Product Profile | Fixed Income

How to build a better Fixed Income Benchmark

FTSE World Government Bond Index (WGBI) Series

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Introduction

Fixed income indices lie at the core of modern finance, providing a set of financial indicators for investors, a benchmark for active portfolio managers, and a way of investing in the broader market through index trackers. Our customers and the wider investment community rely on our ability to deliver accurate, timely, and reliable measures of fixed income markets. Therefore, our core principles of benchmark building are essential to fulfilling our role.

FTSE Russell calculates thousands of indexes, covering 98% of the global investable securities markets. Approximately $16 trillion in assets is currently benchmarked to FTSE Russell indexes[1]. When it comes to fixed income, FTSE Russell's extensive database covers more than 100 countries and includes 18,000+ unique bonds[2]. The market value of debt outnumbers equities by 2:1.

[1] Source: lseg.com/ftse-russell, as at April 2021.
[2] Source: https://www.ftserussell.com/products/indices/global-fixed-income-indexes.

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Creating a successful fixed income benchmark means more than just setting up an index and publishing its rules.

There are minimum standards set by regulators. A benchmark should follow global best practices on governance, controls, data quality, conflicts of interest, and consumer protection, as set out in the 2013 IOSCO Principles for Financial Benchmarks[3] and the 2016 EU Benchmark Regulation[4].

However, our standards go beyond regulation. In this document, we highlight five principles we believe are particularly important in fixed income benchmark design: **objectivity**, **relevance**, **modularity**, **predictability,** and **replicability**.

We provide examples to illustrate what those principles mean in the context of fixed income benchmark construction, and why they matter.

What is a benchmark?

Benchmarks play an important and informative role at every step of the investment process. Economists use them to analyse economic trends and investors make decisions based on economists' forecasts. Institutional investors use benchmarks to conduct risk analysis, develop investment policies, and create asset allocation strategies. Nearly all investors use benchmarks to evaluate the performance of their investment portfolios.

Benchmarks also underlie investable products, such as mutual funds or exchange-traded funds (ETFs) that allow for passive investment in a specific market, market segment or asset class.

No matter the use case, it is important to recognise that a benchmark's primary purpose is not to achieve a certain level of performance. At a basic level, a benchmark should measure a market's characteristics and performance. In other words, it should represent effectively and objectively how that market has behaved over time.

[3] https://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf.
[4] https://www.esma.europa.eu/policy-rules/benchmarks.

Principle 1 – objectivity

An objective, accurate, and transparent benchmark should follow a “naïve” construction methodology, enabling it to deliver an unbiased, comprehensive view of the market. Moreover, the method by which the constituents are selected should be transparent and free of subjectivity.

Index inclusion

An example of objective, rules-based bond inclusion is FTSE Russell’s fixed income country classification framework, which determines sovereign bond markets’ eligibility for inclusion in all local currency government bond indexes. The framework consists of four criteria, designed to measure the accessibility of their fixed income markets to outside investors:

– Market, macroeconomic, and regulatory environment
– Foreign exchange market structure
– Bond market structure
– Global settlement and custody

We summarize the results of the country classification in a scoring system that assigns an accessibility level of 0 (lowest), 1, or 2 (highest) to each local currency bond market. Level 2, for example, is a minimum requirement for fixed income markets to be included in the FTSE World Government Bond index (WGBI—see Figure 2).

Figure 2: Design criteria of the FTSE WGBI

Criterion	FTSE World Government Bond Index (WGBI)
Composition	Fixed-rate, local currency, investment-grade sovereign bonds
Country Classification	Minimum Market Accessibility level of 2 as determined by the FTSE Russell fixed income country classification framework
Currency	AUD, CAD, DKK, EUR, GBP, JPY, MXN, MYR, NOK, PLN, SEK, SGD, USD, CNY, ILS
Bond maturity	Minimum one year
Minimum market size	The outstanding amount of a market’s eligible issues must total at least USD 50 billion, EUR 40 billion, and JPY 5 trillion. To remain eligible for the index, a market must maintain a minimum market size of at least half of all the entry-level market size criteria
Minimum issue size	Locally calibrated minimums that vary by market
Minimum quality	Entry: at least 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	By market capitalization
Rebalancing	Once a month at month-end
Pricing source	LSEG Data & Analytics, except for specified local markets
Reinvestment	At daily average of the local currency one-month euro deposit rate, calculated from the actual scheduled payment date of the cash flow through the end of the reporting period
Settlement	T+0
Calculation frequency	Daily
Base date	December 31, 1984

Source: FTSE Fixed Income Index Guide, September 2021

To help benchmark users anticipate future changes, government bond markets whose market accessibility levels are being considered for reclassification are placed on a watch list. Each March and September, we review the markets on the watch list and announce the results of the review.

The transparent nature of the assignment allows engagement with central banks and regulators in those countries where the market is being considered for potential reclassification. It also provides portfolio managers and asset allocators with a clear view of expected index evolution.

The country classification framework focuses on market infrastructure, rather than on broader measures of economic development, to gauge individual sovereign bond markets' eligibility for FTSE Russell's global fixed income indexes. This reflects the fact that indicators of a country's national wealth, such as its income per capita, may be a poor guide to the openness of its bond market to global investment (in other words, a relatively wealthy country can have a nascent bond market).

In Figure 3 we show the criteria used to determine markets' accessibility levels.

Figure 3: Market accessibility levels

Market Accessibility Level	Level 2 (WGBI minimum)	Level 1 (EMGBI minimum)	Level 0 (FRNTEMGBI minimum)
Criteria/Factors	**Minimum requirements**		
1. Market, Macroeconomic and Regulatory Environment			
No Undue Investment Restrictions on Foreign Investors	●	◑	○
Sustainable Issuance and Debt Management Practices Supportive of Market Liquidity	●	●	●
Sound Regulatory Environment	●	◑	○
Transparent FX Policy and Communication	●	◑	○
Taxation Regime not Burdensome to Foreigners	●	◑	○
Clear Registration Process for Foreign Investors	●	●	○
2. Foreign Exchange Market Structure			
Sufficient FX Liquidity and Investability	●	◑	○
No Overly Prohibitive Currency Restrictions for Investment Purposes	●	◑	○
Currency Hedging Onshore or Offshore using NDF with Limited Divergence to Onshore	●	◑	○
3. Bond Market Structure			
Sufficient Bond Liquidity in Primary and Secondary Markets	●	●	◑
Competitive Transaction Costs	●	◑	○
Efficient Fixed Income Dealing and Trading Landscape	●	●	◑
Bond Conventions that Support Index Calculations	●	●	●
Availability of Suitable Bond Pricing for Index Calculation	●	●	●
4. Global Settlement and Custody			
Settlement Accommodative of Global Investors	●	◑	○
Availability of DvP	●	●	○
Competitive Custody Market	●	◑	○

Source: FTSE Russell

Chinese government bonds' inclusion in the WGBI

Chinese government bonds' recent inclusion in the FTSE WGBI provides an example of how the country classification framework operates, and how the communications around index eligibility can be comprehensive, transparent and objective.

In September 2019, when announcing its Fixed Income Country Classification results, FTSE Russell said that index users had requested further improvements to Chinese government bonds' secondary market liquidity, as well as increased flexibility in FX execution and the settlement of transactions. It said that China would be retained on the watch list for a possible upgrade to a market accessibility level of 2.

In its September 2020 Fixed Income Country Classification results announcement, FTSE Russell said it had worked closely with the Chinese authorities to monitor enhancements to the local capital markets. These included the simplification of the account opening process, the option to transact foreign exchange with third parties and the freedom to lengthen the settlement cycle beyond T+3.

In March 2021, FTSE Russell confirmed that Chinese authorities had addressed these issues and the Chinese bond market had achieved a market accessibility level of 2. To ensure an orderly transition for markets and investors, FTSE Russell said Chinese government bonds would be included in the WGBI and its derived indexes, starting from the end of October 2021 and over a period of 36 months.

Index pricing

To ensure objectivity, fixed income benchmarks need reliable price sources, particularly since much of bond trading takes place off-exchange and in the bilateral, over-the-counter markets. LSEG D&A, which offers global fixed income pricing from over 800 contributors and over 150 exchanges, including the world's largest broker price platform, is a market leader in this area and operates as the primary price source for FTSE Russell fixed income indexes. For less frequently traded bonds, LSEG D&A's Evaluated Pricing Service serves as an independent, global evaluated pricing source covering over 2.7 million fixed income securities, derivatives and bank loans.

Principle 2 – relevance

A fixed income benchmark should be relevant to a diverse group of investors, both passive and active, with varying investment objectives.

For passive investors, a benchmark must be suitable as the underlying target for an index-tracking fixed income portfolio and it should track the markets and market segments that are of most interest to investors. For active investors, a fixed income benchmark's primary role is as a performance measurement tool.

Market-value weighted benchmarks, such as the FTSE World Government Bond index (WGBI), are still the most widely used type of index amongst fixed income investors. They also provide a robust, objective basis to which thematic overlays can be applied. For example, the FTSE WGBI serves as the starting point for a number of innovative fixed income indexes (see Appendix 1).

To ensure our benchmarks' continuing relevance with practitioners, FTSE Russell regularly consults the wider fixed income market on changes to the methodology of its indexes. Such consultations take place with the guidance and direction of FTSE Russell's independent practitioner committees. Between 2018 and 2021, FTSE Russell undertook market-wide consultations on the FTSE MTS bond index series, the FTSE Canada bond indexes and the FTSE fixed income country classification framework.

However, there's growing demand for other types of benchmark, such as those that embed a particular objective. This could be a sustainable investment overlay or a smart methodology to target a specific factor exposure.

For example, the FTSE Climate Risk-Adjusted Government Bond Index Series is designed to measure the performance of fixed-rate, local currency, investment-grade sovereign bonds in the FTSE World Government Bond Index (WGBI) or FTSE EMU Government Bond Index (EGBI), incorporating a climate tilting methodology. This adjusts index weights according to countries' relative climate risk performance (see Figure 4).

Figure 4: Measuring climate risk in the FTSE Climate WGBI

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

The tilting methodology used to incorporate climate risk into the FTSE WGBI can be adjusted to meet index users' requirements. For example, the FTSE Climate WGBI has the following tilts toward the three climate risk pillars: transition risk 0.25; physical risk 1.00; resilience 1.00. By contrast, an advanced version of the index (the FTSE Advanced Climate WGBI) is constructed with a stronger tilt to the transition risk pillar, thereby offering greater exposure to countries with a greater commitment to limiting global warming to within 2 degrees of pre-industrial levels.

Another example of benchmark evolution to meet index practitioners' needs is the FTSE World Government Bond 0+ Years index. This index tracks the universe of securities that meet the eligibility criteria for the flagship FTSE WGBI all the way through to one month to maturity (the FTSE WGBI sets a minimum maturity threshold of one year), allowing investors to track their WGBI holdings past the one year mark without introducing tracking error, should they choose to do so. Downward pressure on trading costs and fees in the recent near-zero interest rate environment has made for a much lower tolerance of excess turnover in benchmarks (a by-product of bonds exiting the FTSE WGBI at the one year to maturity mark).

Principle 3 – modularity

By this we mean that the global bond market is segmented into modular components (index building blocks). While a lack of modularity can produce inadvertent exposures and undermine the intended asset allocation goal, the unified methodology across FTSE Russell's fixed income index range enables investors to construct portfolios by combining different indexes.

For example, the FTSE World Government Bond Index (WGBI), which measures the performance of fixed-rate, local currency, investment-grade sovereign bonds from over 20 countries, consists of various sub-indexes. These are available in any combination of currency, maturity, and rating.

However, the minimum maturity of eligible bonds within the index is one year. To complement the FTSE WGBI, and to ensure modularity across the fixed income index range, FTSE Russell also calculates the FTSE World Government Bond 0-1 Year index.

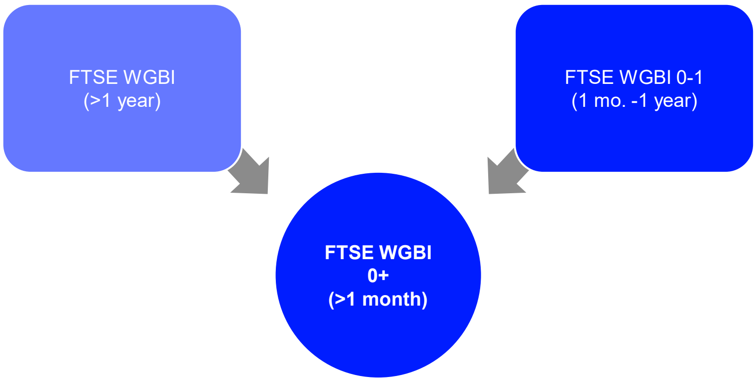
This index tracks so-called 'roll-down' bonds from the FTSE WGBI (those moving to a maturity shorter than one year), using a common methodology.

The FTSE World Government Bond 0-1 Year index is designed for money market (short-maturity bond) investors, an important category of fixed income benchmark users. In recent years there has been strong structural demand for money market funds and products, particularly during periods of uncertainty and market stress. This is because short-term government bond markets are liquid, have lower interest rate sensitivity, and tend to carry less credit risk.

Combining the FTSE WGBI and the FTSE World Government Bond 0-1 Year index produces the FTSE World Government Bond 0+ Years Index (see Figure 5). It tracks the universe of securities that meet the eligibility criteria for the flagship FTSE World Government Bond Index (WGBI) all the way down to one month to maturity.

Also available is the FTSE World Government 0-1 Year Index, which combines the FTSE World Government Bond 0-1 Year index (i.e., the 'roll-down' bonds from the FTSE WGBI) with the Treasury bill indexes for WGBI markets. Treasury bills are short-term treasury securities issued with a maturity of less than or equal to one year. The Treasury bill indexes are part of the FTSE Global Treasury Bill 0-1 Year index series, which measure the performance of local currency sovereign Treasury bill markets.

Figure 5: Modular fixed income index construction



Principle 4 – predictability

On average, fixed income indexes undergo greater internal changes than equity indexes. While an equity is irredeemable except in certain circumstances, most bonds have a fixed redemption date. Once a bond is issued, each day brings it a step closer to maturity. At or near that point, an issuer often refinances the maturing bond with a new bond issue.

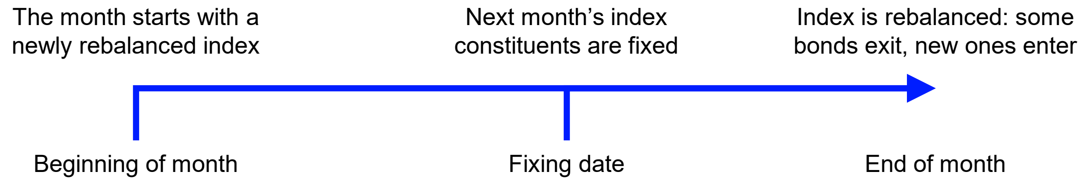
So as time passes, bond indexes change their constituents regularly. When bonds move closer to maturity, they drop out of indexes and are replaced by new issues. The bonds within the index are also often subject to other changes resulting from corporate actions like calls (a decision by the entity issuing a bond to repurchase it earlier than the specified maturity date).

For a fixed income index to serve as a benchmark, its methodology must be transparent and its changes predictable.

To help fixed income index users anticipate forthcoming changes, FTSE Russell specifies monthly fixing dates for each bond index. These provide a clear reference point for index users to know, in advance, of any changes to the composition of the indexes for the upcoming months.

On each index fixing date, publicly available securities information is used to determine index eligibility and indicative values for the following month's index profile. The rebalancing timeline is shown in Figure 6.

Figure 6: Fixed income index rebalancing timeline



Daily preview files provide an additional tool to help clients predict the future composition of FTSE Russell fixed income indexes. These reflect the latest information regarding the eligibility of bonds for the index according to the following month's profile, and are provided as an additional tool for clients managing portfolios against FTSE fixed income indexes.

Even when an index's constituents have been 'fixed' for the following month, changes can occur—for example when bonds are called, tendered or have suffered a default. So, FTSE Russell calculates daily preview reports for the days between fixing and month-end, helping clients to reflect any other changes allowed by the index rules.

To build a better fixed income benchmark, the benchmark provider can put in place additional structures to ensure the long-term stability of its approach: for example, regular oversight by market experts and a transparent governance framework.

External advisory committee oversight

External advisory committees have long played a role in the oversight of FTSE Russell indexes. Regional fixed income advisory committees, consisting of senior market practitioners, convene on a regular basis to provide feedback on index methodologies.

Any proposals for significant amendments to those methodologies are subject to consultation with the FTSE Russell advisory committees and with other stakeholders, as appropriate, including full market consultations.

Governance framework

To help ensure the predictability of its approach to fixed income benchmarking, FTSE Russell employs a transparent governance framework that encompasses products, services, and technology. The framework incorporates London Stock Exchange Group's 'three lines of defence' risk management framework and is designed to ensure compliance with the IOSCO Principles for Financial Benchmarks and the European Benchmark Regulation.

Principle 5 – replicability

To serve the ever-growing market for index-tracking funds and products, benchmark designers need to bear in mind the openness of the fixed income markets and the liquidity of the bonds that they include in their indexes.

This principle underlies index construction rules such as FTSE Russell's Fixed Income Country Classification framework, which is designed to ensure minimum levels of accessibility for markets included in major benchmarks, such as the FTSE WGBI.

Although there is an inherent trade-off between a benchmark's comprehensiveness and its replicability, all benchmarks are not equal when it comes to the latter. For example, FTSE WGBI tends to incorporate higher minimum amount outstanding thresholds than competitor indexes, in order to provide a compact measure of the more liquid bonds in each market.

Also, the use of minimum market sizes for country eligibility in sovereign benchmarks distinguishes the markets of critical mass from other, more peripheral markets. For example, the FTSE WGBI requires that a market's eligible issues must total at least USD 50 billion, EUR 40 billion and JPY 5 trillion.

Finally, the FTSE WGBI incorporates free float adjustment for major fixed income markets (Canada, the US, the UK, Japan and Singapore), more accurately capturing bonds that are available for purchase by global investors.

Conclusion

Benchmarks are used by a wide range of market participants, including professional investors across all stages of the investment process. For those market professionals, index performance should be an outcome, not a design objective. The five principles we've outlined—**objectivity**, **relevance**, **modularity**, **predictability,** and **replicability**—are essential to a fixed income benchmark's ability to effectively represent a market or market segment.

Benchmarks that ignore these principles can undermine an index-tracking portfolio's intended market exposure and impact its risk/return profile. Index users should therefore take the five principles into consideration during the benchmark selection process. By selecting a better benchmark, investors can have confidence that they are gaining exposure to the fixed income market opportunity set while avoiding misguided investment decisions and potential unexpected consequences.

Appendix 1: FTSE World Government Bond Index and selected variants

FTSE World Government Bond Index (FTSE WGBI)

A broad index providing exposure to the global sovereign fixed income market, the index measures the performance of fixed-rate, local currency, investment-grade sovereign bonds. It comprises sovereign debt from over 20 countries, denominated in a variety of currencies.

FTSE World Government Bond 0-1 Year Index (WGBI 0-1 Year)

This index tracks so-called ‘roll-down’ bonds from the FTSE WGBI (i.e., those moving to a maturity shorter than one year), using a common methodology. A minimum maturity of one month applies.

FTSE World Government Bond 0+ Years Index (WGBI0+)

The FTSE World Government Bond 0+ Years Index combines the FTSE WGBI and the FTSE WGBI 0-1 Year.

FTSE Climate Risk-Adjusted WGBI

This index incorporates a climate tilting methodology, which adjusts index weights according to each country’s relative climate risk performance, assessed by three ‘pillars’ (physical risk, transition risk, and resilience).

FTSE Advanced Climate Risk-Adjusted WGBI

This index is constructed with a stronger tilt to the transition risk pillar, thereby offering greater exposure to countries with a stronger alignment to the 2-degree pathways.

FTSE ESG WGBI

This index incorporates a tilting methodology that adjusts index weights according to each country’s relative Environmental, Social, and Governance (ESG) performance.

FTSE Climate CARD WGBI

This index provides targeted exposure to the sovereign bonds in the FTSE Climate WGBI, using weights that aim to maximize the index’s yield return (Carry) and its Roll Down return.

FTSE Debt Capacity WGBI

The index focuses on countries with lower debt issuance relative to their GDP and stronger debt servicing capabilities.

FTSE MPF WGBI

The FTSE MPF World Government Bond Index is designed to help users meet the regulatory requirements governing investments in debt securities by Hong Kong Mandatory Provident Fund (MPF) schemes.

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.

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