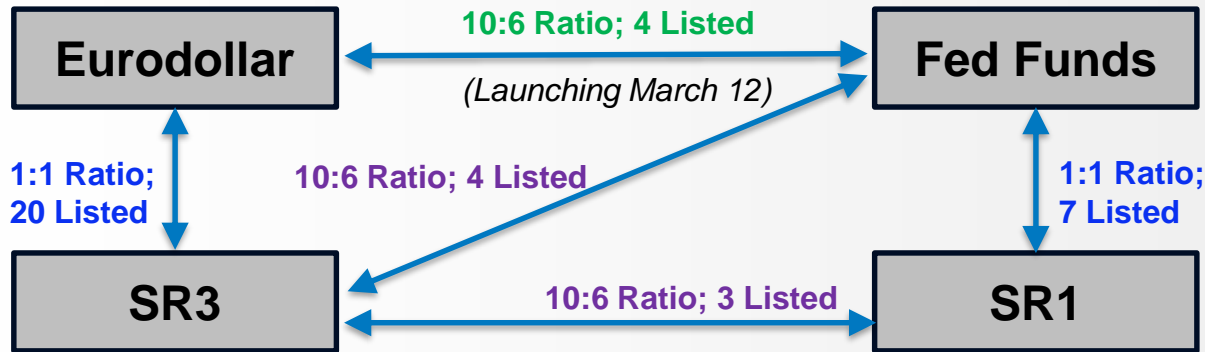


Short-Term Interest Rate (STIR) Intercommodity Spreads on Globex

*Including the Eurodollar – Fed Funds Spread,
and spreads involving SOFR Futures*

CME Group Short Term Interest Rate Inter-Commodity Spreads



Spread Weightings

- Fed Funds and 1-Month SOFR Futures are \$41.67 DV01 contracts
- Eurodollars and 3-Month SOFR Futures are \$25 DV01 contracts
- To balance DV01 weighting, spreads between instruments with different DV01s will be weighted to have 6:10 leg ratios to balance the corresponding \$41.67 : \$25 DV01s
- For weighted spreads, Legs are arranged to match exposures between IMM dates: 1 quarterly Eurodollar or 3-Month SOFR Future spread against the next 2 Fed Fund or 1-Month SOFR Futures contract months (i.e. 3 April FF + 3 May FF vs. 10 March ED)

Globex Symbol Example	Spread Symbol	Implied Y/N	Front Leg	Back Leg	Leg Ratio	Launch Date
ZQJ8K8-GEH8	EF	No	Fed Funds	Eurodollars	(3+3) : 10	March 12
SR3H8-GEH8	IS	Yes	SOFR 3-Month	Eurodollars	1:1	May 7
SR1H8-ZQH8	IS	Yes	SOFR 1-Month	Fed Funds	1:1	May 7
SR1J8K8-SR3H8	EF	No	SOFR 1-Month	SOFR 3-Month	(3+3) : 10	May 7
ZQJ8K8-SR3H8	EF	No	Fed Funds	SOFR 3-Month	(3+3) : 10	May 7

STIR Spread Pricing Examples

Pricing Conventions

Spread quoted as the yield difference between the component rates, closely mirroring OTC market conventions

Spread Price = (Average Front Leg Price) – Back Leg Price

Spread Price = Back Leg Implied Rate* – (Average Front Leg Implied Rate)

Leg Prices

March		April		May	
ZQH8	98.455	ZQJ8	98.450	ZQK8	98.435
SR1H8	98.550	SR1J8	98.500	SR1K8	98.500
GEH8	98.245				
SR3H8	98.330				

Spread Prices

Globex Symbol Example	Front Leg	Back Leg	Ratio	Spread Price with Above Leg Prices
ZQJ8K8-GEH8	Fed Funds	Eurodollars	(3+3) : 10	0.1975
SR3H8-GEH8	SOFR 3-Month	Eurodollars	1:1	0.0850
SR1H8-ZQH8	SOFR 1-Month	Fed Funds	1:1	0.0950
SR1J8K8-SR3H8	SOFR 1-Month	SOFR 3-Month	(3+3) : 10	0.1700
ZQJ8K8-SR3H8	Fed Funds	SOFR 3-Month	(3+3) : 10	0.1125

* “Implied Rate” means the reference rate R implied by the 100-R quoting convention

STIR ICS Blocks

STIR Block Rules:

<http://www.cmegroup.com/rulebook/files/cme-group-Rule-526.pdf>

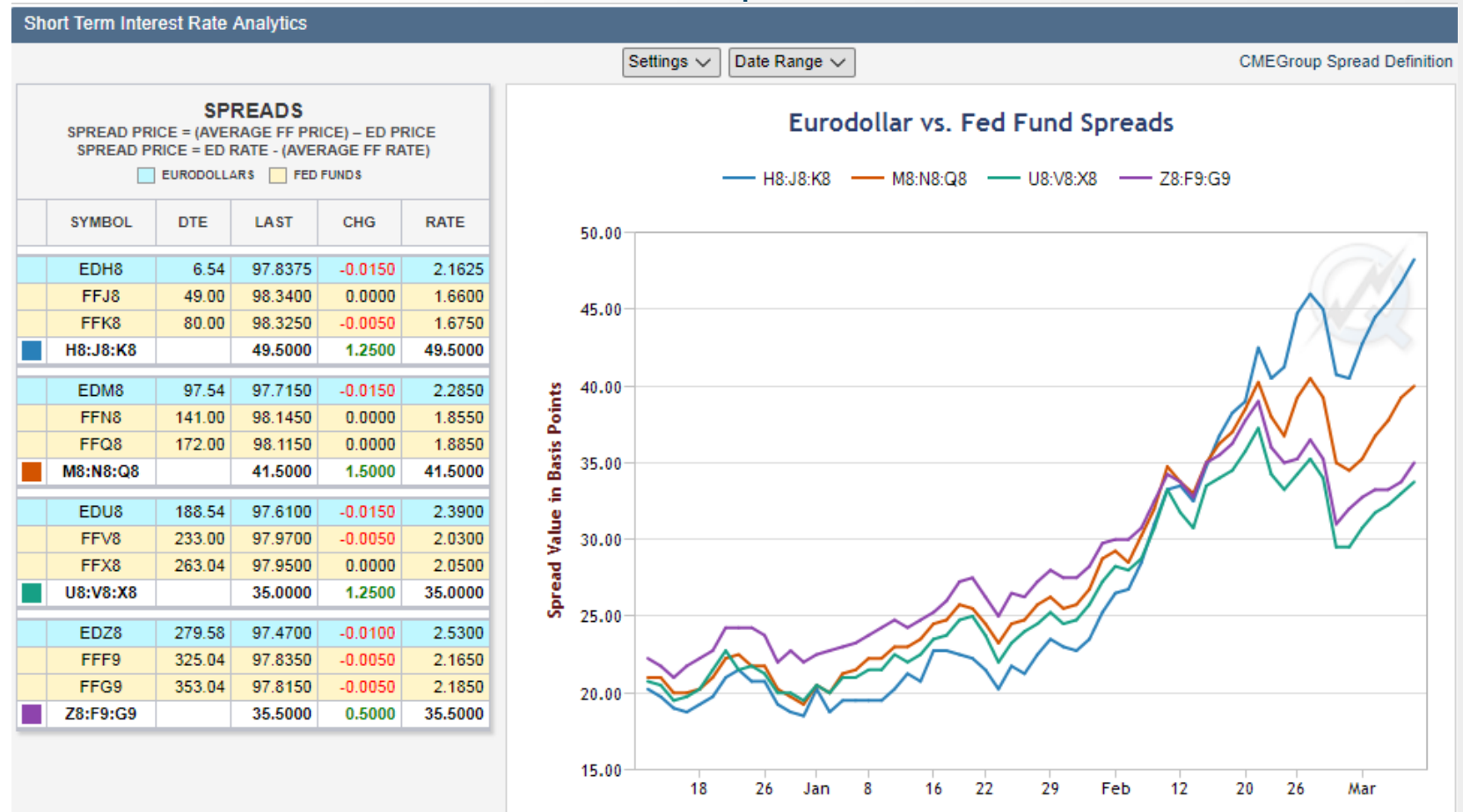
In Short Term Interest Rate futures, inter-commodity futures spreads may be executed as block trades provided the sum of the legs of the spread meets the larger of the threshold requirements for the underlying products. For example, the minimum quantity thresholds for One-Month Eurodollar and Eurodollars during ETH are 200 and 2,000 contracts, respectively. Therefore, a block trade in the One-Month Eurodollar/Eurodollar spread can be executed provided the sum of the legs is at least 2,000 contracts.

Specifications for Inter-Exchange Blocks:

Participants may conduct blocks between spread instruments on different exchanges (i.e. CME and CBOT) and beginning September 2018 these can be submitted to ClearPort as a single transaction.

STIR Analytics Tools

- STIR Spreads Tool: www.cmegroup.com/stiranalytics
- Displays synthetic price history, end-of-day settlement, and implied rates
- Will be enhanced to include SOFR spreads after launch



Spread Design for “EF” Spread Type

Design Principles

- Fed Funds vs Eurodollar ICS: 10:6 ratio achieves DV01-neutrality. \$250 per basis point on both sides of the spread
- Spread weights = $10 \times (3+3)$ for $ED_1 \times (FF_2+FF_3)$
- Legs arranged to match exposures between IMM dates, 1 quarterly Eurodollar Future spread against the next 2 Fed Fund Futures contract months

Expiration Month	Fed Funds Leg Quantity	Eurodollar Leg Quantity
March		10
April	3	
May	3	
June		
DV01/Contract	\$41.67	\$25.00
Total DV01	\$250.02	\$250.00

Pricing Conventions

Spread quoted as the yield difference between the LIBOR and Fed Funds Rate, closely mirroring OTC market conventions

Spread Price = (Average FF Price) – ED Price

Spread Price = ED Rate – FF Rate

Example Trade Structure, Buy 1 Spread

Product	Action	Qty	Month	Price
Eurodollar	Sell	10	Mar	98.245
Fed Fund	Buy	3	Apr	98.450
Fed Fund	Buy	3	May	98.435

$$\begin{aligned} \text{Trade spread} &= 19.75 \text{ basis points} \\ &= \frac{(98.450 + 98.435) - 98.245}{2} \end{aligned}$$

Prices as of December 13, 2017 settlements

Implementation Details for Eurodollar-Fed Funds

Launch Date	March 12, 2018
Expiry Months Listed	Nearest 4 Quarterly Months (those in the Mar, Jun, Sep, Dec schedule) e.g. on launch there will be spreads vs. EDH8, EDM8, EDU8, and EDZ8
Min. Tick Increment	0.25 basis point
Match Algorithm	Pro-Rata
Implied Matching	The ED-FF spread will not be implied with the outright Eurodollar and Fed Fund Futures books
Product Group	ZQ
Transaction Fees	Like most spreads at CME Group, the trade is broken down into legs post-trade inside clearing (and on position statements), and fees are therefore assessed on the leg-level rather than on the spread itself. Fees will reflect any relevant memberships, i.e. a participant that is a member of CME but not CBOT would pay the member rate for the Eurodollar Futures legs and the non-member rate for the Fed Fund Futures legs.
Market Data	Market Data for the spread will go down CBOT Market Data channel 348 (Market Segment ID 82). Participants with access to this channel will therefore have access to the spread.
Blocks	Participants may conduct blocks between Eurodollar Futures and Fed Fund Futures, but will need to submit the trades to ClearPort as 2 separate transactions. Accordingly, transactions will need to meet the threshold for both products separately (e.g. 4,000 ED vs. 2,400 FF).

X	CC	Product	Description	Status	+	Qty	Bid	Ofr	Qty
- STIR Futures									
x	ZQ/GE	30 Day Federal Funds Future/Eurodollar Future	+3 ZQ Jul18-Aug18, -10 GE Jun18 [AVG]	Open	+ -	25	H 0.2950	0.3000	L 10
						150	H 0.2925	0.3025	L 25
								0.3050	L 150

Trading Symbols: Fed Funds vs. Eurodollar ICS

Platform	Symbol Example
CME Symbol	ZQJ8K8-GEH8
Fidessa	ZQ_SZQJ8K8_GEH8.CB
Trading Technologies	ZQ GE
Bloomberg	FFED Comdty <GO>

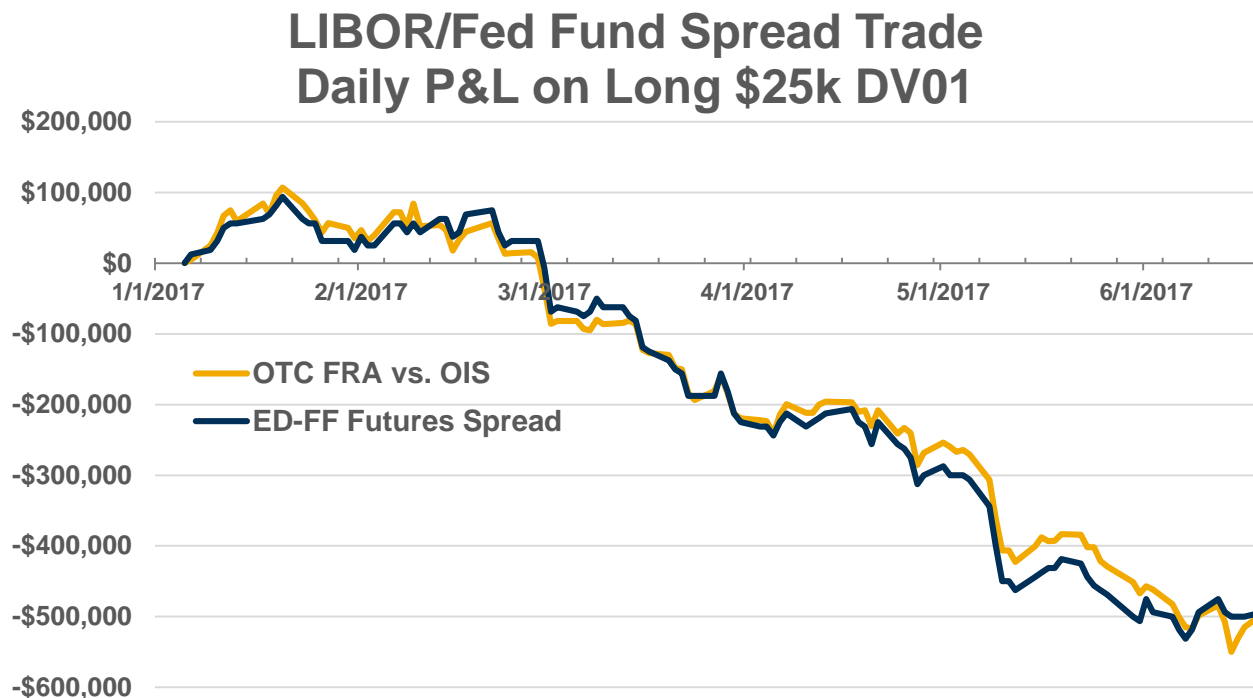
Finding the Spread on CME Direct

The screenshot displays the CME Direct search interface. On the left, the 'Tab name' is 'SOFR/STIR', 'Search' is 'ZQ', and 'Product category' is 'STIR Spreads'. The 'Product' dropdown is open, showing 'Interest Rates (CBOT)' and 'Interest Rates (CME)'. Under 'Interest Rates (CME)', 'STIR Spreads' is highlighted with a blue box. Below this, 'Available Items' lists various SOFR products, with '1-Month SOFR' and '3-Month SOFR' visible. On the right, 'Venue' is 'Exchange', 'Strategy' is 'All', 'Term type' is 'All', and 'Terms' are 'All, out' and '5 Years'. The 'Selected Items' table at the bottom right contains the following entries:

Selected Items	Roll
1-Month SOFR/Fed Fund Future Spread 1:1 (SR1/ZQ)	
1-Month SOFR Future	
3-Month SOFR Future	
SONIA	
3-Month SOFR/Eurodollar Future Spread 1:1 (SR2/GE)	

Comparison with OTC Markets

The below chart shows that the ED-FF Futures Spread would closely track the P&L on a comparable OTC position



Futures Position

Short 1,000 EDM7

Long 300 FFN7; 300FFQ7

Opened on 1/5/2017

OTC Position

PAY FRA, eff. date 6/21/2017, end date 9/21/2017

REC OIS, eff. date 6/21/2017, end date 9/21/2017

Both legs struck at par on 1/5/2017, \$996M notional

Resources

For more information, contact the Interest Rate Products team:

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