



INTEREST RATES

How Eris Futures Help Leveraged Investors

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11 JUL 2023

Eris® SOFR Swap Futures Help Leveraged Investors in Today's Interest Rate Market

Effective interest rate risk management can often drive success or failure for leveraged investors. Fortuitously, CME Group has Eris SOFR swap futures for investors to easily meet the many challenges in today's dynamic interest rate market. From aggressive FOMC rate hikes from near zero percent to over five percent; cessation of LIBOR at the end of June 2023; and evolving banking events; challenges abound. Complicating matters further, interest rate volatility also moved to a higher plateau, driving margin requirements and capital usage higher as well. Correct product selection can improve hedging robustness and capital efficiencies.

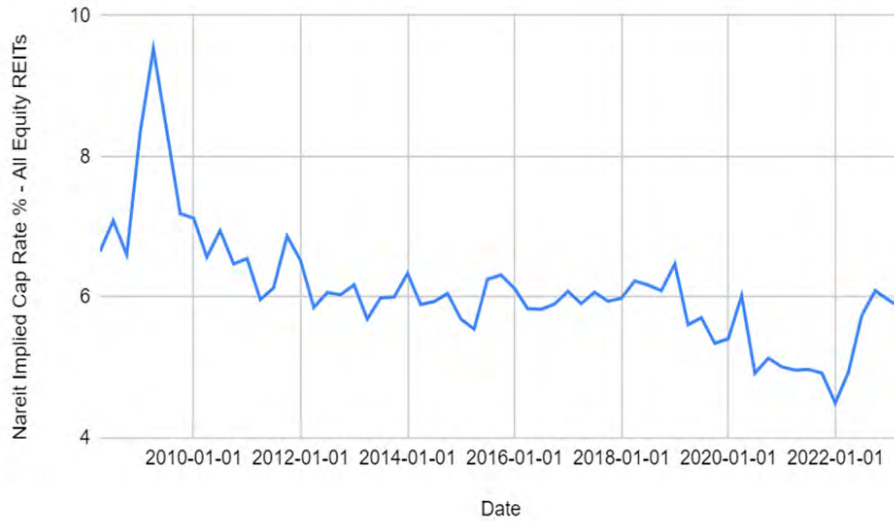
REITs – Leverage, Cap Rates, and Returns

Real Estate Investment Trusts (REITs) are traditional leveraged investment vehicles that must focus on their interest rate hedging needs. REITs use investor funds as well as borrowed monies to purchase real estate assets. The difference in earnings on the assets and the expenses of the debt liabilities is returned to the investors. Getting both the balance of the amount of debt and the cost of the debt is critical to the success of a REIT structure. According to [Nareit](#), a well-known REIT research and data organization, the debt to market asset ratio is at its long-term average of 35%, but has been known to be close to 40% a few years ago.

Nareit also noted that many REITs "termed-out" their liabilities, but a considerable amount of floating rate debt remains and roll-down of the existing liabilities to shorter maturities requires new interest rate risk management to manage the growing gap between the longer-dated assets and the shorter duration on the liabilities.

When REIT operating revenues are high on the operating assets, it is possible to absorb higher interest rate expenses on the liabilities. The standard measure for REITs is called a cap rate, which is the ratio of the net operating income of a property to the asset value of that property. With asset prices increasing and costs rising, cap rates have been depressed since 2019. While they have improved from their lows in 2022, worryingly low cap rates have recently recovered but turned lower again. There are a variety of complex factors that drive cap rates and many of them are not immediately controllable.

Exhibit 1: Nareit All Equity REIT Cap Rates Turn Lower Again

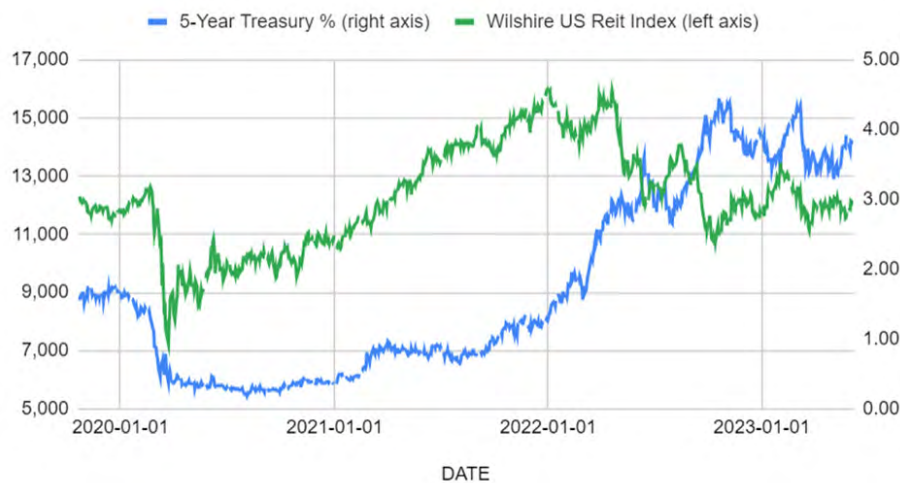


Source: Nareit

Between the rapid rise in interest rates and the decrease in cap rates, returns on REITs have been impacted. The key inflection point seems to have been when five-year yields rose above 2.5% in early 2022. For roughly the past year, returns and interest rates have been highly negatively correlated. Since interest rates have more available tools to effectively hedge compared to managing cap rates, focusing on improving interest rate risk management should effectively help REITs and other leveraged investors.

For leveraged investors, use of capital is an important consideration when it comes to hedging. While interest rate swap usage closes the duration gap between short-term variable funding (liabilities) and medium- to long-term asset durations, these hedges require posting of maintenance margins with their FCMs, using up precious capital. Higher levels of leverage will require more hedges, increased margin, and a greater constraint on capital. Additionally, investors will typically maintain a liquidity buffer in marketable or pledgeable assets, to meet near term variation margin calls on these hedges. So, it is important to consider the margin required when making a choice of hedging instrument.

Exhibit 2: Higher Rates, Impact Capital Usage and Returns



Source: FRED Database

Eris Futures Ideally Suited to Leveraged Investor Hedging

Eris SOFR swap futures, which accurately replicate their equivalent underlying swaps, are an attractive instrument for leveraged investors to consider. Not only are they simple and accurate presentations of a swap, but being listed futures, they are easily accessible to anyone with a futures trading account. Furthermore, the trading and margin model associated with futures is ideally suited to REITs and other leveraged investors as electronic central limit order book or privately negotiated block trading provides deft an anonymous trading and maintenance margins are approximately half that of cleared swaps. Listed futures are generally margined with a one-day or two-day margin period of risk (MPOR) given the standardized nature of the instruments, while over-the-counter (OTC) derivatives are generally margined with a five-day MPOR when cleared.

For leveraged investors, liquidity is critical. Reductions of encumbered margin by 50%, when using Eris SOFR compared to cleared OTC swaps, increases investor liquidity. This return of margin provides for further cash buffers or the ability to increase leverage and returns as needed. These investors include real-estate investment trusts (REITs), private equity partnerships, proprietary trading firms, and leveraged portfolio products such as collateralized debt (CDOs) or loan (CLOs) obligations. Given the gearing these financial structures use to obtain their returns, small improvements in hedging efficiency, and reducing the capital deployed to hold these hedges can multiply returns.

Eris instrument cash flows pass through a single account unit. OTC swaps require significant operational and accounting reconciliation processes. Eris contracts remove such complexity with contract price capturing all components of the swap's value. This elegant simplification means that periodic reporting (10Q's, 10K's, and tax returns) and cash reconciliation (the futures account) controls and operational and financial risk mitigation is reduced in the Eris design and many processes can be automated.

Eris SOFR Futures Overview

Eris futures are very simple instruments to understand. Listed quarterly during the March, June, September, December listing cycles, an Eris futures will have a specific coupon that is similar to that of a SOFR curve at the same maturity point, set through a process known as the "market agreed coupon" or MAC rate. The economics of a swap are neatly captured in Eris futures and as the level of rates moves, the value of the instrument will change, such that the effective yield on the instrument remains at-market. Benefits include price transparency as listed futures products, standardization, reduction of bilateral counterparty risks, and significant margining benefits.

Additionally, rather than expire and settle into a swap, common to traditional futures products, Eris contracts are financially cash-settled against SOFR as accrual instruments over the entire life of the underlying swap. This means that Eris futures do not expire on their IMM swap effective dates, instead the swap begins to accrue through the price of the contract. This provided a crucial additional benefit to Eris, making them eligible for accrual accounting uses, such as hedge and tax accounting.

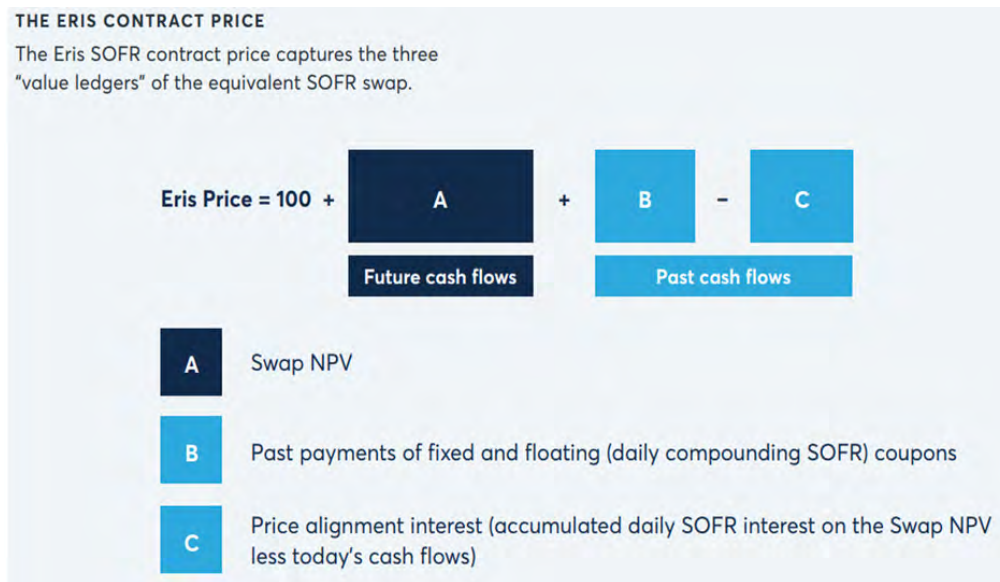
Use Eris Futures like Swaps

Eris futures exist as futures for the full underlying tenor of the swaps they replicate rather than expiring quarterly like typical futures, enabling as-realized tax treatment, which is widely preferred by REITs and traditionally reserved for interest rate swaps, rather than futures.

For example, a REIT can take a short position (pay fixed, receive O/N SOFR) in a 10-year Eris SOFR September 2023 (Y1YU23) contract in August 2023 and hold it until its maturity in September 2033, or liquidate the position at any point prior to the September 2033 maturity date. Generally, the "on-the-run" forward starting contracts trade actively in the central limit order book (CLOB), while the "off-the-run" contracts, in accrual, trade either via privately negotiated block or with CLOB liquidity generated by an RFQ.

If accrual accounting treatment is desirable when applying an Eris contract as a financing hedge, as is commonly utilized by REITs for their swaps (where they earmark swap positions as IRS §1221 tax hedges) then the IRS §1256(e) exemption from default IRS §1256(a) capital tax treatment¹ of futures may be applied. Facilitating this treatment is the daily publication of Eris futures price components. While the full mechanics of the Eris futures price can be seen in this [white paper](#), the general concept is straight forward, and elegantly illustrated in Exhibit 3.

Exhibit 3: Eris® SOFR Swap Pricing Simplicity



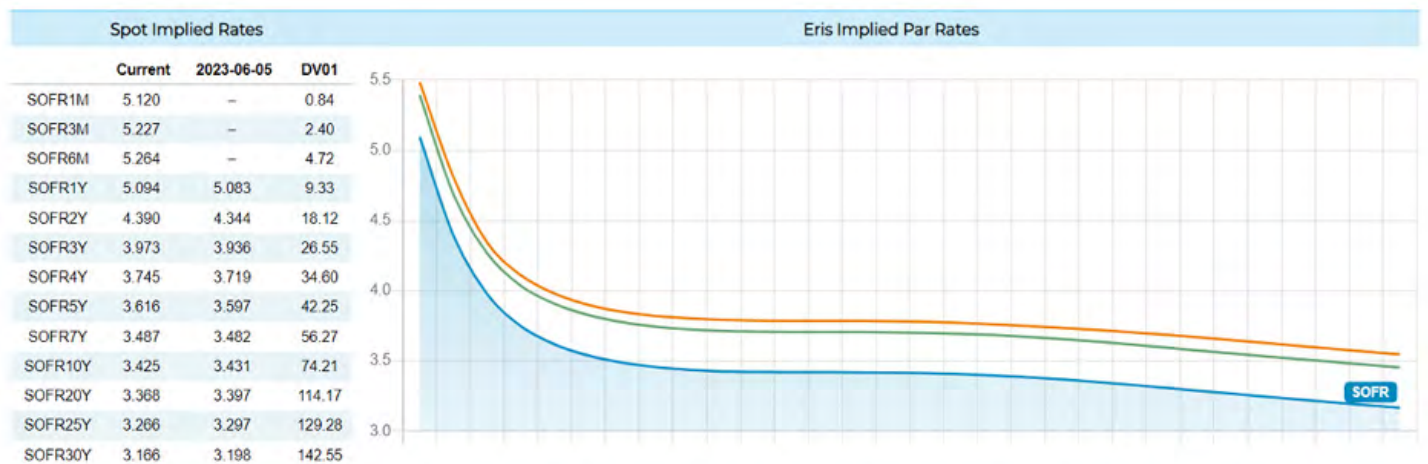
Source: CME Group, Eris

The daily availability of these A, B, and C price components (including clean, A, and B accrual adjusted price components) allows reporting users to separate Eris position gains or losses into i) coupons, which are treated as income/expense for the reporting period, and ii) changes in swap Net Present Value (NPV), which would be treated as unrealized gains or losses (or Accumulated Other Comprehensive Income/AOCI) for the reporting period and flowing to income in future years.

In a nutshell, Eris contracts deliver all the benefits of exchange listed products, while providing the ability to assign Eris positions as medium- to long-term hedges.

Eris futures on SOFR rates are offered for 11 different tenors, one year through 30 years, and unlike traditional futures, which expire quarterly, Eris contracts remain listed futures for the entire life of the underlying swap.

Exhibit 4: Live Eris® Swap Par Rate Curve



The market data displayed above represents live, executable bids and offers for Eris Swap Futures trading on the CME Globex electronic trading platform, and cleared through CME Clearing. Quotes are shown during CME Globex market hours (Sunday 6pm to Friday 5pm ET, with a 90-minute break each day from 5pm to 6pm ET). Par Rate Equivalents (ParRateEqvnt) are calculated using a methodology which uses subjective inputs, including PV01s (change in value of a contract for a 1bp change in the fixed rate). Bars represent quoted contracts. Widget version e0eed3aaca6e. Data last updated on June 6, 2023 at 3:34:41 PM EDT.

Source: Eris. Data as of June 5, 2023.

Prices for Eris futures can be viewed on the Eris live markets [landing page](#) and theoretical mid prices of off-the-run contracts that are past the effective date of the swap and accruing may be viewed on the [Eris contract lookup tool](#). These off-the-run mid prices are derived from a curve that is calibrated to reprice the mid prices of the executable prices of the current on-the-run, front contracts that are quoted and trading on CME Globex. Live executable pricing and clarity of risk via DV01 make execution and management of interest rate risk very easy with Eris SOFR contracts.

Exhibit 5: Live Eris® Futures Prices

Tenor	Ticker	Swap Maturity	Coupon (%)	TotalBid Qty	Bid Qty	Bid%	Bid	Ask	Ask%	AskQty	TotalAsk Qty
1	YIAM23	Jun 21, 2024	4.500	5271	1510	5.077	99.4625	99.4725	5.067	2520	4681
2	YITM23	Jun 21, 2025	3.750	3451	1700	4.359	98.8750	98.8875	4.353	660	3111
3	YICM23	Jun 21, 2026	3.500	2611	250	3.949	98.7850	98.8000	3.944	595	2406
4	YIDM23	Jun 21, 2027	3.250	2311	660	3.729	98.2900	98.3200	3.721	250	2061
5	YIWM23	Jun 21, 2028	3.250	2542	1691	3.603	98.4500	98.4800	3.596	175	2255
7	YIBM23	Jun 21, 2030	3.000	812	800	3.477	97.1400	97.2000	3.467	800	812
10	YIYM23	Jun 21, 2033	3.000	1112	850	3.418	96.5800	96.6400	3.411	50	1202
1	YIAU23	Sep 20, 2024	5.000	202	200	4.771	100.2100	100.2300	4.750	100	201
2	YITU23	Sep 20, 2025	4.500	200	100	4.095	100.7425	100.7725	4.079	100	200
3	YICU23	Sep 20, 2026	4.000	201	200	3.755	100.6600	100.6950	3.742	100	200
4	YIDU23	Sep 20, 2027	3.750	101	100	3.582	100.5900	100.6500	3.566	100	101
5	YIWU23	Sep 20, 2028	3.750	535	235	3.487	101.1500	101.1900	3.478	100	535
7	YIBU23	Sep 20, 2030	3.500	102	100	3.401	100.5800	100.7000	3.381	100	102
10	YIYU23	Sep 20, 2033	3.500	282	100	3.354	101.1800	101.2600	3.344	50	301

Source: Eris. Data as of June 5, 2023.

OTC swap valuations require strong discipline, rigorous operational standards, and can have many permutations that one needs to clearly understand to fully value the nuances of both typical and bespoke interest rate swaps. By contrast, the standardization of quarterly listings and complete valuation standards of Eris futures make daily settlement valuations much easier and less subject to misunderstanding. In a manner like how cleared OTC swaps are valued, the entire catalog of on-the-run and off-the-run (past the swap effective date and accruing) Eris SOFR contracts are valued on a SOFR discount curve that is calibrated to re-price the 3:00 p.m. EST order book mid prices of Eris SOFR contracts.

Transparency, CLOB trading, ease of pricing, and removal of bilateral counterparty risks are present for a margin effective interest rate product. The ease of Eris futures is made more evident when using the contract [lookup tables](#) that provide a further refined view of markets, Eris component prices and maintenance margin. For example, the Five-Year Eris SOFR futures for September 2023 is shown in Exhibit 6. There you can see all the key details of the contract's price, markets, liquidity, risk, and margin. Notably, one may view where the market is valuing the NPV of the underlying five-year (9/20/23-9/20/28) 3.75% fixed vs. overnight SOFR swap. Additionally, with a notional amount of \$100,000 and a margin amount of \$1,550, the margin percentage is currently 1.55%. With comprehensive risk and pricing analytics combined with executable levels for Eris SOFR swap futures, the pre-trade to execution function is vertically integrated for simple execution. Furthermore, executing Eris SOFR swap futures on Globex or via block trades provide executional benefits compared to OTC swaps. One example is the anonymous nature of trading that reduces information slippage and improves market impact. With so many benefits, Eris swap futures are a growing leader in the leveraged investor community.

Exhibit 6: Eris® Swap Pre-trade Analysis and Margin Disclosure

5Y Sep 2023-2028 SOFR		3.750	2023-09-20	2028-09-20	\$1,550	0.0	0.0280537104	100	101.2100	101.2600
Contract Code	YIWU23									
Short Name	5Y Sep 2023-2028 SOFR									
Coupon Rate	3.750									
Margin	\$1,550									
Open Interest	100									
Bloomberg Code	YIWU23									
Forward Period	0.3 year(s)									
First Fixing Date	2023-09-20									
Effective Date	2023-09-20									
Cashflow Alignment Date	2028-09-20									
Maturity Date	2028-09-22									
Price Type	NPV	Futures Price	Par Rate	PV01	DV01					
Best Ask	1,288.1	101.2600	3.462	44.79	45.63					
Best Bid	1,238.1	101.2100	3.474	44.79	45.63					

Prices as of 2023-06-06 4:15:06 PM EDT

Source: Eris. Data as of June 6, 2023.

Margin Benefits of Hedging with Eris® SOFR Swap

Materially lower margin requirements between cleared OTC swaps and Eris swap futures give investors two valuable choices: hold a larger cash buffer or allocate more funds to investments. Current margin levels are presented below.

Exhibit 7: Hedging Instrument Margin Requirements

HEDGING INSTRUMENT/ TENOR	5Y	7Y	10Y
OTC SWAP MARGINS DETERMINED BY CME CORE MODEL	3.10%	4.00%	5.20%
ERIS SOFR MARGINS PUBLISHED IN CME SPAN MARGIN TABLES	1.45%	1.75%	2.53%

Source: CME Group. Margin Calculations are subject to change.

- Exhibit 8 illustrates the impact of reduced margins. Assume a hypothetical leveraged investor has \$100 million of investments. For simplification we are agnostic to the capital formation methods such as debt versus equity or leverage. The investor determines that his portfolio has a duration similar to a 3.5 UMBS TBA 30-Year futures that requires a seven-year hedge and assesses using a seven-year OTC swap or seven-year Eris SOFR position in a notional equivalent to the asset notional; \$100 million.

Example 1

Investor increases assets invested by over two percent. The lower margin levels for Eris SOFR compared to the equivalent cleared OTC swap results in more cash available for investment when using Eris SOFR.

Example 2

- Whether hedged with cleared OTC swaps or Eris SOFR, the investor carries the same amount of total invested assets.
- Lower margin levels for Eris SOFR compared to the equivalent cleared OTC swap results in a much larger cash buffer using Eris SOFR. This acts as a valuable liquidity buffer against adverse price movements in the invested assets.

Exhibit 8: Eris® SOFR Swap Future Hedging Example

Example 1: Increase investments with Eris savings	Cleared OTC Swap	Eris SOFR Swap Futures
Investable Cash	\$100,000,000	\$100,000,000
Margin (7y tenor swap hedged)	\$3,846,154	\$1,719,902
Total Assets Invested	\$96,153,846	\$98,280,098
Increase in invested assets - increases return		102.2%
Example 2: Increase liquidity buffer with Eris savings	Cleared OTC Swap	Eris SOFR Swap Futures
Investable Cash	\$100,000,000	\$100,000,000
Margin (7y tenor swap hedged)	\$3,846,154	\$1,682,692
Total Assets Invested	\$96,153,846	\$96,153,846
Excess liquidity - increases liquidity buffer		\$2,163,462
		2.25%

Source: Source: CME Group, Eris

Bringing It Together

CME Group offers Eris SOFR Swap futures contracts to help clients like REITs effectively manage their critical interest rate risk. With ease of access, low margin costs, simple and accessible analytics, transparent and efficient execution, Eris® SOFR Swap futures are the hedging tool of choice for leveraged investors.

Appendix: Eris® SOFR Swap Futures: Contract Specifications

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</p> <p>Daily compounded interest rate determined from SOFR fixings during the Accrual Period</p> <p>d = total days in the payment period</p> $\left[\prod_{i=1}^{d_0} \left(1 + \frac{\text{SOFR}_i \times n_i}{360} \right) - 1 \right] \times \frac{360}{d}$ <p>SOFR_i = SOFR fixings during the interest period</p> <p>n_i = number of interest accrual days for the SOFR_i fixing period</p> <p>* 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										

References

1. IRS §1256 instruments by default are marked-to-market and taxed annually as 40% short-term/60% long-term capital gains.



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.

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