Ground Rules



FTSE Goldman Sachs Treasury Inflation Protected USD Bond Index

v1.5

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Introduction

1.0 Introduction

- 1.1 FTSE Goldman Sachs Treasury Inflation Protected USD Bond Index
- 1.2 The FTSE Goldman Sachs Treasury Inflation Protected USD Bond Index is comprised of US dollar denominated sovereign bonds with fixed-rate coupon payments that are linked to an inflation index. The index aims to provide a broad measure of seasoned US Treasury inflation-linked bonds while excluding recent new issues.
- 1.2.1 The index is created from the FTSE World Inflation-Linked Securities Index (WILSI). Only US Treasury Inflation-Protected Securities (TIPS) are eligible for the index. (the Base Universe) The amount outstanding of each bond is adjusted to exclude Federal Reserve System Open Market Account (SOMA) holdings. The SOMA adjusted bonds that satisfy the size screening criteria make up the liquid universe (the Liquid Universe).
- 1.2.2 The Liquid Universe is then filtered for seasoned bonds. On-the-run bonds and recent off-the-run bonds are excluded. The weights of the remaining bonds are then adjusted to match the weighted average real yield duration of the Liquid Universe.
- 1.3 The FTSE Goldman Sachs Treasury Inflation Protected USD Bond Index does not take account of ESG factors in its design.

1.4 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, The Yield Book Inc. and Beyond Ratings

1.5 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

¹ The newest bond issues for each security term are considered on-the-run; all other bonds for the same security term are considered off-the-run. If the bond issuance for a security term is suspended, the most recent bond issue for the security term is considered off-the-run two years after its original issuance date.

- 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.
- 1.5.1 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.



Management Responsibilities

2.0 Management Responsibilities

- 2.1 FTSE Fixed Income LLC (FTSE)
- 2.1.1 FTSE is the benchmark 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 all the constituents;
 - be responsible for the addition and deletion of bonds and changes of nominal amounts, in accordance with the Ground Rules.
 - disseminate the indexes.

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). 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.



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 or by contacting info@ftserussell.com. These policies are reviewed annually and any changes are approved by the FTSE Russell Index 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 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

3.1 Queries and Complaints

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

Benchmark_Determination_Complaints_Handling_Policy.pdf

3.2 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

3.3 Index Policy in the Event Clients are Unable to Trade a Market or a Security

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

3.4 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

3.5 FTSE Russell Governance Framework

3.5.1 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 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



Composition and design criteria

4.0 Composition and design criteria

Figure 1. Design criteria and calculation assumptions for the FTSE US Broad Investment-Grade Corporate Index

Coupon	Fixed-rate
Currency	USD
Minimum maturity	At least one year
Minimum credit quality	BBB- by S&P and Baa3 by Moody's
Composition	Inflation-linked bonds
Inflation Index	CPI, published by the US Department of Labor, Bureau of Labor Statistics
Weighting	Market capitalization
Rebalancing	Once 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. ⁶
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.

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

⁷ Fixing dates provide a clear reference point for index users to know in advance of any changes to the composition of the index for the upcoming month. On each fixing date, publically available securities information is used to determine index eligibility and indicative values for the following month's index profile.

Figure 2. Additional design criteria and calculation assumptions for the FTSE Goldman Sachs Treasury Inflation Protected USD Bond Index

Minimum issue size	USD 5 billion minimum total outstanding per issue (prior to adjusting for SOMA holding amounts)
Pricing ⁸	Refinitiv 4:00 p.m. E.T. mid-market price FTSE prices used for historical calculations (from December 31, 2007 to August 26, 2018)
Reconstitution	Each month, the outstanding amounts of the bonds from the Base Universe are float-adjusted to exclude SOMA ⁹ holdings, which make up the Liquid Universe. The Liquid Universe is then filtered for seasoned bonds; on-the-run bonds and recent off-the-run bonds (i.e., bonds that have not been considered off-the-run for at least two full months) are excluded. ¹⁰ The weights of the remaining bonds are then adjusted to match the weighted average real yield duration of the Liquid Universe. The monthly profiles will reflect the latest par amount, market value, and SOMA holdings adjustments of all included bonds.
Index base date ¹¹	December 31, 2007

4.1 **Timing**

4.1.1 Indexes are calculated Monday through Friday except Christmas Day (observed) and New Year's Day (observed). When a market observes a holiday, the closing prices from the previous available day are used as the closing prices for index calculations on such holiday for that market.

4.2 Index quality

4.2.1 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.

⁸ The pricing of each issue in the index is adjusted by using an index ratio. In general, this ratio is the current index level (i.e, the index level is equal to a previous value where the "look-back" period is specified at the time of issuance for each bond) divided by the inflation index level at the time of issue of the security. If the inflation index is published monthly, then the intra-month index ratio is calculated using linear interpolation. The calculation of an index ratio, if any, follows individual market convention.

⁹ SOMA holdings as published by the Federal Reserve Bank of New York https://www.newyorkfed.org/markets/soma/sysopen_accholdings.html.

¹⁰ The newest bond issues for each security term are considered on-the-run; all other bonds for the same security term are considered off-the-run. If the bond issuance for a security term is suspended, the most recent bond issue for the security term is considered off-the-run two years after its original issuance date.

¹¹ Back tested data from 12/31/2007 through 08/26/2018. Live data from 08/27/2018 through present. Outstanding amounts adjusted for SOMA holdings starting 07/01/2018. Back tested data from 2/28/2007 through 8/26/2018

4.3 **Defaults**

4.3.1 When an issuer defaults, or is assigned a D rating by S&P regardless of whether that issuer has filed for bankruptcy protection, or enters into Chapter 7 or Chapter 11 bankruptcy protection in the US (or equivalent in its local market), its bonds remain in the index until the end of the month. The bonds will be included in the calculation of the current month's average profile statistics of the index. The returns are calculated without coupon payment or accrued interest, where applicable.

4.4 Return computation

4.4.1 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 are price change, principal payments, coupon payments and accrued interest. The total returns are market capitalization weighted using the security's beginning-of-period market value (see Figure 4).

Figure 4. 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

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.

Ticker for the FTSE Goldman Sachs Treasury Inflation Protected USD Bond Index

Ticker	Index
CFIIGTIP	FTSE Goldman Sachs Treasury Inflation Protected USD Bond Index, in USD terms

Chronological summary of events

FTSE Goldman Sachs Treasury Inflation Protected USD Bond Index summary of event

Year	Monthly highlights
2022	November: Intra-month cash flows from interest and principal payments are not reinvested as part of monthly index total return calculations.
2021	June: Change in timing of pricing used in 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 info@ftserussell.com.

Website: www.ftserussell.com

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