

Eris® SOFR Swap Futures

Overview

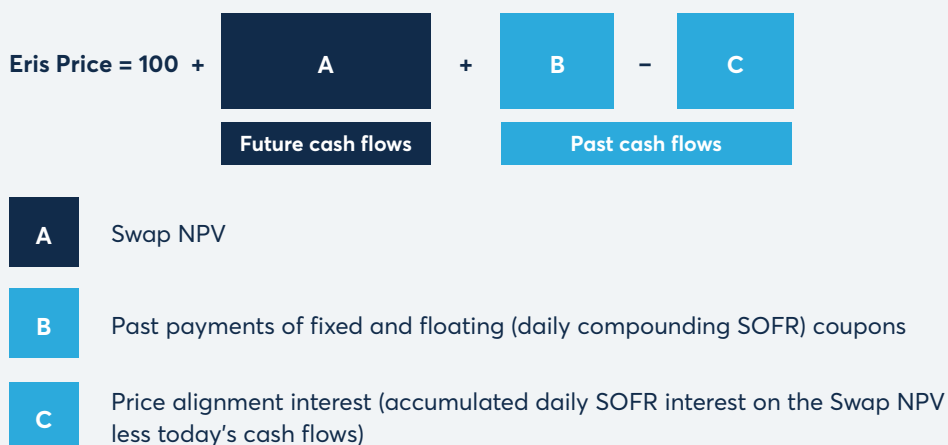
- Futures contracts that replicate the amounts and timing of all cash flows of the equivalent fixed versus floating, SOFR-indexed swap.
- Swap cash flows are replicated in a single unit of account, through the daily settlement of contract price with variation margin.
- Daily price movements capture the changes in the present value of future cash flows (swap NPV), plus all fixed and floating accruals and payments due to the passage of time, and Price Alignment Interest (the implied interest on the daily mark to market of future cash flows).
- 11 benchmark contract tenors, ranging from 1-year to 30-year maturities, with quarterly IMM swap effective dates (third Wednesday of March, June, September, and December).
- Swap terms follow a standard ISDA, fixed vs daily compounded SOFR overnight index swap, with coupons paid annually on an actual/360 daycount basis, with payments made with a 2-day lag.
- Contracts do not expire quarterly, but remain listed futures for the entire swap accrual period, cash-settling to realized SOFR fixings during the full tenor-life of the swap.

Swap-like Benefits

- 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 IRS 1256(e) tax hedging exemption, OR as IRS section 1256(a) marked-to-market instruments, taxable on a 60/40, long-term/short-term capital gains basis
- Eligible for designation as FASB (ASC-815) cash flow or fair value hedges

THE ERIS CONTRACT PRICE

The Eris SOFR contract price captures the three "value ledgers" of the equivalent SOFR swap.



Eris SOFR Swap Futures: Contract Specifications

Individual contract dates and coupons may be obtained from: www.erisfutures.com/cme/contractlookup

EXCHANGE LISTING	CBOT											
TRADING HOURS	Globex trading hours (5:00 pm CT to 4:00 pm CT, Sunday to Friday)											
CONTRACT SIZE	1 contract = \$100,000 notional for all tenors											
CONTRACT STRUCTURE	Contracts embed the exchange of receiving fixed annual amounts, versus paying annual floating amounts. The annual floating amounts are determined from the daily compounded SOFR fixings during each Accrual Period											
CONTRACT LISTINGS	Quarterly IMM Effective Date Contracts (3rd Wednesday of March, June, September and December each year), listed [9] months prior to the Contract Effective Date											
CONTRACT CODES	6-character alpha-numeric codes, made up of a 3-character prefix representing the contract tenor, and a 3-character suffix representing the Contract Effective Date											
TENORS	1Y	2Y	3Y	4Y	5Y	7Y	10Y	12Y	15Y	20Y	30Y	
CONTRACT PREFIX	YIA	YIT	YIC	YID	YIW	YIB	YIY	YII	YIL	YIO	YIE	
CONTRACT SUFFIX	3-characters: 1 character IMM Effective Month (Mar, Jun, Sep, Dec: H, M, U, Z), followed by a 2-digit effective year (e.g. YIWZ20 = Dec'20 Eris SOFR 5Y, maturing Dec'25)											
TRADING CONVENTIONS	Long Futures Position Holder: Fixed Rate Receiver, Floating Rate (SOFR) Payer Short Futures Position Holder: Fixed Rate Payer, Floating Rate (SOFR) Receiver											
CONTRACT EFFECTIVE DATE	The quarterly IMM date for the respective contract											
FIXED RATE	Fixed interest rate, set to mirror the Sifma SOFR MAC rates, as published by CME Group											
FLOATING RATE	<p>USD-SOFR-COMPOUND Daily compounded interest rate determined from SOFR fixings during the Accrual Period</p> $\left[\prod_{i=1}^{d_i} \left(1 + \frac{\text{SOFR}_i \times n_i}{360} \right) - 1 \right] \times \frac{360}{d}$ <p>d = total days in the payment period SOFR_i = SOFR fixings during the interest period n_i = number of interest accrual days for the SOFR_i fixing period * Supplement 57 to the 2006 ISDA Definitions published on May 16, 2018</p>											
RATE PAYMENT FREQUENCY	Annual, for both Fixed and Floating Rates											
ACCRUAL PERIODS	Annual periods commencing on the Contract Effective Date, to each subsequent annual calendar date thereafter, aligned with the Cash Flow Alignment Date (CFAD), subject to adjustment in accordance with the Modified Following Business Day Convention											
DAYCOUNT CONVENTION	Actual/360											
PAYMENT DATES	2 business days following each Accrual Period end date											
HOLIDAY CALENDAR	US Government Securities Market (Sifma)											
CASH FLOW ALIGNMENT DATE ("CFAD")	<p>Date used for aligning fixed and floating Accrual Period end dates and determining the contract Maturity Date</p> <p>The Cash Flow Alignment Date (CFAD) is determined by adding the tenor in years to the Effective Date, and may fall on any calendar day, including weekends and holidays.</p> <p>e.g. an Eris SOFR Future with an Effective Date of 12/16/2020 and a tenor of 3 years implies a Cash Flow Alignment Date of 12/16/2023, the calendar date 3 years following the Effective Date. Although 12/16/2023 is a Saturday, this date is still used to align annual Accrual Period End Dates. As 12/16/2023 is a Saturday, the final Accrual Period End Date rolls to Monday 12/18/2023, in accordance with the Modified Following Business Day Convention</p>											
CONTRACT MATURITY DATE	The final payment date, which is 2 business days following the final Accrual Period End Date											
LAST TRADING DAY	2 business days prior to the contract Maturity Date											

Eris SOFR Swap Futures: Contract Specifications (continued)

DAILY SETTLEMENT PRICE	<p>Contracts will be priced on a basis of 100 The Settlement Price for each contract is defined as: $St = 100 + At + Bt - Ct$ St = Settlement Price on date t At = The net present value of future Fixed and forecasted Floating Payments on date t, discounted at SOFR Bt = Accumulated historical Fixed and Floating Payments to date t Ct = Accumulating daily SOFR interest on amount { At-1 less the Fixed and Floating Payments taking place on date t } calculated in arrears and published daily, referred to as Eris Price Alignment Interest (or Eris PAI™). Eris PAI™ accrues to the Contract Maturity Date. See footnote 1 below for further details Eris Settlement Prices will be calculated and published to 4 decimals of precision (e.g., 100.1234), equivalent to the nearest \$0.10/10 cents per contract</p>											
FINAL SETTLEMENT PRICE	<p>100 plus the net accumulated value of all payments during the contract life: $S_{final} = 100 + B_{final} - C_{final}$ S_{final} = Settlement Price on Contract Maturity Date B_{final} = Accumulated historical Fixed and Floating Payments during life of contract C_{final} = Eris PAI™ on the Contract Maturity Date</p>											
PRICE CONVENTION	<p>Eris SOFR contracts trade on a decimal price indexed to 100, in eligible tick increments; the value of 1.000 price point is equal to \$1000.00</p>											
TICK SIZES	<p>Tick sizes vary by tenor (as below) from \$2.50 - \$40 / 0.0025-0.040, equivalent to between 1/10th - 3/10th of a basis point in yield, 0.001-0.003%. All contracts settle to 4 decimals, i.e. the nearest \$0.10</p>											
CALENDAR SPREADS	<p>Calendar Spreads will be offered for trading in the 3 week period prior to each Contract Effective Date. CME Globex contract codes for Calendar Spreads are made up 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. YIAZ0H1 = 1Y Calendar Spread from Dec 2020 to March 2021)</p>											
TENOR	1Y	2Y	3Y	4Y	5Y	7Y	10Y	12Y	15Y	20Y	30Y	
CONTRACT	YIA	YIT	YIC	YID	YIW	YIB	YIY	YII	YIL	YIO	YIE	
INITIAL TICK \$/PX	\$2.50 0.0025	\$2.50 0.0025	\$5.00 0.0050	\$10.00 0.0100	\$10.00 0.0100	\$20.00 0.0200	\$20.00 0.0200	\$20.00 0.0200	\$20.00 0.0200	\$40.00 0.0400	\$40.00 0.0400	
CALENDAR SPREADS TICK SIZE	\$2.50 0.0025	\$2.50 0.0025	\$2.50 0.0025	\$5.00 0.0050	\$5.00 0.0050	\$10.00 0.0100	\$10.00 0.0100	\$10.00 0.0100	\$10.00 0.0100	\$20.00 0.0200	\$20.00 0.0200	
INTER-COMMODITY SPREADS	<p>Inter-Commodity Spreads (ICS) will be available in both Eris SOFR vs Eris SOFR and Eris LIBOR vs Eris SOFR. contract codes are as follows:</p>											
	<p>Eris SOFR vs Eris SOFR:</p>											
	1y vs 2y YIA/YIT	1y vs 3y YIA/YIC	2y vs 3y YIT/YIC	2y vs 5y YIT/YIW	3y vs 4y YIC/YID	3y vs 5y YIC/YIW	4y vs 5y YID/YIW	5y vs 10y YIW/YIY				
	EAT	EIC	ETC	ETW	EID	ECW	EDW	EIY				
	<p>Eris ICE LIBOR vs Eris SOFR:</p>											
4y vs 4y LID/YID	5y vs 5y LIW/YIW	7y vs 7y LIB/YIB	10y vs 10y LIY/YIY	30y vs 30y LIE/YIE								
EDI	EIW	EBB	EYY	EEE								
VARIABLE TICK SIZES	<p>To be implemented once contracts reach sufficient aging – outright contract tick sizes will reduce once over the life for each contract, based on the remaining tenor. This will facilitate trading aged contracts on a tighter and more granular bid/ask spread as their price sensitivity to changes in market rates also reduces</p>											

The Eris Settlement Price

- A long position in Eris SOFR Swap Futures reflects a RECEIVE FIXED / PAY DAILY COMPOUNDED SOFR swap position, consistent with the buy/sell direction of other CME Group interest rate futures.
- Orders match based on price

$$\text{Eris Price} = 100 + A + B - C$$

A = Swap NPV, the net present value of future fixed and floating cash flows, discounted on the SOFR curve

B = Past payments of fixed and floating coupon cash flows

C = Price Alignment Interest ("PAI"). The accumulated overnight SOFR interest on the previous day's Swap NPV (the "A" component above) less today's cash flows

Converting Eris Price to Equivalent Par Swap Rate/Yield

- Equivalent Par Swap Rate % =
$$\text{Eris Contract Fixed Rate\%} - ((\text{Eris (A) \$ Value} / \text{Contract \$ PV01}) / 100)\%$$
where, \$A = (Eris Price - 100 - B + C)*\$1,000
- Reference data to convert an Eris Price to an equivalent par swap rate are available from CME DataMine, the Eris Contract Lookup tool (erisfutures.com/cme/contractlookup), the Eris ftp server (<http://files.erisfutures.com/ftp/>), the Eris ftp server (file location, file names and data field locations below), or the Eris LiveMarkets Microsoft Excel add-in (erisfutures.com/cme/swapcurve).
 - Eris B's, C's and PV01's may be found in columns AD, AE and BF in the following daily files, found in file location <http://files.erisfutures.com/ftp/>
 - **Eris_Instruments_YYYYMMDD_Prices_Prev_PAIRate.csv** publishes B, and estimate of C prior to SOFR being published at 8am ET daily
 - **Eris_Instruments_YYYYMMDD_Prices_TopDay_PAIRate.csv** publishes same B as Prev_PAIRate file, and final C for trading day once SOFR is published at 8am ET daily

- **Eris_Instruments_YYYYMMDD_Settle.csv** Daily settlement file, B and C remain same as TopDay_PAIRate file
- [Full data field glossary table](#)

Execution

- Eris SOFR Swap Futures are tradable on CME Globex, CME Direct or 3rd-party e-trading platforms connected to CME Group.
- Block Trading: Eris contracts may be privately negotiated ("PNT") 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 contracts and contracts without live order books: all 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. Where an order book may no longer be streaming, trading may take place by electronic Request for Quote 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.
- Eris SOFR Swap Futures settle to the Eris SOFR Swap Curve at 3pm ET daily. The Eris SOFR Curve is anchored to executable prices in the central limit order books of Eris SOFR contracts and a full curve is fitted to price all off the run Eris SOFR contracts.
- Eris Innovations distributes the Live Eris SOFR 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 contracts without live order books through a number of channels, including the Eris Innovations website and a Microsoft Excel add-in; to learn more about the Live Eris Swap Curve go to erisfutures.com/cme/swapcurve.

Footnote: PAI, or Price Alignment Interest, is the accumulated overnight interest on the previous closing day's SwapNPV (Eris A value) minus the cash flows taking place on the PAI date, calculated using the daily SOFR. This amount is equivalent to the accumulated interest paid on variation margin posted in lieu of the mark to market of the analogous CME cleared over-the-counter swap

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