



**ICE**  
**U.S. Treasury Bond Index Series™**  
**Methodology**  
**June 30, 2016**

## Contents

1. Introduction.....	3
2. Index Eligibility Criteria and Inclusion Rules.....	3
Maturity .....	3
Size .....	4
Coupon.....	4
Currency.....	4
Bond Type.....	4
Calculation .....	4
Accuracy .....	7
Market Weight.....	7
3. Index Maintenance .....	7
Rebalancing.....	7
Reinvestment of Cash Flows.....	7
New Issues .....	7
4. Index Policies .....	8
Timing and Pricing Source.....	8
Calendar .....	8
Verification .....	8
Restatements.....	9
5. Index Dissemination .....	9
6. Index Governance .....	9
7. Definitions.....	9
8. Disclaimer.....	11

## 1. Introduction

The ICE U.S. Treasury Index Series was developed as a broad representation of the U.S. Treasury market and includes a number of maturity sub-Indices ranging from one month to thirty years. All ICE U.S. Treasury Indices are market value weighted and designed to measure the performance of the U.S. dollar-denominated, fixed and floating rate U.S. Treasury market. The U.S. Treasury Index Series has an inception date of December 31, 2015. However, the ICE U.S. Treasury Inflation Linked Bond Indices have an inception date of June 30, 2016. Index history is available back to December 31, 2004 for select Indices, all other Indices have history available back to December 31, 2005. The ICE U.S. Treasury Floating Rate Note Index has history as of January 31, 2014 (inception of asset class).

As of December 31, 2015 the ICE U.S. Treasury Index Series consists of:

- ICE U.S Treasury Bond Index
- ICE U.S Treasury 1 – 3 Year Bond Index \*
- ICE U.S. Treasury 3 -7 Year Bond Index\*
- ICE U.S. Treasury 7 – 10 Year Bond Index\*
- ICE U.S. Treasury 10 – 20 Year Bond Index
- ICE U.S. Treasury 20+ Year Bond Index\*
- ICE U.S. Short Treasury Bond Index
- ICE U.S. Treasury Floating Rate Note (FRN) Index
- ICE U.S. Treasury Inflation Linked Bond Index
- ICE U.S. Treasury 0-5 Year Inflation Linked Bond Index

Interactive Data is solely responsible for creating the methodologies underlying this Series and for Index governance. Changes to any of the Series are made exclusively by Interactive Data.

## 2. Index Eligibility Criteria and Inclusion Rules

The ICE U.S. Treasury Index Series includes a number of maturity sub-Indices ranging from one month to thirty years. Eligible Bonds consist of bonds denominated in U.S. dollars. The basis of the Eligible Bond universe are those for which content is available daily including evaluations and reference data through Interactive Data.

\* Index History available back to December 31, 2004

**Maturity**

For most of the Series, each security must have a minimum effective maturity of at least one year as of the Rebalance Date. The ICE U.S. Short Treasury Index will have a minimum effective maturity of at least one month. Treasury securities issued with calls are removed from the Index for the entire month in which they are called.

**Size**

Each security is required to have a minimum Amount Outstanding of U.S. dollars 300 million. Amount Outstanding is defined as the par amount outstanding of each Treasury, inclusive of any announced auctions or re-openings, less the par amount of said Treasury held in the Federal Reserve System Open Market Account (SOMA) or bought at issuance by the Federal Reserve. New issuance bought at auction by the Federal Reserve is not included in the Eligible Bond universe (Index). Secondary market purchases by the Federal Reserve that occur in the current month are not reflected in the Index until the following month.

**Coupon**

Fixed Rate only, excluding zero coupon rates. Floating rate bonds are applicable for the U.S. Treasury Floating Rate Note (FRN) Index only.

**Currency**

Bond principal and interest denominated in U. S. dollars.

**Bond Type**

Exclusions are inflation linked securities (except for the U.S. Treasury Inflation Linked Bond Index and the U.S. Treasury 0-5 Year Inflation Linked Bond Index), Treasury Bills (except for the U.S. Short Treasury Index), Floating Rate Notes (except for the U.S. Treasury Floating Rate Note Index), Cash Management Bills, and any government agency debt issued with or without a government guarantee.

**Calculation**

Returns and risk measures such as yield duration are first calculated at the Constituent level and then aggregated to the Index level using their market weights.

**Constituent Returns:**

Let amounts  $P_0$ ,  $A_0$ ,  $PAR_0$ ,  $C_0$ ,  $MV_0$  and  $P_1$ ,  $A_1$ ,  $PAR_1$ ,  $C_1$ ,  $MV_1$  denote the price, accrued interest, par amount, cumulative coupon payments and market values at date  $T_0$  and date  $T_1$ , respectively. Let  $C$  denote the coupon payments during the period (excluding any coupon payment on date  $T_0$  but including any coupon payment on date  $T_1$ ). Then coupon payments during the period:  $C = C_1 - C_0$

The market values at time  $T_0$  and  $T_1$ , are:  $MV_0 = PAR_0 \times [(P_0 + A_0) + C_0]$  and  $MV_1 = PAR_1 \times [(P_1 + A_1) + C_1]$

The price return  $R_1^{price}$ , coupon return  $R_1^{coupon}$  and inflation return  $R_1^{inflation}$  (whenever applicable) are defined as follows.

- Price Return: Return due to price appreciation over the return period.

$$R_1^{price} = \frac{P_1 - P_0}{(P_0 + A_0)}$$

- Coupon Return: Return due to coupon accrual during the period.

$$R_1^{coupon} = \frac{(A_1 - A_0) + C}{(P_0 + A_0)}$$

- Inflation Return: Return due to inflation during the return period.

$$R_1^{inflation} = \frac{[100 - (P_1 + A_1)] \left(1 - \frac{f_1}{f_0}\right)}{(P_0 + A_0)}$$

Where  $f_0$  and  $f_1$  are inflation ratios for dates  $T_0$  and  $T_1$ , respectively.

- Total return: The sum of the price return and the coupon return, except for Inflation linked securities for which it also includes inflation return.

$$Total\ Return_1 = Price\ Return_1 + Coupon\ Return_1 + Inflation\ Return_1$$

## Index Level Calculations

### Index Returns:

Index Returns:

Index returns are calculated by aggregating the Constituent level returns using market weights. To calculate Index return for the period from dates  $T_0$  and  $T_1$ , market value weights at date  $T_0$  are used. The total market value of the Index at time  $T_0$  is  $\sum_n MV_0^n$  plus any intra-

month cash from coupon payment or principal repayment and the weight for constituent security

$$w_0^i = \frac{MV_0^i}{(Cash + \sum_n MV_0^n)}$$

Index Value Calculations:

Index Values (Price, Coupon and Total) at inception date are set to 100. As time passes, the index values are calculated in an iterative way as follows:

$$PR\ Index\ Level_1 = PR\ Index\ Level_0 + (Total\ Return\ Index\ Level_0 \times Index\ Price\ Returns_1)$$

$$IR\ Index\ Level_1 = IR\ Index\ Level_0 + (Total\ Return\ Index\ Level_0 \times Index\ Coupon\ Returns_1)$$

$$TR\ Index\ Level_1 = TR\ Index\ Level_0 + (Total\ Return\ Index\ Level_0 \times Index\ Total\ Returns_1)$$

Index Level Analytic and Summary Measure Calculations:

Constituent level analytic measures such as yield, duration, convexity, option adjusted spread are market weighted to the Index Level.

$$Index\ Level\ Analytics = \sum Constituent\ Weight_c \times Constituent\ Analytics_c$$

where Constituent Weight is defined as:

$$Constituent\ Weight_c = \frac{Constituent\ Market\ Value_c}{Subtotal\ of\ Constituent\ Market\ Value_c}$$

and the Subtotal of the Constituent Market Value is calculated as:

$$Subtotal\ of\ Constituent\ Market\ Value = Intramonth\ Cash + \sum Constituent\ Market\ Value_c$$

However, Weighted Average Coupon of the Index is par weighted as follows:

$$Average\ Coupon = \sum \frac{Constituent\ Par\ Amount_c \times Constituent\ Coupon_c}{Subtotal\ of\ Constituent\ Par\ Amount_c}$$

where the Subtotal of the Constituent Par Amount is calculated as:

$$\text{Subtotal of Constituent Par Amount} = \text{Intramonth Cash} + \sum \text{Constituent Par Amount}_c$$

Notice the weighting for analytic and summary measures are as of the same evaluation date as the measure itself, as opposed to Index return calculation which uses market weights from the beginning of the period.

### **Accuracy**

Index levels will be provided to four decimal places.

### **Market Weight**

The indices in the ICE US Treasury Index Series are market value weighted.

## **3. Index Maintenance**

The ICE U.S. Treasury Index Series including specific maturity sub-indices and the U. S. Treasury Floating Rates Notes Index are rebalanced monthly. Securities are required to meet the Index inclusion rules highlighted in the previous section to be considered for inclusion at the beginning of any given month. This includes the availability of evaluated pricing and reference data through Interactive Data.

### **Rebalancing**

The ICE Treasury Index Series is rebalanced at each month end. The new index for the next month is available three days prior before month end and is intended to reflect the constituent changes from the prior rebalancing date based on index eligibility.

### **Reinvestment of Cash Flows**

Cash that has accrued intra-month from interest and principal payments by the Index earns no reinvestment return during the month. Accumulated cash (from coupon and principal payments) are removed from the Index at month-end, which implies that it is reinvested pro rata across the entire Index.

### **New Issues**

Qualifying securities issued on or before the month-end rebalancing date may qualify for inclusion. When issued Treasuries are included in the pro forma Index with a price of \$100 until replaced with an evaluated price as soon as available after auction day.

## 4. Index Policies

### Timing and Pricing Source

3:00 p.m. ET evaluations from Interactive Data will be used to calculate the Index levels at the end of each day. Bonds in the Indices are priced on the bid side.

### Calendar

Indexes follow the US bond market holiday schedule (SIFMA). Index levels are calculated daily at the end of each Business Day. Where the bond market closes early per the SIFMA schedule, Index levels may be calculated at a time in accordance with the recommended close. However, evaluated pricing from Interactive Data must be available to calculate the Indices.

### Verification

Index levels are calculated using 3:00 p.m. ET evaluations from Interactive Data. These evaluations are based upon methodologies designed to accurately and reliably reflect the market the Index is based upon.

Interactive Data's bid-side evaluations are market-based measurements that represent its good faith opinions as to what the holder would receive in an orderly transaction (for an institutional round lot position typically 1MM or greater current value USD or local currency equivalent) under current market conditions. Trades and bids are reviewed to determine that the lot size is representative of an institutional round lot, though smaller or retail sized lots may be considered especially if this is the only or primary trading information available.

Interactive Data Pricing and Reference Data's evaluators meet regularly to discuss market movements and other macro-economic information. Interactive Data evaluates U.S. Treasury securities by obtaining feeds continuously from a number of live data sources including active market makers and inter-dealer brokers (IDB). Sources are reviewed on the basis of their historical accuracy for individual issues and maturity ranges. As new information is received it is compared against the previous evaluation as part of the daily process.

The Interactive Data Index Services team also maintains a verification process designed to identify price tolerance breaks for further investigation.

Expert Judgment, when needed to establish an Index determination, will be based upon the Interactive Data Index Design Principles, which detail the core design principles



adhered to by the Administrator in establishing an Index determination specific to that Index. The Interactive Data Index Design Principles are available on request.

### **Restatements**

Interactive Data reserves the right to restate index levels based on its discretion. Index subscribers are notified prior to a restatement of data. Restatements are typically communicated on the same day but may be longer depending on the volume of restatements required and other conditions.

## **5. Index Dissemination**

Index levels will be made available at Interactive Data's website: [www.interactivedata.com](http://www.interactivedata.com). FTP services are also available via subscription.

## **6. Index Governance**

The Interactive Data Index Governance Committee (the Governance Committee) is responsible for governance, accountability and oversight of the Indices. The Governance Committee provides oversight to the Interactive Data ETF & Index Services team which has daily responsibilities for the development, issuance and operation of the Indices.

The Governance Committee will approve any necessary changes in the Index Methodology. The Interactive Data Index Services Team is then responsible for implementing the changes and notifying Subscribers.

Advance notice will be provided, where possible, and the amount of notice will be based upon the severity of the impact of the change to allow for comments from Subscribers and appropriate preparation to implement the change. Comments from Subscribers will be made available via the Interactive Data website.

An advisory process is in place to alert Subscribers to the Administrator's response to market stress or disruption.

## **7. Definitions**

**Administrator.** An organization or legal person that controls the creation and operation of the Benchmark Administration process, whether or not it owns the intellectual property relating to the Benchmark. In particular, it has responsibility for all stages of the Benchmark Administration process, including:

- a) The calculation of the Benchmark;

- b) Determining and applying the Benchmark Methodology; and
- c) Disseminating the Benchmark.

**Amount Outstanding.** The par amount outstanding of each Treasury, inclusive of any announced auctions or re-openings, less the par amount of said Treasury held in the Federal Reserve SOMA account or bought at issuance by the Federal Reserve.

**Business Day.** Those days on which SIFMA® declares the U.S. fixed income markets open.

**Constituent.** A security included in the Index.

**Eligible Bond.** Bond that meets all Index eligibility criteria but is not already in the Index.

**Expert Judgment:** Refers to the exercise of discretion by an Administrator or Submitter with respect to the use of data in determining a Benchmark. Expert Judgment includes extrapolating values from prior or related transactions, adjusting values for factors that might influence the quality of data such as market events or impairment of a buyer or seller's credit quality, or weighting firm bids or offers greater than a particular concluded transaction.

**Index.** The ICE U.S. Treasury Bond Index, including the U.S Treasury Index Series detailed in this document.

**Rebalance Date.** The last business day of the month.

**Subscriber.** A person or entity that purchases Benchmark determination services from an Administrator.

## 8. Disclaimer

### Disclaimer for ICE U.S. Treasury Index Series Methodology

The products and services mentioned herein in relation to the Interactive Data U.S. Treasury Index Series (each an “**Index**”) [or “the” Index, here used subsequently if only one index is involved] may not be available in all jurisdictions. This document does not constitute an offer of services in jurisdictions or circumstances where Interactive Data Pricing and Reference Data LLC [and/or any relevant affiliate] (collectively “**Interactive Data Indices**”) does not have the necessary or appropriate licenses or approvals for the offering of the products and services described herein. No information provided by Interactive Data Indices takes into account the specific needs or financial circumstances of any person, entity or group of persons.

The development or creation of any financial product that is based on, developed in connection with, or uses directly or indirectly any index of Interactive Data Indices, including any bi-lateral contract, fund, investment vehicle or issue of securities (an “**Investable Product**”), is prohibited without the prior written consent of Interactive Data Indices. Interactive Data Indices is not obligated to enter into or promote Investable Products or other transactions or investments that are linked to any Interactive Data index or any of its constituents.

Interactive Data Indices receives compensation in connection with the licensing of its indices to third parties.

It is not possible to invest in an index directly. Exposure to an asset class represented by an index may be available through Investable Products based on that index. Interactive Data Indices does not sponsor, endorse, sell, promote or manage any Investable Product that is offered by third parties. Interactive Data Indices makes no assurance that Investable Products based on any **Index** will accurately track index performance or provide positive investment returns.

The products and services described herein may not be suitable for all purposes and for all investors and Interactive Data Indices makes no representation regarding (a) the advisability of investing in or assuming any risk in connection with any such product or service, (b) the level at which any Index stands at any particular time on any particular date, (c) the results to be obtained by any party from the use of any Index or any data included in it for the purposes of issuing securities or carrying out any financial transaction or (d) any other matter.

A decision to invest in any Investable Product should not be made in reliance on any of the statements set forth in this document. Prospective investors are advised to make an

investment in any Investable Product only after carefully considering the risks associated with investing in such Investable Product, as detailed in an offering memorandum or similar document that is prepared by or on behalf of the issuer or obligor of the Investable Product and whether it is appropriate for their purposes and circumstances. Prospective investors should consult with an attorney, tax advisor, or accounting professional regarding any specific legal, tax, or accounting situation, or the impact of making any particular investment decision. Inclusion of a security within an index is not a recommendation by Interactive Data Indices to buy, sell, or hold such security, nor is it considered to be investment advice. Interactive Data Indices is under no obligation to maintain or calculate any Index and may cancel or cease to calculate any Index without notice.

Interactive Data Indices does not assume any obligation or duty to any party in relation to any Index and under no circumstances does Interactive Data Indices assume any relationship of agency or trust or of a fiduciary nature for or with any party. Any calculations or determinations in respect of any Index or any part thereof will be made by Interactive Data Indices in accordance with the terms of its methodology at the relevant time and acting reasonably and in good faith.

These materials have been prepared solely for informational purposes based upon information generally available to the public from source(s) believed to be reliable and are subject to change without notice. No content contained in these materials (including index data, ratings, credit-related analyses and data, model, software or other application or output therefrom) or any part thereof (“**Content**”) may be modified, reverse-engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of Interactive Data Indices. The Content shall not be used for any unlawful or unauthorized purposes. In no event shall Interactive Data Indices have any liability (whether in negligence or otherwise) to any person in connection with such person's unauthorized use of any Index.

For the purpose of calculating any Index, Interactive Data Indices has relied on publicly available sources and has not independently verified the information extracted from these sources and accepts no responsibility or liability in respect thereof. Interactive Data Indices and its third-party data providers and licensors (collectively “**Interactive Data Indices Parties**”) do not guarantee that the Content is accurate, complete, timely or error free and it should not be relied upon as such. Interactive Data Indices Parties are not responsible for any errors, omissions, or interruptions regardless of the cause, or for the results obtained from the use of the Content. THE CONTENT IS PROVIDED ON AN “AS IS” BASIS. INTERACTIVE DATA INDICES PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES AND CONDITIONS, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE

OR USE, FREEDOM FROM VIRUSES, BUGS, WORMS, OTHER HARMFUL COMPONENTS OR OTHER PROGRAM LIMITATIONS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall Interactive Data Indices Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs) in connection with any use of the Content even if advised of the possibility of such damages.

Any available index returns represent past performance and are not indicative of any specific investment. The Content (including any of the output derived from any analytic tools or models) is not intended to predict actual results, which may differ substantially from those reflected. Past performance is not necessarily indicative of future results.

Interactive Data Corporation keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of Interactive Data Corporation may have information that is not available to other business units. Interactive Data Indices has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process. There is no obligation on Interactive Data Indices to disclose information held by it in relation to any Index to other parties.

The various business units of Interactive Data Corporation provide a wide range of products and services to a diverse group of clients and, as such, Interactive Data Corporation faces potential conflicts of interest in the ordinary course of its business. Interactive Data Corporation may be acting in a number of capacities in connection with Investable Products or other transactions entered into in relation to Interactive Data indices. Interactive Data Corporation, acting in such capacities in connection with such transactions, shall have only the duties and responsibilities expressly agreed to by it in its relevant capacity and shall not, by virtue of its acting in any other capacity, be deemed to have other duties or responsibilities or be deemed to hold a standard of care other than as expressly provided with respect to each such capacity. [Interactive Data Indices has established policies and procedures designed to identify and address conflicts of interest.]

In addition, Interactive Data Corporation provides a wide range of services to, or relating to, many organizations, including issuers of securities, investment advisers, broker-dealers, investment banks, other financial institutions and financial intermediaries, and accordingly may receive fees or other economic benefits from those organizations, including organizations whose securities may form part of any index or other evaluation Interactive Data Indices carries out.

**About Intercontinental Exchange**

*Intercontinental Exchange (NYSE:ICE) operates the leading network of exchanges and clearing houses. ICE's exchanges and clearing houses serve global commodity and financial futures and equities markets. The New York Stock Exchange is the world leader in capital raising and equities trading. ICE is a leading provider of data services across global markets. Trademarks of ICE and/or its affiliates include Intercontinental Exchange, ICE, ICE block design, NYSE, New York Stock Exchange, Interactive Data and Trayport. Information regarding additional trademarks and intellectual property rights of Intercontinental Exchange, Inc. and/or its affiliates is located at [www.intercontinentalexchange.com/terms-of-use](http://www.intercontinentalexchange.com/terms-of-use).*

**About Interactive Data**

*Interactive Data Corporation, a subsidiary of Intercontinental Exchange (NYSE: ICE), is a trusted leader in financial information. Thousands of financial institutions and active traders, as well as hundreds of software and service providers, subscribe to our fixed income evaluations, reference data, real-time market data, trading infrastructure services, fixed income analytics, desktop solutions and web-based solutions. Interactive Data's offerings support clients around the world with mission-critical functions, including portfolio valuation, regulatory compliance, risk management, electronic trading and wealth management. Interactive Data has over 2,400 employees in offices worldwide.*

*LIMITATIONS: This document is provided for informational purposes only. The information contained in this document is subject to change without notice and does not constitute any form of warranty, representation, or undertaking. Nothing herein should in any way be deemed to alter the legal rights and obligations contained in agreements between Interactive Data Pricing and Reference Data LLC and/or affiliates and their clients relating to any of the products or services described herein. Interactive Data Pricing and Reference Data LLC does not provide legal, tax, accounting, or other professional advice. Clients should consult with an attorney, tax, or accounting professional regarding any specific legal, tax, or accounting situation. Interactive Data Pricing and Reference Data LLC makes no warranties whatsoever, either express or implied, as to merchantability, fitness for a particular purpose, or any other matter. Without limiting the foregoing, Interactive Data Pricing and Reference Data LLC makes no representation or warranty that any data or information (including but not limited to evaluations) supplied to or by it are complete or free from errors, omissions, or defects. Interactive Data<sup>SM</sup> and the Interactive Data logo are registered service marks or service marks of Interactive Data Corporation in the United States or other countries. Other products, services or company names mentioned herein are the property of, and may be the service mark or trademark of, their respective owners.*

©Interactive Data Pricing and Reference Data LLC, 2016. All rights reserved. No part of this publication may be published, reproduced or copied in any manner without the prior written consent of Interactive Data Pricing and Reference Data LLC.