

SOLUTION OVERVIEW

FTSE Climate Risk-Adjusted Carry and Roll Down Government Bond Index Series

Combining climate considerations and carry factor into global sovereign bond indexes

Overview

Enabling sovereign debt investors to consider climate risk exposures while optimising carry and roll down yields in their investment portfolios.

As a well-known concept to practitioners and academics, the carry factor has been leveraged in the currency markets for decades. With the understanding of such FX carry trades becoming established, academic publications have explored this concept cross-markets and showcased evidence of the carry premium in the fixed income asset class.

Global sovereign debt is one of the largest asset classes in the world, yet fixed income markets have typically lagged other asset classes in relation to ESG integration activities. Sovereign debt investors are exposed to a range of climate risks that are typically not well understood or incorporated in the investment process.

The **FTSE Climate Risk-Adjusted Carry and Roll Down (CaRD) Government Bond Index Series** offers a solution that seeks to reflect a targeted exposure to the sovereign bonds in the underlying index by applying carry and roll down optimisation, and incorporating a tilting methodology that adjusts index weights according to each country's relative climate risk performance.

The index series comprises:

- FTSE Climate CaRD WGBI
- FTSE Advanced Climate CaRD WGBI
- FTSE Climate CaRD EGBI
- FTSE Advanced Climate CaRD EGBI

Features

Representative

- Based on the FTSE World Government Bond Index (WGBI), a widely used benchmark that currently includes sovereign debt from over 20 countries, denominated in a variety of currencies, and has more than 30 years of history available. A European Monetary Union benchmark is also available-FTSE EMU Government Bond Index (EGBI)-consisting only Eurozone-participating countries that meet the WGBI criteria
- Aims to maximise the total carry and roll down, while controlling interest rate risk with both duration and weights anchored the individual country within the base universe
- Incorporates a forward-looking assessment of the climate risks sovereigns face at a country level
- Tilts country weights on a relative basis to the three pillars of climate risk

Best-in-class climate risk modelling

- Comprehensive sovereign climate risk assessments, with history available from 2002
- Climate risk modelling provided by LSEG, a highly regarded provider of ESG data solutions, and climate change research and modelling across asset classes



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Quantitative climate risk assessments are made across three climate risk pillars, covering:

Transition risk	The level of climate-related risk exposure of the country's economy as measured by the distance to reach the modelled emissions needed to meet a 2 degree alignment
Physical risk	The level of climate-related risk exposure to the country and its economy from the physical effects of climate change
Resilience	A country's preparedness and actions to cope with its level of climate-related risk exposure

Benefits

- Gaining climate exposure combined with a Carry and Roll Down (CaRD) strategy
- Combined strategy of CaRD and Climate can be applied on multiple sovereign markets or customised universes
- Allows flexibility on climate exposure with different tilting to each of the climate pillar scores
- The 'advanced' versions of the indexes are constructed with a stronger tilt to the Transition pillar, and therefore offer greater exposure to countries with a stronger alignment to the 2 degree pathways
- Quantitative and transparent approach to climate risk modelling and assessment

Index inclusion and methodology summary

	FTSE Climate CaRD WGBI	FTSE Advanced Climate CaRD WGBI	FTSE Climate CaRD EGBI	FTSE Advanced Climate CaRD EGBI
Coupon	Fixed-rate			
Minimum maturity	At least 1 year			
Minimum credit quality	Entry: A- by S&P and A3 by Moody's, for all new markets Exit: Below BBB- by S&P and Baa3 by Moody's			
Weighting	Alternatively weighted The country weights of base universe are determined by Climate scores and pillars. The final weights of each Index in the Series are determined by performing an optimisation process			
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		Local currency sovereign bond markets eligible for the EGBI	
Climate Pillars and tilt calibration	Geometric tilt - Transition risk:0.25 - Physical risk: 1 - Resilience: 1	Geometric tilt - Transition risk: 1 - Physical risk: 1 - Resilience: 1	Geometric tilt - Transition risk: 0.5 - Physical risk: 0.25 - Resilience: 0.5	Geometric tilt - Transition risk: 1 - Physical risk: 1 - Resilience: 1
Reinvestment of cash flow	At daily average of the local currency one-month Euro deposit rate, calculated from the actual scheduled payment date of the cash flow through to the end of the reporting period			
Rebalancing	Once a month on the last business day of the month			
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 for the base universe are "fixed" on the profile fixing date ¹ . The Index is "fixed" on profile fixing date as well			
Base date	December 31, 2006			

¹ 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. Index rules stipulate that there must be a minimum of four (4) business days following each index fixing date and before calendar month-end in all of the following business regions: US, UK, Eurozone, Japan, and Australia. The annual schedule of fixing dates is made available on the website at <https://www.yieldbook.com/m/indices/>

Index construction process

Starting universe

Start with the market capitalisation weighted index for World sovereigns or Eurozone sovereigns (e.g. FTSE WGBI or FTSE EGBI)

Step 1

Calculate scores for each climate pillar

Incorporate a forward-looking assessment of the climate risks sovereigns face at a country level. These Climate scores are reviewed annually in May.

Step 1 > Step 2

Translate scores into tilts

Tilt country weights based on preferable Climate risk-adjusted exposure. When adding the Climate tilts to the starting market cap weighted index, a “base universe” is created depending on a stronger or moderate preference to climate exposure e.g. FTSE Climate WGBI (moderate) or advanced version (stronger).

Step 1 > Step 2 > Step 3

Maximise carry factor and control interest rate risk exposure

Maximise the total carry and roll down, while controlling interest rate risk with both duration and weights anchored to the individual country within the base universe.

Step 1 > Step 2 > Step 3 > Step 4

Publish and Review Index

The indexes are rebalanced on a monthly basis, where the final constituent weights are determined through optimisation.

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