

SOLUTION OVERVIEW

FTSE Nomura Climate Risk-Adjusted Carry and Roll Down World 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 optimizing 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.

The global sovereign debt market is one of the largest asset classes in the world, yet fixed income markets have typically lagged behind 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 Nomura Climate Risk-Adjusted Carry and Roll Down World Government Bond Index Series (FTSE Nomura Climate CaRD WGBI Series) offers a solution that seeks to reflect a targeted exposure to the sovereign bonds in the FTSE Climate Risk-Adjusted World Government Bond Index (FTSE Climate WGBI) by applying carry, and roll down optimization.

The index measures the performance of fixed-rate, local currency, and investment-grade sovereign bonds based on the market capitalization of its index eligible debt in the FTSE World Government Bond Index, and also incorporates a tilting methodology that adjusts index weights according to each country's relative climate risk performance.

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 with more than 30 years of history available
- Aims to maximize 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 Beyond Ratings, part of the London Stock Exchange Group, and a highly regarded provider of ESG data solutions, and climate change research and modelling across asset classes



**FTSE
RUSSELL**
An LSEG Business

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 modeled 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 CaRD strategy
- Combined strategy of CaRD and Climate can be applied on multiple sovereign markets or customized universes
- Allows flexibility on climate exposure with different tilting to each of the climate pillar scores
- Quantitative and transparent approach to climate risk modelling and assessment

Developed in partnership with Nomura Securities

Nomura is a global financial services group with an integrated network spanning over 30 countries. By connecting markets East & West, Nomura services the needs of individuals, institutions, corporates and governments through its four business divisions: Retail, Asset Management, Wholesale (Global Markets and Investment Banking), and Merchant Banking. Founded in 1925, the firm is built on a tradition of disciplined entrepreneurship, serving clients with creative solutions and considered thought leadership. For further information about Nomura, visit www.nomura.com.

NOMURA

Index inclusion and methodology summary

Coupon	Fixed-rate
Currency	JPY and hedged to JPY versions available
Minimum maturity	At least one 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 optimization process, for details, see Optimization Methodology section in the ground rule.
Rebalance frequency	Monthly on final business day of the month
Climate risk pillars	Each country is assessed by three core climate pillars (each with multiple sub-indicators) <ul style="list-style-type: none"> – Transition risk represents the impact on the economy from the required efforts to mitigate climate risk as measured by modelled emissions needed to meet 2 degree alignment – Physical risk represents the climate-related risk to the country and its economy from the physical effects of climate change – Resilience represents a country's preparedness and actions to cope with climate risk
Climate pillars and tilt calibration	Transition risk: 0.25 Physical risk: 1 Resilience: 1
Country climate scores	Updated annually and applied from the end of May rebalance
Base date	December 31, 2006

Disclaimer

© 2023 London Stock Exchange Group plc and its applicable group undertakings (the "LSE Group"). The LSE Group includes (1) FTSE International Limited ("FTSE"), (2) Frank Russell Company ("Russell"), (3) FTSE Global Debt Capital Markets Inc. and FTSE Global Debt Capital Markets Limited (together, "FTSE Canada"), (4) FTSE Fixed Income Europe Limited ("FTSE FI Europe"), (5) FTSE Fixed Income LLC ("FTSE FI"), (6) The Yield Book Inc ("YB") and (7) Beyond Ratings S.A.S. ("BR"). All rights reserved.

FTSE Russell® is a trading name of FTSE, Russell, FTSE Canada, FTSE FI, FTSE FI Europe, YB and BR. "FTSE", "Russell", "FTSE Russell", "FTSE4Good", "ICB", "The Yield Book", "Beyond Ratings" and all other trademarks and service marks used herein (whether registered or unregistered) are trademarks and/or service marks owned or licensed by the applicable member of the LSE Group or their respective licensors and are owned, or used under licence, by FTSE, Russell, FTSE Canada, FTSE FI, FTSE FI Europe, YB or BR. FTSE International Limited is authorised and regulated by the Financial Conduct Authority as a benchmark administrator.

All information is provided for information purposes only. All information and data contained in this publication is obtained by the LSE Group, from sources believed by it to be accurate and reliable. Because of the possibility of human and mechanical error as well as other factors, however, such information and data is provided "as is" without warranty of any kind. No member of the LSE Group nor their respective directors, officers, employees, partners or licensors make any claim, prediction, warranty or representation whatsoever, expressly or impliedly, either as to the accuracy, timeliness, completeness, merchantability of any information or of results to be obtained from the use of FTSE Russell products, including but not limited to indexes, data and analytics, or the fitness or suitability of the FTSE Russell products for any particular purpose to which they might be put. Any representation of historical data accessible through FTSE Russell products is provided for information purposes only and is not a reliable indicator of future performance.

No responsibility or liability can be accepted by any member of the LSE Group nor their respective directors, officers, employees, partners or licensors for (a) any loss or damage in whole or in part caused by, resulting from, or relating to any error (negligent or otherwise) or other circumstance involved in procuring, collecting, compiling, interpreting, analysing, editing, transcribing, transmitting, communicating or delivering any such information or data or from use of this document or links to this document or (b) any direct, indirect, special, consequential or incidental damages whatsoever, even if any member of the LSE Group is advised in advance of the possibility of such damages, resulting from the use of, or inability to use, such information.

No member of the LSE Group nor their respective directors, officers, employees, partners or licensors provide investment advice and nothing in this document should be taken as constituting financial or investment advice. No member of the LSE Group nor their respective directors, officers, employees, partners or licensors make any representation regarding the advisability of investing in any asset or whether such investment creates any legal or compliance risks for the investor. A decision to invest in any such asset should not be made in reliance on any information herein. Indexes cannot be invested in directly. Inclusion of an asset in an index is not a recommendation to buy, sell or hold that asset nor confirmation that any particular investor may lawfully buy, sell or hold the asset or an index containing the asset. The general information contained in this publication should not be acted upon without obtaining specific legal, tax, and investment advice from a licensed professional.

The information contained in this report should not be considered "research" as defined in recital 28 of the Commission Delegated Directive (EU) 2017/593 of 7 April 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council ("MiFID II") and is provided for no fee.

Past performance is no guarantee of future results. Charts and graphs are provided for illustrative purposes only. Index returns shown may not represent the results of the actual trading of investable assets. Certain returns shown may reflect back-tested performance. All performance presented prior to the index inception date is back-tested performance. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. However, back-tested data may reflect the application of the index methodology with the benefit of hindsight, and the historic calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index.

This document may contain forward-looking assessments. These are based upon a number of assumptions concerning future conditions that ultimately may prove to be inaccurate. Such forward-looking assessments are subject to risks and uncertainties and may be affected by various factors that may cause actual results to differ materially. No member of the LSE Group nor their licensors assume any duty to and do not undertake to update forward-looking assessments.

No part of this information may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of the applicable member of the LSE Group. Use and distribution of the LSE Group data requires a licence from FTSE, Russell, FTSE Canada, FTSE FI, FTSE FI Europe, YB, BR and/or their respective licensors.

About FTSE Russell

FTSE Russell is a leading global provider of index and benchmark solutions, spanning diverse asset classes and investment objectives. As a trusted investment partner we help investors make better-informed investment decisions, manage risk, and seize opportunities.

Market participants look to us for our expertise in developing and managing global index solutions across asset classes. Asset owners, asset managers, ETF providers and investment banks choose FTSE Russell solutions to benchmark their investment performance and create investment funds, ETFs, structured products, and index-based derivatives. Our clients use our solutions for asset allocation, investment strategy analysis and risk management, and value us for our robust governance process and operational integrity.

For over 35 years we have been at the forefront of driving change for the investor, always innovating to shape the next generation of benchmarks and investment solutions that open up new opportunities for the global investment community.

To learn more, visit lse.com/ftse-russell; email info@ftserussell.com; or call your regional Client Service team office:

EMEA +44 (0) 20 7866 1810

North America +1 877 503 6437

Asia-Pacific

Hong Kong +852 2164 3333

Tokyo +81 (3) 6441 1430

Sydney +61 (0)2 7228 5659



**FTSE
RUSSELL**
An LSEG Business