

INTEREST RATES

COMING TO CME GROUP IN Q4 2018*

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 years¹
- Favorable '40 Act fund treatment: 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
- 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
Eris ²	\$350 0.35%	\$400 0.40%	\$550 0.55%	\$700 0.70%	\$1,250 1.25%	\$1,350 1.35%	\$1,750 1.75%	\$2,100 2.10%	\$3,000 3.00%	\$3,600 3.60%
OTC ²	0.50% - 0.75%	0.80% - 1.25%	1.10% - 1.75%	1.30% - 2.25%	1.95% - 3.15%	2.70% - 4.70%	3.25% - 5.60%	4.20% - 6.75%	5.30% - 8.50%	6.50% - 11.35%
Eris/OTC ²	45-65%	30-50%	30-50%	35-55%	40-65%	30-50%	30-55%	30-50%	35-60%	30-55%

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 6/20/18 and subject to change based upon market conditions. Percentage ranges are rounded.

*Pending regulatory approval

CBOT Eris USD Swap Futures: Contract Specifications

Exchange Listing	CBOT
Contract Notional	\$100,000 for all tenors
Underlying Tenors	2, 3, 4, 5, 7, 10, 12, 15, 20, and 30-year contracts
Fixed Coupons	Predetermined vs 3M LIBOR, mirroring the terms of SIFMA MAC swaps ³
Effective Dates	Quarterly IMM start dates, listed out to the 3rd front IMM date. Standard ISDA rolls, resets and maturity date conventions
Maturity Dates	The date "tenor-years" forward from the IMM Effective Date, based on ISDA modified following date conventions Example: the Sept 2018 Eris 10y (LIYU18) Effective Date is 09/19/2018, so the Maturity Date is 10 years forward, 09/19/2028
Last Day of Trading	The business day prior to the Maturity Date
Final Settlement Price	= 100 + all coupon payments – accumulated Price Alignment Interest (PAI) , explained below; fixed coupons treated as positive numbers and floating coupons as negative, i.e. a long Eris position represents receiving fixed and paying floating on swap
Price Convention	Eris will trade on a 3 decimal place price indexed to 100; Example: Eris 2y price 101.082, and settle to 4 decimal places, Example: 101.0821
Tick Sizes	Will vary by tenor (see table below), roughly equal to 1/10th of a basis point in yield, 0.001%
Variable Tick Sizes	Tick sizes will reduce once over the life of each contract, based on the remaining tenor
Trading Hours	23/5, Sunday 6pm to Friday 5pm ET, settling daily at 3pm ET, with a 60-minute break each day from 5pm to 6pm ET

Product Codes & Tick Sizes

Tenor	2Y	3Y	4Y	5Y	7Y	10Y	12Y	15Y	20Y	30Y
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 2-digit effective year (e.g. LIYU18 = Sep18 Eris 10Y, maturing 19 Sep 2028)									
Initial Tick: \$/Px	\$2/0.002		\$5/0.005			\$10/0.010		\$20/0.020		
Revised Tick: \$/Px	\$1/0.001		\$2/0.002						\$5/0.005	
Nearest Expiring Contracts	4	6	10	12	12	12	10	10	10	20

Footnotes

3. MAC fixed coupon is set by SIFMA AMG's MAC Sub-Committee

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

- The buy / sell direction of Eris USD Swap Futures at CME Group will be consistent with other CME and CBOT interest rate futures, a long position will imply a RECEIVE FIXED / PAY FLOATING swap position
- Orders will 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 days 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 mark 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 will be 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**
 - 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 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 will be 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 Market from the entire market, or via Block/PNT trading.

Market Data & the Live Eris Swap Curve

- CME Group will publish 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 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 website and an MS excel add-in; to learn more about the Live Eris Swap Curve go to erisfutures.com/live-eris-swap-curve

Learn more about Swap Futures at cmegroup.com/swapfutures



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