

METHODOLOGY BOOK FOR:

- MSCI U.S. Treasury Bond Dynamic Select Index**
- MSCI U.S. Treasury Bond Dynamic Select 4% Risk Control Index**

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1. Introduction

The MSCI U.S. Treasury Bond Dynamic Select Index¹ (the “Index”) aims to represent the performance of a strategy that allocates daily to 7-10 Year Treasury Bond ETF Component² and a 1-3 Year Treasury Bond ETF Component based on Inflation Indicator calculated by QuantCube Technology³.

The MSCI U.S. Treasury Bond Dynamic Select 4% Risk Control Index (the “Risk Control Index”) Index aims to represent the performance of the Index while targeting an annualized volatility of 4%.

¹ The Index is governed by a set of methodology and policy documents (“Methodology Set”), including the present index methodology document. Please refer to Appendix 1 for more details.

² Please refer to Appendix 5 for details

³ QuantCube is a cross-sectoral Research & Development company which analyses billions of alternative data points in real time to uncover macroeconomic insights ahead of the market for investment. Please refer to Appendix 2 for details

2. Constructing the Index

The Index is reviewed daily based on the Inflation Indicator⁴ calculated by QuantCube Technology.

2.1 Calculating the Index Levels and Returns

On each business day and at initial construction, the Index returns and levels are calculated as below:

$$Index_t = Index_{t-1} \times (1 + IR_t)$$

$Index_t$ is the Index level on business date t

IR_t is the Index return on business date t , calculated⁵ in accordance with the following formula:

$$IR_t = (A_t \times LTR_t) + (B_t \times STR_t)$$

where:

LTR_t is the 7-10 Year Treasury Bond ETF Component daily return on business date t ,

STR_t is the 1-3 Year Treasury Bond ETF Component daily return on business date t

The coefficients A, B are the leverage coefficients dependent on the direction of the Inflation Indicator given below:

Inflation indicator Direction	Inflation Indicator up	Inflation Indicator down
A	1	-1
B	-4	4

2.2 Application of the MSCI Risk Control Indexes Methodology

The MSCI Risk Control Indexes Methodology⁶ is applied on the Index to construct the Risk Control Index in excess return variant. The parameters for the Risk Control Index are noted in Appendix 3.

⁴ Please refer to Appendix 4 for details

⁵ The index represents a long-short approach with net negative or positive exposures, incorporating leverage as part of the design. The funding costs of leverage are not included in the calculation

⁶ Please refer to the MSCI Risk Control Indexes Methodology at <http://www.msci.com/index-methodology> for details as well as intended use of such indexes.

3. Handling Suspect or Missing Inflation Indicator

If, at an Index Review, MSCI determines that the primary source data from QuantCube Technology is not reflective of the market conditions or there is a temporary outage⁷ of data for 4 or more business days, the Inflation Indicator direction will be determined based on latest available OECD's estimation of USA CPI⁸ values as per the following steps ("fallback mechanism"):

- Calculation of change in OECD's estimation of USA CPI
- Determine the CPI direction

When the fallback mechanism comes into effect, the index review frequency will change from daily to a quarterly basis to coincide with the Quarterly Index Reviews.

Subsequently, a review of an alternative data source for the Inflation Indicator would be conducted. The adoption of an alternative data source and any amendments to the methodology to reflect this will be announced to all clients simultaneously. MSCI may consult with clients to gather their feedback on the choice of alternative sources in line with MSCI Index Consultation Policy⁹.

⁷ When the data becomes available again, processing from primary source is resumed

⁸ Please refer to OECD CPI at: [Prices - Inflation \(CPI\) - OECD Data](#).

⁹ Please refer to MSCI Index Policies document at: <https://www.msci.com/index-methodology>.



4. Maintaining the Indexes

The MSCI U.S. Treasury Bond Dynamic Select Index is calculated on each index business date as per the steps described in Section 2.1. The pro forma Index for the MSCI U.S. Treasury Bond Dynamic Select Index is announced three business days before the effective date.

The MSCI U.S. Treasury Bond Dynamic Select 4% Risk Control Index is calculated on each index business date as per the parameters in Appendix 3.

Appendix 1: Methodology Set

The Indexes are governed by a set of methodology and policy documents (“Methodology Set”), including the present index methodology document as mentioned below:

- Description of methodology set –
<https://www.msci.com/index/methodology/latest/ReadMe>
- MSCI Corporate Events Methodology –
<https://www.msci.com/index/methodology/latest/CE>
- MSCI Fundamental Data Methodology –
<https://www.msci.com/index/methodology/latest/FundData>
- MSCI Index Calculation Methodology –
<https://www.msci.com/index/methodology/latest/IndexCalc>
- MSCI Index Glossary of Terms –
<https://www.msci.com/index/methodology/latest/IndexGlossary>
- MSCI Index Policies –
<https://www.msci.com/index/methodology/latest/IndexPolicy>
- MSCI Global Industry Classification Standard (GICS) Methodology –
<https://www.msci.com/index/methodology/latest/GICS>
- MSCI Global Investable Market Indexes Methodology –
<https://www.msci.com/index/methodology/latest/GIMI>
- MSCI ETF Linked Indexes Methodology –
[MSCI ETF Linked Indexes Methodology](#)
- MSCI Risk Control Indexes Methodology –
[MSCI Risk Control Indexes Methodology](#)

The Methodology Set for the Indexes can also be accessed from MSCI’s webpage <https://www.msci.com/index-methodology> in the section ‘Search Methodology by Index Name or Index Code’.

Appendix 2: QuantCube Inflation Indicator

The following indicator from QuantCube Technology is used in the construction of the Index.

Inflation Indicator

- Inflation Indicator is a real-time indicator that quantifies the current Consumer Price Index at a country level by crossing and aggregating multiple subcomponents like Motor Fuels, Fruits, Vegetables and others. Inflation Indicator for USA is considered for the construction of the Index.

For further details on the calculation methodology, please refer to

[Real-time macro nowcasting for GDP, Inflation, Investment Decisions – Quant Cube Technology \(quant-cube.com\)](https://www.quant-cube.com)

Appendix 3: MSCI U.S. Treasury Bond Dynamic Select 4% Risk Control Index

The following parameters are used for the calculation of the Risk Control Index:

	MSCI Risk Control Indexes Methodology Parameters	Parameters
1	Calendar Rule	Daily
2	Return Variant of the underlying index	Daily Total Return
3	Risk Free Rate	Fed Funds Rate
4	Risk Free Maturity Rate	Overnight
5	Rebalancing Type	Volatility
6	Risk Control Level	4%
7	Underlying Index Level Currency	USD
8	Maximum Leverage	150%
9	Buffer	5%
10	Volatility Calculation Type	Equal Weighted Volatility
11	Number of days for lagged Return	2
12	Short Term number of days estimate	20
13	Long Term number of days estimate	60
14	Return Period	1

Appendix 4: Determining the Inflation Indicator direction

The direction of the Inflation Indicator is determined as follows:

- **Inflation Indicator Up:** If the Short-Term Inflation Indicator average minus 1% is greater than the Long-Term Inflation Indicator average.
- **Inflation Indicator Down:** If the above condition is not met.

Definitions:

- **Short-Term Inflation Indicator Average:** The average Inflation Indicator over the last 5 business days, with a lag of 1 day.
- **Long-Term Inflation Indicator Average:** The average Inflation Indicator over the last 126 business days, with a lag of 1 day.

Appendix 5: ETF Components

The ETF linked indexes¹⁰ below are used as Components:

Component Indexes	Linked ETF Names	RIC	SEDOL	CUSIP	ISIN	Ticker	Exchange	Price Currency	Close Type
7-10 Year Treasury Bond ETF linked Index	ISHARES 7-10 YEAR TREASURY BOND ETF	IEF.OQ	2971494	464287440	US4642874402	IEF	XNMS	USD	Close Price
1-3 Year Treasury Bond ETF linked Index	ISHARES 1-3 YEAR TREASURY BOND ETF	SHY.OQ	2971524	464287457	US4642874576	SHY	XNMS	USD	Close Price

If any ETF will cease to exist, a review of an alternative component would be conducted. The adoption of an alternative component and any amendments to the methodology to reflect this will be announced to all clients simultaneously. MSCI may consult with clients to gather their feedback on the choice of alternative sources in line with MSCI Index Consultation Policy¹¹.

¹⁰ Please refer to MSCI ETF linked Indexes Methodology at: <https://www.msci.com/index-methodology>.

¹¹ Please refer to MSCI Index Policies document at: www.msci.com/index/methodology/latest/IndexPolicy.

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