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Trading swap spreads with futures: A primer for Eris/Treasury Swap Spreads

By Eric Leininger and Michael Riddle 23 AUG 2024

As the Federal Open Market Committee considers changes in its interest rate policy, managing swap spreads will be critical for dealer desks, asset managers and hedge funds. With many recent innovations and capital efficiencies, Eris/Treasury Swap Spread trading is helping clients more efficiently execute swap spread trades.

Trading swap spreads with Eris SOFR Swap futures and Treasury futures as CME Globex inter-commodity spreads unlocks the benefits of liquid, anonymous, electronic futures markets.

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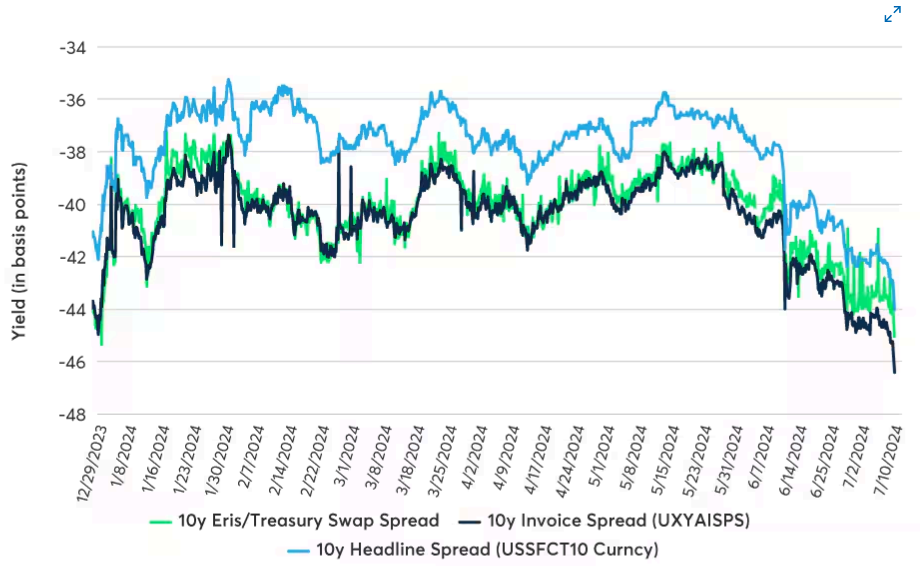
Figure 1: Swap Spread Performance



Performance of three forms of 10-Year Swap Spreads–Headline Spreads, Invoice Spreads, and Eris/Treasury Swap Spreads, sourced from Bloomberg and BMLL data and converted to yield. Eris/Treasury Swap Spreads data is calculated by subtracting yield of front-month treasury futures from yield of front-month Eris SOFR. Recent data for this and other tenors are available on the Eris Innovations web site here.

Figure 2: Swap Spread Comparison

SWAP SPREAD	SWAP LEG	TREASURY LEG	EXAMPL
Headline Spread	**Interest Rate Swap** Spot-starting	**Cash Treasury** On-the-run	*USSFC*
Invoice Spread (Matched maturity)	**Interest Rate Swap** Forward-starting, matched maturity to CTD Treasury	**Futures (U.S. Treasury)** Front quarterly contract	*UXYAIS*
Eris/Treasury Spread	**Futures (Eris SOFR Swap)** Forward-starting on quarterly IMM Wednesday	**Futures (U.S. Treasury)** Front contract	*YIYUXY*

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Overview and Top Benefits of Eris/Treasury Swap Spreads

- Launched by CME Group in 2023, Eris/Treasury Swap Spreads use CME Globex's inter-commodity spread (ICS) functionality to enable seamless trading of swap spreads between Eris SOFR Swap futures and U.S. Treasury futures for efficient execution.
- Available in tenors of two-, five-, seven- and 10-years, Eris/Treasury Swap Spreads offer single price negotiation in a central limit order book, with trades resulting in specific positions in each of the underlying futures contracts.
- As futures-based swap spreads, Eris/Treasury Swap Spreads offer multiple benefits when compared with traditional OTC-based alternatives.
    - **No RFQ needed – electronic trading with continuous, transparent markets**
      Click-to-trade swap spreads enable easy execution and algorithmic automation with continuous, two-sided streaming prices.
    - **Anonymous execution with small minimum trade size**

sizing and prevent information leakage to counterparties.

- **Liquid markets linked with implied pricing**
  CME Globex price implication functionality integrates liquidity between all three order books (Eris SOFR, Treasury futures, inter-commodity spreads), ensuring spreads trade as tight or tighter than the spread implied by outright legs.
- **Futures margin efficiency**
  Margin offsets of up to 97% (as calculated by CME CORE) are available at CME Clearing to reduce the cost of carry relative to OTC swap spread positions in instruments cleared at different clearinghouses.
- **Lower fees than swap market**
  Dealers trading CME Group futures can save up to 66% on fees for five-, seven- and 10-Year Eris/Treasury Swap Spreads, compared with traditional swap spreads on swap market venues.

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Spread Basics: Contract Specifications

Figure 3: Contract Specifications

ERIS SOFR LEG	TREASURY FUTURES LEG	CME GLOBEX & BLOOMBERG SYMBOLS	LEG RATIO	MINIMUM PRICE INCREMENT
2-Year (YIT)	2-Year (ZT)	ETU YITTU Comdty <go>	2:1	$2.50 (0.0025, ~0.13 bp)
5-Year (YIW)	5-Year (ZF)	EWV YIWFV Comdty <go>	1:1	$5.00 (0.005, ~0.11 bp)
7-Year (YIB)	10-Year (ZN)	EBN YIBTY Comdty <go>	1:1	$10.00 (0.01, ~0.17 bp)
10-Year (YIY)	Ultra 10-Year (TN)	EYT YIYUXY Comdty <go>	1:1	$10.00 (0.01, ~0.12 bp)

- As shown in Figure 3, Eris/Treasury Swap Spreads combine Eris SOFR and Treasury futures of four different tenors, with minimum prices denominated in decimals and minimum price increments half the size of the underlying Eris SOFR Swap futures. Product specifications for Eris SOFR are available here.
- Direction: Buying the Eris/Treasury Spread implies buying Eris SOFR and vice versa
  - Buy Spread = Buy Eris SOFR (Rec Fixed, Pay SOFR), Sell Treasury Futures
  - Sell Spread = Sell Eris SOFR (Pay Fixed, Rec SOFR), Buy Treasury Futures
- The spreads use Globex price type IV, which is a price based on the “net change on day.” More info is below and CME Group’s website has a detailed explanation of spread pricing.
- Spread lead contract (most active) changes once per quarter, as the new Treasury futures leg goes front (last trading day of Feb/May/Aug/Nov). See the full lead month schedule on the Eris SOFR Roll Calendar.
- Positions established using spreads can be modified/closed as spreads or as individual legs, which simplifies rolling positions. For example, a 10-Year Dec/Dec spread trade results in positions in December 10-Year Eris SOFR and December Ultra 10-Year Treasury futures. These can be closed with an offsetting trade in the 10-Year Dec/Dec spread, closed with outright trades in the respective leg markets, or rolled to March separately using the Dec/Mar 10-Year Eris SOFR calendar spreads and Dec/Mar Ultra 10-Year Treasury futures calendar spreads.
- Eligible for trading in order book (including Committed Cross trades, which allow for pre-trade discussion and price improvement) and as block trades (allowing pre-trade

discussion, subject to the separate minimum trade thresholds of Treasury futures and Eris SOFR).

- In addition to lead month contracts, Eris/Treasury Swap Spreads are also available in switch-and-roll combinations (e.g., this quarter's Treasury futures vs. next quarter's Eris SOFR), allowing users to switch between Treasury futures and Eris SOFR while simultaneously rolling to the next quarterly contract.

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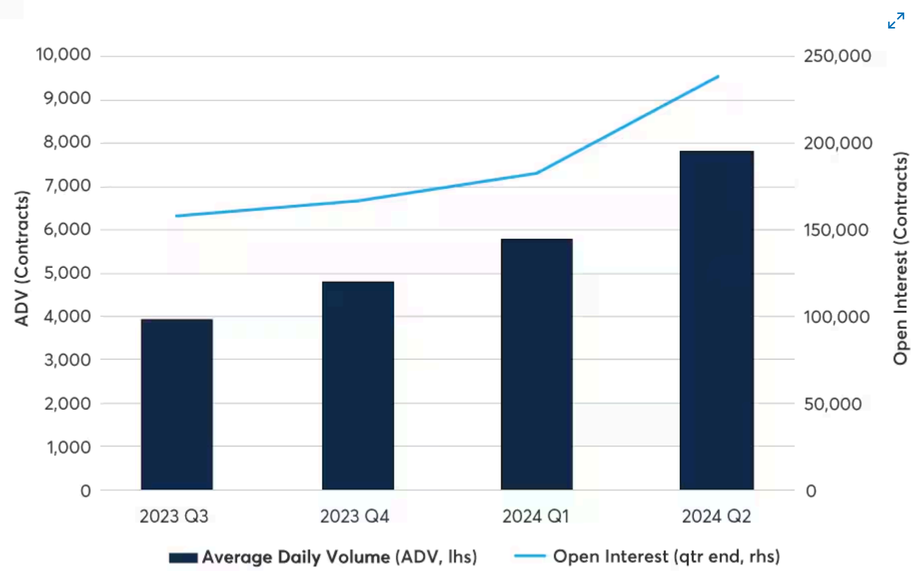
Eris SOFR Swap futures: Liquid futures for benchmark tenors of SOFR swaps

Figure 4: Eris SOFR Volume & Open Interest



Source: CME Group and Eris Innovations

- Launched in 2020, Eris SOFR Swap futures have grown significantly in liquidity, volume and open interest since 2023, following the migration from Libor to SOFR and the enablement of margin offsets with interest rate swaps cleared at CME Group.
- As exchange traded futures with structure and cash flows equivalent to fixed versus floating SOFR overnight index swaps, Eris SOFR Swap futures have quarterly start dates, preset fixed rates and trade in tenors from one to 30 years. Full specifications are available from Eris Innovations.
- Although most end users roll their Eris SOFR positions quarterly, the contract design does not require it. Unlike traditional futures that are short-dated and require users to roll from one quarterly contract to another, Eris SOFR Swap futures can be held for the multi-year lifetime of the swaps they replicate.
- Like Treasury futures do for the U.S. Treasury market, Eris SOFR provides easily tradable liquid access to key benchmark tenors of the U.S.-dollar swap market.
- CME Clearing margin offsets enable dealers and other swap users to integrate Eris SOFR seamlessly into their existing CME Group interest rate swap portfolio.
- Volume and open interest each grew by more than 30% from Q1 to Q2, driven by increased demand from end-users and a robust set of market makers leveraging margin efficiencies with swaps.

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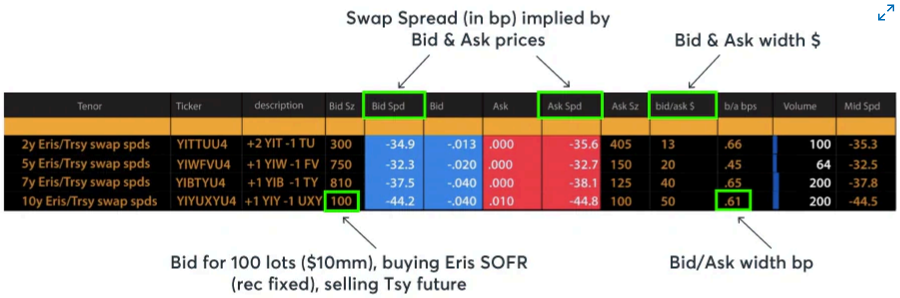
How to view markets for Eris/Treasury Swap Spreads

Figure 5: How to view markets for Eris/Treasury Swap Spreads



Tenor	Ticker	description	Bid Sz	Bid Spd	Bid	Ask	Ask Spd	Ask Sz	bid/ask $	b/a bps	Volume	Mid Spd
2y Eris/Trsy swap spds	YITTUU4	+2 YIT -1 TU	300	-34.9	-.013	.000	-35.6	405	13	.66	100	-35.3
5y Eris/Trsy swap spds	YIWFVU4	+1 YIW -1 FV	750	-32.3	-.020	.000	-32.7	150	20	.45	64	-32.5
7y Eris/Trsy swap spds	YIBTYU4	+1 YIB -1 TY	810	-37.5	-.040	.000	-38.1	125	40	.65	200	-37.8
10y Eris/Trsy swap spds	YIYUXYU4	+1 YIY -1 UXY	100	-44.2	-.040	.010	-44.8	100	50	.61	200	-44.5

Customized Bloomberg launchpad for Eris/Treasury Swap Spreads, created by Eris Innovations. Please follow the directions on erisfutures.com/bloomberg to request it be shared with you via the Bloomberg Terminal.

- Markets for Eris/Treasury Swap Spreads are viewable via multiple market data sources, including Bloomberg, Eris Innovations' website (erisfutures.com/live) and CME Direct.
- Bloomberg users: request the custom Eris/Treasury Swap Spreads launchpad from Eris Innovations by following the directions on this webpage.
    - Note: Unfortunately, as of Q3 2024, Bloomberg supports market data only for the same month tickers (e.g., Sep Eris SOFR vs. Sep Treasury futures), but not mismatch month tickers (e.g., Sep Eris SOFR vs. Dec Treasury futures).
- Prices are shown as Type IV spreads, (net change on day) such that a trade at zero (0.0000) results in each leg trading at its respective previous day settlement price.
- Market data on the Bloomberg Launchpad and the Eris Innovations' website include conversion of price to yield using the formula described here.

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Comparison to Headline Spreads and Invoice Spreads

Figure 6: Swap Spread Comparison

SWAP SPREAD	SWAP LEG	TREASURY LEG	
Headline Spread	**Interest Rate Swap** Spot-starting	**Cash Treasury** On-the-run	*USSFC* Tradec
Invoice Spread (Matched maturity)	**Interest Rate Swap** Forward-starting, matched maturity to CTD Treasury	**Futures (U.S. Treasury)** Front quarterly contract	*UXYAIS* Tradec
Eris/Treasury Spread	**Futures (Eris SOFR)** Forward-starting on quarterly IMM Wednesday	**Futures (U.S. Treasury)** Front contract	*YIYUXY* Tradec

- Comparing Eris/Treasury Swap Spreads with Headline Spreads and Invoice Spreads enables users to appreciate their construction and benefits.
- Headline Spreads employ spot-starting, par swaps and spot delivery cash Treasuries. Their

underlying as Headline Spreads tomorrow, making evaluation of the spread level somewhat subjective. Additionally, the swap leg immediately becomes an off-the-run swap, requiring an RFQ process to evaluate profit/loss or to unwind.

- Invoice Spreads substitute futures for the Treasury leg, streamlining the balance sheet and operational impact of holding cash treasuries and performing overnight repo daily, and bypassing certain pricing dynamics idiosyncratic to cash Treasuries. Additionally, Invoice Spreads are forward starting, so a spread today versus the spread tomorrow will be more easily comparable, typically referencing the same forward-starting swap and forward-delivered Treasury.
- By going one step further than Invoice Spreads and utilizing futures for both legs of the trade, Eris/Treasury Swap Spreads unlock additional advantages: electronic trading in continuously quoted markets (for trade entry and exit), algorithmic execution, anonymity and futures margin efficiency.
- The swap leg of Eris/Treasury Swap Spreads is the same on-the-run Eris SOFR contract traded by numerous market participants for outright and calendar spread exposure. As a forward-dated contract starting on the quarterly IMM date, it differs from the matched maturity swap dates typically used for Invoice Spreads, in return offering the advantage of a deep pool of counterparties and concentrated liquidity.
- Eris/Treasury Swap Spreads for the five-, seven- and 10-year tenors trade in a 1:1 ratio. Traders seeking delta neutral exposure may require additional outright contracts. See the Eris Innovations website for delta neutral hedge ratio data.
- While Headline Spreads and Invoice Spreads are quoted in basis points, Eris/Treasury Swap Spreads trade in net change on day terms. Eris Innovations' website offers historical market data converted to basis points and the formula for performing this conversion.

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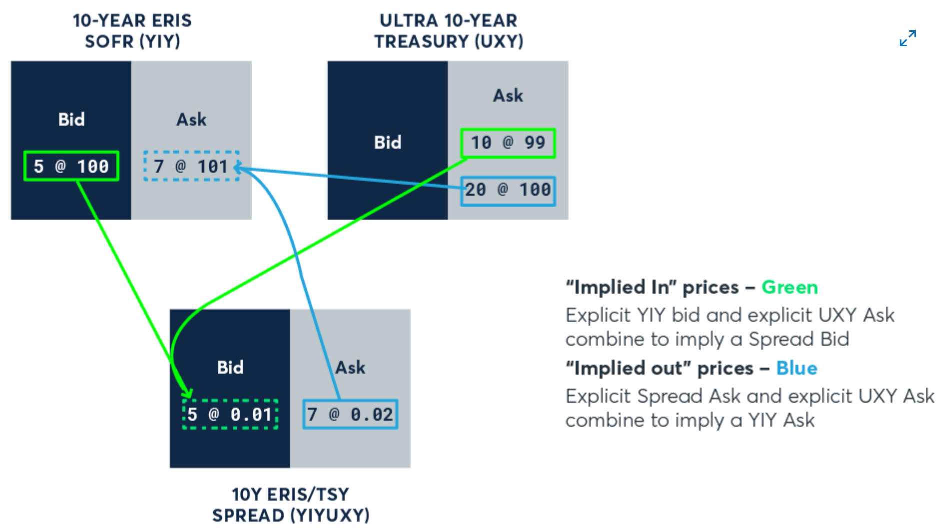
How implied prices maximize liquidity

Figure 7: "Implied In" vs. "Implied Out" prices



- Eris/Treasury Swap Spreads benefit from CME Globex Price Implication functionality, which links Eris SOFR and Treasury futures markets to imply Eris/Treasury Swap Spread prices, and also implies outright orders in Eris SOFR and Treasury futures order books from quoted Eris/Treasury Swap Spread markets.
- For instance, this powerful functionality ensures that an Eris/Treasury Swap Spread bid (buy Eris SOFR/sell Treasury) can match with an Eris/Treasury Swap Spread ask (sell Eris/buy Treasury) that may be implied by a combination of an outright Eris SOFR ask and

- Implieds effectively integrate three distinct liquidity ecosystems (market makers and other traders of Treasury futures, Eris SOFR and Eris/Treasury Swap Spreads), resulting in a more efficient, inter-linked market.
- Two examples of the impact of price implication:
  - In March 2024, the best bid/ask spread for the 10-Year Eris/Treasury Spread involved an implied order 46% of regular trading hours.
  - The same month, the best bid/ask spread for outright 10-Year Eris SOFR involved an implied order (derived from spreads) 32% of the time.
- For a detailed explanation of Type IV spread prices and how implied markets function, see CME Group's Liquidity in implied inter-commodity spread markets article.
- Eris/Treasury Swap Spreads trade in net change on day terms
  - Spread price = Net change in Eris SOFR leg – net change in Treasury futures leg

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Use Case 1: Spread trader takes a view on swap spreads simply, anonymously and margin-efficiently

Hedge fund, asset manager or other spread trader expresses a view on swap spreads. Concerned about revealing their identity and needing to reduce initial margin, the trader chooses to use Eris/Treasury Swap Spreads instead of an invoice spread. While maintaining anonymity and using CME CORE, the trader quickly assesses they can reduce the swap spread trade's initial margin cost by 88%.

1. Spread trader observes that 10-Year Swap Spreads have recently tightened and believes they will widen (i.e., Treasuries will outperform swaps).
2. Trader has confidence the 10-Year Eris/Treasury Spread prices represent market rates, as they're reinforced by implieds from liquid underlying Eris SOFR and Treasury futures order books.
3. Trader (or broker) considers an Offer to sell 1,000 contracts of 10-Year Eris/Treasury Swap Spreads, which will profit as Treasuries outperform swaps (spreads widen). Offer can hit the best Bid for immediate execution or can rest in the order book waiting for an aggressor Bid.
4. The trader decides to submit a resting offer order and is pleasantly surprised that the ICS functionally consummates the trade by linking markets between outrights and spreads.
5. Executed trade appears in public trade log, but no one knows the identity of the parties.
6. Trader evaluates net DV01 position of the 1,000 x 1,000 Eris/Treasury trade and buys back 63 contracts of Ultra 10-Year Treasury futures to retain a DV01-weighted position.
7. After the trade, the trader can view continuous, real-time bids and offers for their exact position without having to RFQ dealers.
8. Trader's firm posts 88% lower margin for the spread cleared at CME Clearing, compared with posting margin at different clearinghouses for an invoice spread.
9. Trader can anonymously exit position as a spread or as outright legs.

Benefits of Eris/Treasury Swap Spreads:

- No RFQ, no footprints in the market: anonymous, electronic execution.
- No swaps or ticket fees: available through any futures account, with per-contract fees (tied to notional amount), rather than per-trade fees.

- More execution discretion: rest orders anonymously in the order book to improve execution price or cross the bid/ask spread to execute immediately.
- Minimize holding cost: up to 88% less margin than invoice spreads compared with swaps cleared at a central counterparty (CCP) other than CME Clearing.

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Use Case 2: Dealer hedges CME Group interest rate swaps electronically, with lower fees

Dealers can hedge outright CME Group interest rate swap risk electronically and reduce IDB fees by delta-hedging with Treasury futures and working out of the remaining spread risk using Eris/Treasury Swap Spreads.

1. Dealer receives fixed (pays SOFR) on $100 million 10-Year SOFR swaps, cleared at CME Group.
2. Dealer immediately hedges duration by selling a DV01-weighted quantity of Ultra 10-Year Treasury futures (UXY, 816 contracts).
3. Dealer sells 10-Year Eris/Treasury Swap Spreads for the full, DV01-weighted quantity (sell 866 10-Year Eris SOFR [YIY] contracts], buy 866 UXY contracts)
4. Dealer cleans up the UXY DV01 tail by selling 50 UXY contracts.
5. Result: portfolio retains DV01-weighted 10-Year SOFR swaps and 10-Year Eris SOFR, margined efficiently by CME Clearing.

Benefits of Eris/Treasury Swap Spreads:

- Hedge execution can be fully automated and doesn't require CCP basis swaps.
- Work the spread order (step 3) either actively (click-to-trade) or passively (algorithmic order entry) to execute at a preferred price level.
- Save 66% in fees compared with IDB swap spreads (assuming 1/40 bp IDB fees).

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Use Case 3: Portfolio Manager switches to swaps during the quarterly roll using a single spread trade, lowering execution cost

A holder of Treasury futures (e.g., asset manager or mortgage company) believes swaps will outperform Treasuries in the coming quarter. By using the switch-and-roll versions of Eris/Treasury Swap Spreads (this quarter's Treasury futures vs. next quarter's Eris SOFR), they avoid the transaction costs of switching and rolling separately.

1. Portfolio Manager is long 1,000 contracts of front-month (e.g., September) Ultra 10-Year Treasury futures (UXY), which they've rolled for multiple consecutive quarters, but believes that swaps will outperform Treasuries in the coming months.
2. During the typical roll period for Treasury futures, PM desires to sell their September Treasury futures and buy December 10-Year Eris SOFR (YIY), simultaneously switching from long treasuries to long swaps and rolling from Sep to Dec.

3. PM buys 1,000 contracts of the switch-and-roll Eris/Treasury Swap Spreads, simultaneously buying 1,000 Sep UXY and selling 1,000 Dec YIY.

Benefits of Eris/Treasury Swap Spreads:

- Move positions between Treasury futures and Eris SOFR electronically without leg/execution risk.
- Minimize total cost of execution by crossing the bid/ask spread in only one market instead of trading the legs individually.
- Benefit from spread prices quoted by market makers who are guaranteed to get filled on both legs, enabling them to make more competitive prices.

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Eric Leininger is Executive Director of Research and New Product Development for Interest Rates and Equities. The Research and Product Development team develops new risk management products as well as ensuring the continued relevance of our current suite of key benchmarks. The team also produces original research into derivatives and their underlying markets across asset classes and around the world.

Michael Riddle is the CEO of Eris Innovations, the intellectual property licensing company that created Eris SOFR Swap futures, which are listed at CME Group. A 20-year veteran of the Chicago futures industry, he previously worked for the Chicago Board of Trade and CME Group. Since Eris SOFR's recent volume and open interest growth started in 2023, he spends most of his time writing and talking about the product's benefits for mortgage companies, REIT's, regional banks and credit unions.

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