# Eris® USD Swap Futures

## Eris Methodology® Overview

- Eris Swap Futures combine the cash flows and risk profile of traditional interest rate swaps, including accumulated interest on pledged mark-to-market collateral, into a listed futures contract by applying the patented Eris Methodology
- The Eris Methodology replicates the cash flows of a traditional interest rate swap as a simple, standardized and margin efficient futures contract that is easily accessible and tradeable
- No physical delivery or forced rolls; position holder may either roll Eris quarterly, or hold as off-the-run positions. The Eris Methodology allows Eris contracts to be held for the full underlying swap tenor, making them well suited for medium- to long-term hedging purposes, including FASB ASC-815 hedge eligibility

## Similar Application to OTC Swaps

- Unparalleled futures yield curve granularity: 10 benchmark front contracts, plus extensive off-the-run contracts with expiries every 3 months out to 30 years[1]
- Favorable treatment for '40 Act Funds: no collateral segregation, and efficient leverage ratio treatment under Section 18
- Flexible tax and accounting treatment: treat as accrual instruments, with cash flow accruals taxable as ordinary income and swap mark-to-market (MTM) non-taxable with IRS 1256(e) tax hedging exemption, OR as IRS section 1256(a) annual MTM instruments, taxable on a 60/40 long/short term capital gains basis

## The Efficiencies of Listed Futures

- Low transaction costs and efficient CME SPAN margining; 30-65% of the margin required for cleared OTC swaps
- Automatic portfolio margin offsets with CBOT US Treasury futures, CME Eurodollar futures and CBOT MAC swap futures
- Flexible trading protocols; trade live central limit order book (CLOB) prices anonymously, OR privately negotiate blocks and EFP/EFR package trades with existing trading relationships
- Easy access for all participants: futures FCM agreements; no ISDA, CSA or CDEA required

## Maintenance Margins of Eris Swap Futures vs Equivalent Cleared OTC Swap (% of Notional)

| Tenor | 2y | 3y | 4y | 5y | 7y | 10y | 12y | 15y | 20y | 30y |
|---|---|---|---|---|---|---|---|---|---|---|
| Code | LIT | LIC | LID | LIW | LIB | LIY | LII | LIL | LIO | LIE |
| Eris $/ct[2] | $350 | $430 | $590 | $680 | $1,000 | $1,550 | $1,750 | $2,100 | $2,350 | $3,000 |
| % of Notl | 0.35% | 0.43% | 0.59% | 0.68% | 1.00% | 1.55% | 1.75% | 2.10% | 2.35% | 3.00% |
| OTC Margin[2] | 0.52% | 0.82% | 1.16% | 1.44% | 2.12% | 3.06% | 3.54% | 4.67% | 5.57% | 6.91% |
| (low - high) | 1.12% | 1.12% | 1.58% | 2.10% | 2.97% | 3.87% | 4.31% | 5.12% | 6.63% | 9.19% |
| Eris/OTC[2] | 31% | 38% | 37% | 32% | 40% | 40% | 41% | 41% | 35% | 33% |
| (range) | 67% | 53% | 51% | 47% | 47% | 51% | 49% | 45% | 42% | 43% |

*Footnotes*

1. *No current expiries between 15Y-18Y and 20Y-24Y, but off-the-run 20Y and 30Y contracts fill these gaps over time.*
2. *Margins dated 5/6/19 and subject to change based upon market conditions.*

CME Group

## CBOT Eris USD Swap Futures: Contract Specifications

**Individual contract terms may be obtained from:**
**www.cmegroup.com/trading/interest-rates/swap-futures.html#erisSwapFutures or www.erisfutures.com/cme/contractlookup**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Exchange Listing** | CBOT | | | | | | | | | |
| **Contract Notional** | $100,000 for all tenors | | | | | | | | | |
| **Tenor** | 2Y | 3Y | 4Y | 5Y | 7Y | 10Y | 12Y | 15Y | 20Y | 30Y |
| **Contract Code** | LIT | LIC | LID | LIW | LIB | LIY | LII | LIL | LIO | LIE |
| **Date Suffix** | 3-character suffix, made up of 1-character IMM effective month (Mar, Jun, Sep, Dec: H, M, U, Z), followed by a 2-digit effective year (e.g. LIWU19 = September 2019 Eris 5Y, maturing September 2024) | | | | | | | | | |
| **Fixed Coupon** | Predetermined vs 3M LIBOR, mirroring the terms of MAC swaps, as set by SIFMA AMG's MAC Sub-Committee | | | | | | | | | |
| **Effective Date** | Quarterly IMM start dates, listed out to the 3rd front IMM date<br>Standard ISDA rolls, resets and maturity date conventions | | | | | | | | | |
| **Maturity Date** | The date "tenor-years" forward from the IMM Effective Date, based on ISDA modified following date conventions; e.g. the September 2019 Eris 5y (LIWU19) has an Effective Date of 09/18/2019, and a Maturity Date 5 years forward, 09/18/2024. | | | | | | | | | |
| **Last Trading Day** | The business day prior to the Maturity Date | | | | | | | | | |
| **Final Settlement Price** | = 100 + {all coupon payments during life} – {accumulated Price Alignment Interest (PAI)[1] during life} | | | | | | | | | |
| **Long/Short Direction** | A long position represents receiving fixed and paying floating rates in a swap. So fixed coupons are treated as positive numbers and floating coupons as negative numbers and vice versa for a short position. | | | | | | | | | |
| **Price Convention** | Eris contracts trade on a decimal price indexed to 100, in eligible tick increments; the value of 1.0 price point is equal to $1000.00. | | | | | | | | | |
| **Tick Sizes** | Tick sizes vary by tenor (see below) from $2 - $20 / 0.002-0.020, and are approximately equivalent to 1/10th of a basis point in yield, 0.001%. All contracts settle to 4 decimals, i.e. the nearest $0.10 (~0.0001%). | | | | | | | | | |
| **Initial Tick: $/Px** | 2Y-3Y: $2 / 0.002 | | 4Y-5Y: $5 / 0.005 | | 7Y-15Y: $10 / 0.010 | | | | 20Y-30Y: $20 / 0.020 | |
| **Calendar Spreads** | Calendar Spreads commence trading on the Monday of the last full week prior to the Effective Month. CME Globex contract codes for Calendar Spreads are made of the Contract Code prefix followed by a 4-character suffix, made up of a 2-character front month code followed by a 2-character back month code (e.g. LIWM9U9 = 5Y Calendar Spread from June 2019 to September 2019). | | | | | | | | | |
| **Inter-Commodity Spreads** | Eris Inter-Commodity Curve Spreads (ICS) will be listed from June 3, 2019. The following spreads will be listed in weighted ratio sizes: 2Y-7Y, 2Y-10Y, 5Y-7Y, 5Y-10Y, and 7Y-10Y. See the following:<br>**www.cmegroup.com/education/articles-and-reports/eris-swap-futures-inter-commodity-spreads.html** | | | | | | | | | |
| **Variable Tick Sizes** | Outright contract tick sizes reduce once over the life for each contract, based on the remaining tenor. This facilitates trading on a tighter and more granular bid/ask spread. | | | | | | | | | |
| **Reduced Tick** | 2Y-5Y: $1 / 0.001 | | | | 7Y-15Y: $2 / 0.002 | | | | 20Y-30Y: $5 / 0.005 | |
| **Reduced Tick Size Applies to Nearest Expiries** | 2Y Near 4 | 3Y Near 6 | 4Y Near 10 | 5Y-10Y Near 12 expiring contracts | | | 12Y-20Y Near 10 expiring contracts | | | 30Y Near 20 |
| **Trading Hours** | 23/5: Sunday 6pm to Friday 5pm ET, settling daily at 3pm ET, with a daily 60-minute break from 5pm to 6pm ET | | | | | | | | | |

1 *PAI, or Price Alignment Interest, is the accumulated overnight interest on the previous closing day's NPV of future cash flows (called the Eris A value), calculated using the daily Fed Funds effective rate. This amount is equivalent to the accumulated interest paid on collateral posted in lieu of the mark to market of the analogous over-the-counter swap*

## The Eris Price and Conversion to Equivalent Par Swap Rate (Yield)

- The buy / sell direction of Eris USD Swap Futures is consistent with other CME and CBOT interest rate futures, a long position reflects a RECEIVE FIXED / PAY FLOATING swap position.
- Orders match based on **Price.** The Eris Price may be determined as **100 + A + B - C.**

  **A** = The present value of future fixed and floating cash flows, discounted on the OIS curve

  **B** = Accumulated past fixed and floating cash flows

  **C** = Price Alignment Interest ("PAI")

  – PAI is the accumulated overnight interest on the previous day's NPV of future cash flows (the "A" component above), calculated using the overnight Fed Funds rate at the start of each day. This amount is analogous to the interest payment that would be paid (or received) on the pledged collateral received in lieu of a positive mark to market (or collateral posted in lieu of a negative market to market) for the equivalent collateralized OTC swap.
- Converting Eris Price to Equivalent Par Swap Rate (Yield)

  – **All important reference data necessary for converting the Eris Price to an equivalent par swap rate (yield), including Eris Contract Fixed Rate, Eris (B) and Eris (C) values and real-time Eris contract PV01 data are available in CME's DataMine offering via API and ftp file services, as well as from the Live Eris Swap Curve functionality and accompanying Microsoft Excel add-in available from Eris Innovations.**

  – Determination of the equivalent par swap rate (yield) first requires computation of the Eris (A) value (= Eris Price – 100 – Eris (B) +Eris (C)).

  – Equivalent Par Swap Rate = Eris Contract Fixed Rate - [Eris (A) Value / Eris Contract PV01 / 10,000]

  – **Example:** Eris 10y, 3.0% coupon, assuming no historical cash flows or PAI (B=0, C=0), if Eris Price = 102.000, then NPV (A) = 2.000 or $2,000 per contract, assuming PV01=$87, then par swap rate = 0.03 - (2,000/$87/10,000) = 0.02770, or 2.770%

## Execution

- Execution: CME Globex, CME Direct or 3rd-party e-trading platforms
- Block Trading: trades in Eris contracts may be privately negotiated subject to preapproval of credit limits and CBOT rulebook guidelines.
- Minimum Block Trading Size: 100 Eris contracts for outright trades, or 100 total Eris contracts for multi-leg trades
- Trading off-the-run Eris contracts: off-the-run Eris contracts are accessible for trading on CME Globex, CME Direct and for submission to CME Clearing as block trades and EFRPs via CME Direct or CME ClearPort. For contracts where an orderbook may no longer be streaming, trading will be by anonymous electronic Request for Quote from the entire market, or via Block/PNT trading.

## Market Data & the Live Eris Swap Curve

- CME Group publishes real-time Eris market data on CME Globex, CME MDP 3.0 (channel 344) and CME DataMine.
- All Eris swap futures settle to the Live Eris Swap Curve at 3pm ET daily. The Eris curve is anchored to executable prices in the central limit order books, and fitted to price all off the run contracts.
- Eris Innovations distributes the Live Eris Swap Curve and various market data based on this curve, including live pricing of Eris contracts in multiple formats, implied spot start par swap rates, PV01, DV01, CME maintenance margins & theoretical mid prices of off-the-run contracts through a number of channels, including the Eris Innovations website and an MS excel add-in; to learn more about the Live Eris Swap Curve go to **erisfutures.com/cme/swapcurve**

**Learn more about Swap Futures at cmegroup.com/swapfutures**

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