

# US Aggregate: Mirror Future and Duration Hedged Indices

This document is intended to be read in conjunction with the [Mirror Futures and Duration Hedged Indices Methodology](#), [Global Fixed Income Methodology](#) and the [US Aggregate Index](#), these documents collectively constitute the index methodology for this Index.

The US Aggregate Mirror Futures Index (MFI) is a funded benchmark constructed to match the duration risk of the US Aggregate Index using a basket of US Treasury Futures. The US Aggregate Duration Hedged Index (DHI) is a funded benchmark constructed as the difference between the Total Return of the US Aggregate Index and the Total Return of the Mirror Future Index. The MFI and DHI Indices follow the Bloomberg Indices' monthly rebalancing conventions. The indices were launched in December 2007, with history backfilled to May 1, 1995.

**Description of Index Constituents** US Treasury Futures

## Index Ticker

I30273US: US Aggregate Mirror Future Total Return Index Value Unhedged

I30275US: US Aggregate Duration Hedged Total Return Index Value Unhedged

I30723US: US Bills Total Return Index Unhedged USD

## Eligibility Requirements

**Currency** USD

**Minimum Liquidity Requirements** None

**US Treasury Futures Basket** The MFI consists of the 2-Year US Treasury Futures, 5-Year US Treasury Futures, 10-year US Treasury Futures, 30-Year US Treasury Futures and Ultra Long US Treasury Futures, weighted to closely match the beginning of the month Option Adjusted Duration (OAD) profile of the US Aggregate Index. Future Contracts are rolled to the next quarterly expiration month at the beginning of March, June, September, and December.

**Funding Component** A Cash Investment in the US T-Bills maturing in one month's time to make the MFI and DHI a funded strategy, and comparable with the returns of a traditional cash index.

**Pricing Methodology** The basket of futures returns is calculated by the weighted price return of the duration matched futures contracts. The returns of the US T-Bill Index are then added to make the MFI a funded index:

US Agg MFI Return = Futures Basket Price Return + US T-Bill Index Total Return

The US Aggregate DHI Total Return is defined as it's funded excess return:

US Agg DHI Return = {US Agg Total Return - US Agg MFI Total Return} + US T-Bill Index Total Return

## Construction and Rebalancing Rules

- Frequency** For each index, Bloomberg maintains two universes: the Returns (Backward) and the Projected (Forward) Universes. The composition of the Returns Universe is rebalanced at each month-end and represents the fixed weights of index/instrument on which index returns are calculated for the next month. The Projected Universe is a forward-looking projection where the weights in the Futures basket change daily to reflect the characteristics of the target cash index, but are not used for return calculations. On the last business day of the month (the rebalancing date), the weights of the latest Projected Universe becomes the Returns Universe for the following month.
- Index OAD Bucketing and Futures Selection** The US Aggregate Index is sorted into five non overlapping OAD buckets, and each treasury future is assigned to one OAD bucket as displayed in the table below. Breakpoints are selected so that the OAD of each bucket is close to that of its matching futures contract.
- MFI Weight Calculation** For each eligible futures contract, the OAD is calculated using Bloomberg analytics. The market value of each futures contract needed in the MFI is calculated to match the OAD contribution of the futures position with that of the US Aggregate Index OAD bucket as displayed in the table below.

US Aggregate MFI Futures Weights Calculation as of 31st May 2023

Duration Bucket	US Agg OAD	MV (\$mn)	MV %	OAD Contribution	Futures Contract	Futures OAD	Futures Weight
	<b>A+</b>		<b>B</b>	<b>A x B</b>		<b>C</b>	<b>(A x B) / C</b>
US Agg	6.34	25,491,874.89	100.00%	6.34			
OAD 0-3y	1.94	6,051,372.20	23.74%	0.46	TUU3	1.95	23.6%
OAD 3-5y	4.01	5,529,702.57	21.69%	0.87	FVU3	4.07	21.4%
OAD 5-7.5y	6.21	6,803,269.73	26.69%	1.66	TYU3	5.96	27.8%
OAD 7.5-15y	10.27	5,331,191.38	20.91%	2.15	USU3	11.78	18.2%
OAD 15y+	17.29	1,776,339.02	6.97%	1.20	WNU3	16.62	7.3%

## Pricing and Related Issues

- Sources & Frequency**
- All Treasury future contracts are priced on a daily basis based on the CME settlement prices.
  - The US T-Bills are priced on a daily basis by BVAL.
- Pricing Quotes** Settlement Prices
- Timing**
- US Treasury Futures: 3:00 p.m. (New York time)
  - US T-Bills: 4:00 p.m. (New York time)
  - If the last business day of the month is a public holiday, prices from the previous business day are used.
- Market Side** Futures in the MFI are priced at the settlement price.
- Verification** Daily price moves for each security are analyzed by the index pricing team to identify outliers. Index users may also challenge price levels, which are then reviewed and updated as needed.
- Calendar** The US Agg MFI and DHI follows the US bond market holiday schedule.

## Environmental, Social and Governance (ESG) Disclosures

The Index does not take into account any ESG factors or pursue any ESG objectives, please refer to the [Global Fixed Income Methodology](#) ESG disclosures.

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