are linearly interpolated from the spot rates and one month forward rates at the end of the previous month rather than derived from the forward rate term structure.

4.9.6 Daily total return in local currency and JPY terms

Daily total return is calculated using today's and the previous day's month-to-date returns.

$$WJIT_RORT_{(t)} = \{[(1 + WJIT_MTDRORT_{(t)} / 100) / (1 + WJIT_MTDRORT_{(t-1)} / 100)] - 1\} \times 100$$

$$WJIT_RORT_{(t)JPY} = \{[(1 + WJIT_MTDRORT_{(t)JPY} / 100) / (1 + WJIT_MTDRORT_{(t-1)JPY} / 100)] - 1\} \times 100$$

$$WJIT_RORT_{(t)JPY_HEDGED} = \{[(1 + WJIT_MTDRORT_{(t)JPY_HEDGED} / 100) / (1 + WJIT_MTDRORT_{(t-1)JPY_HEDGED} / 100)] - 1\} \times 100$$

4.10 Exchange Rates

4.10.1 MUFG Bank telegraphic transfer spot middle rate (TTM) as quoted at 10:00 a.m. Tokyo time. Refinitiv quotes are used for currencies during periods in which MUFG Bank quotes are not available.

4.11 Chronological Summary of Events

In addition to the following events, the constructions of FTSE Advanced Climate Risk-Adjusted World Government Bond Index ex Japan – Japanese Investment Trust is driven by the same events that mark the FTSE World Government Bond Index – Japanese Investment Trust.

Year	Highlights
2022	<p>November: New Zealand is added to the FTSE World Government Bond Index.</p> <p>April: FTSE Advanced Climate Risk-Adjusted World Government Bond Index ex Japan – Japanese Investment Trust is launched. Prior to 2021 April 1st, the history of FTSE Advanced Climate Risk-Adjusted World Government Bond Index ex Japan hedged in JPY was applied to FTSE Advanced Climate Risk-Adjusted World Government Bond Index ex Japan – Japanese Investment Trust hedged in JPY</p>

4.12 Ticker for the FTSE Advanced Climate Risk-Adjusted World Government Bond Index ex Japan – Japanese Investment Trust

Ticker	Index
CFIAXJC	FTSE Advanced Climate Risk-Adjusted World Government Bond Index ex Japan – Japanese Investment Trust, currency-hedged in JPY terms

Section 5

ESG data inputs

5. ESG data inputs

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 ⁶
Beyond Ratings Climate KPIs	Beyond Ratings 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

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.

⁶ 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

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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