

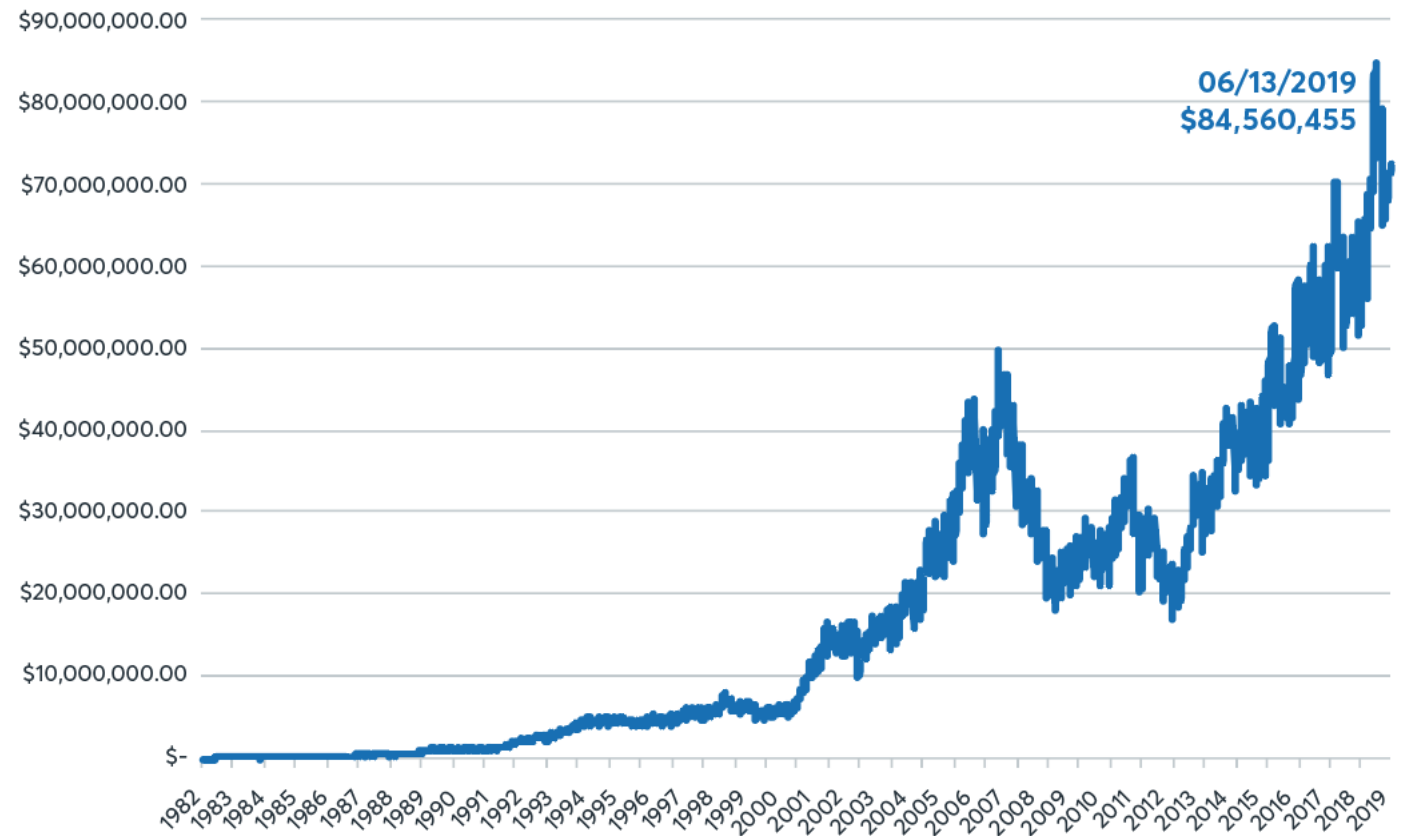
LIBOR Fallback Proposal for CME Eurodollar Futures and Options

CME Eurodollars

- Debuted in 1981, Eurodollar futures and options have grown throughout periods of different interest rate environments and market structure changes
- Eurodollar futures and options remain the most flexible, highly traded, and widely referenced of the listed interest rate derivatives products in the global marketplace
- As SOFR adoption accelerates, we offer clients liquid SOFR futures and options markets to provide product choice for hedging and risk management needs

Eurodollar futures and options historical open interest

(\$M representative notional)



LIBOR Fallbacks - Background

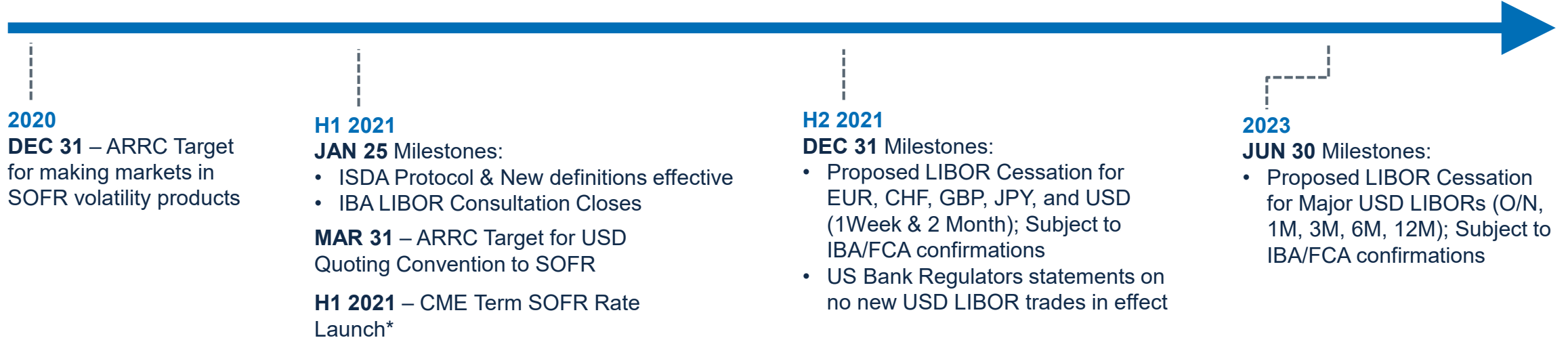
- In June 2017 the Alternative Reference Rate Committee (ARRC) endorsed SOFR as the designated alternative reference rate for USD interest rates and as the successor rate to ICE LIBOR
- Global markets have made significant strides to develop and adopt SOFR based products
 - May 2018 CME launched futures on the SOFR benchmark
 - January 2020 CME launched options based on SOFR futures
 - October 2020 CME completes the SOFR discounting transitions that modified all cleared USD OTC swaps to be discounted and remunerated vs the SOFR curve
- **In December 2020 ICE Benchmark Administration (IBA) launched a consultation proposing cessation of USD LIBOR on June 30, 2023**
 - The closing date of the consultation is January 25th, 2021

CME SOFR futures market participation

2020 ADV	51,000	Total # of participants	500+
November ADV	86,000	Large OI Holders	170
Record single-day volume	240,000	Total OI	>700K
		Total OI as notional	\$1.5 Trillion

Participants who have transacted in CME SOFR contracts represent over 85% of the current volume that transacts in CME Eurodollars

SOFR 2021



- IBA and FCA could communicate update sometime after IBA consultation closes on Jan 25th.
- A Fallback Trigger sets the calculation period for the ISDA fallback spread. However, the IBA consultation proposes the effective cessation date of USD LIBOR publication as June 30th, 2023.
- Prior to effective cessation date, all CME Eurodollars will continue to final settlement vs 3-Month USD LIBOR.
- If there is no trigger event 3-Month USD Libor will continue to be published and CME Eurodollar futures and options will continue to trade.

* CME Term SOFR Rate launch subject to Legal and Governance work and necessary approvals

LIBOR Fallbacks

ISDA & CME Fallbacks alignment

ISDA Fallbacks (OTC)*

After several consultations, ISDA's final framework comprises three chief elements:

- **Fallback Triggers:**
 - Public statement by benchmark administrator (e.g., IBA Ltd for LIBOR) or regulatory supervisor (e.g., UK FCA) which states that (a) the administrator has ceased or will cease to provide the relevant LIBOR permanently or indefinitely, and there is no successor administrator, or (b) the rate is or will be 'non-representative'. Fallback occurs on effective date of cessation / non-representativeness
- **Replacement rate is the term and spread adjusted RFR:**
 - Calculation of the LIBOR fallback value is based on the floating rate benchmark value based on the designated alternative risk-free interest rate (RFR) (e.g., SOFR for USD LIBOR), subject to ISDA's term and spread adjustment methodology informed by ISDA's consultations:
 - **Term adjustment:** 'compounded setting in arrears rate', i.e. the RFR over the relevant LIBOR tenor, compounded daily
 - **Spread adjustment:** 'historical median approach', i.e. the median of the historical differences between the LIBOR for each tenor and the compounded RFR for that tenor over a five-year period prior to the relevant fallback trigger event.

$$\text{ISDA USD LIBOR Fallback rate} = \text{SOFR compounded in-arrears} + \text{ISDA Spread adjustment}$$

CME Proposed Fallbacks (F&O)

Based on consultation with our customers and the goal to retain alignment with cleared and uncleared OTC and cash markets, CME has developed the following proposals, which remain subject to regulatory approval:

- **Fallback for 3M Eurodollar Futures:**
 - Given the alignment between periods of interest rate risk in ED futures and SR3 futures with the same IMM periods, we propose to assign one SR3 futures contract to replace each ED futures contract (which shall be terminated), with the assignment price determined using the formula below.
- **Fallback for options on 3M Eurodollar Futures:**
 - At the same time as the Eurodollar fallback transition, CME Clearing proposes to affect a one-time reassignment of open interest in remaining Eurodollar options. Remaining positions would be converted into corresponding options on SR3 futures through a simultaneous two-step conversion process (methodology to be published by CME):
 1. Eurodollar options inventories would be mapped to a corresponding non-standard SOFR Options strike calculated by adding the ISDA fallback spread adjustment to the original ED Option strike.
 2. Positions would then be allocated to the nearest optimal standard strike(s).

$$\text{SR3 Futures assignment price} = \text{ED Futures price} + \text{Spread adjustment (aligned with ISDA methodology)}$$

* Note that CME proposes to implement ISDA IBOR Fallbacks for OTC IRS

Eurodollar Options Fallback proposal

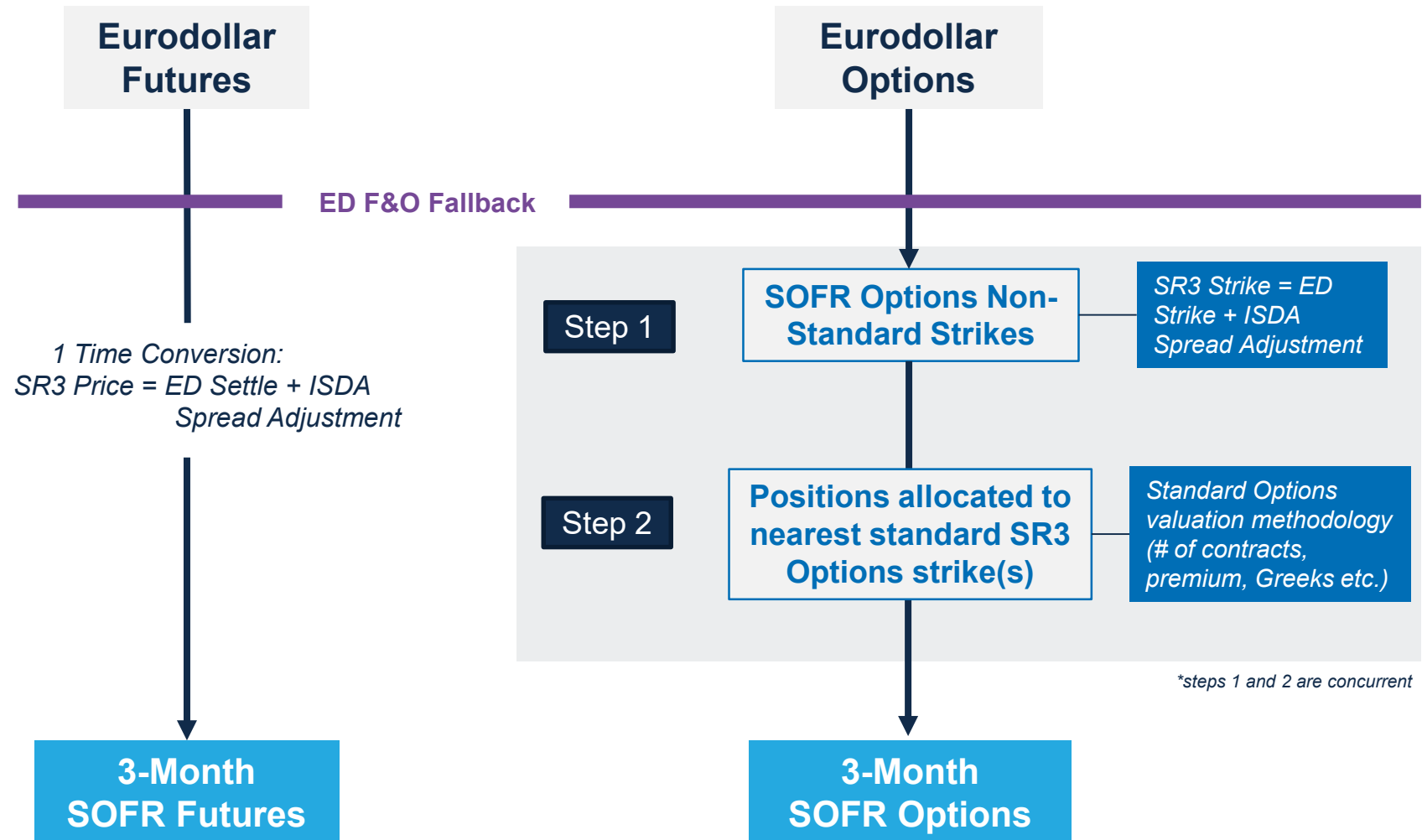
Option expiration date	Eurodollar open interest	Percent of total
June 2023 and Earlier	33,357,271	98.6%
Post 30 th June 2023* <small>*Exact date to be determined by the confirmation of an Index Cessation Event date</small>	170,828	1.4%

Current State: First listed in January 2020, 3-Month SOFR options replicate the full suite of current standard Eurodollar and Mid Curve Options listings. CME supports all necessary inter-commodity spreads between ED and SR3 options across all venues to help facilitate market-led switching prior to a fallback were it to occur. CME Group will provide additional tools and services based on market feedback.

Fallback Plan: At the same time as the transitioning of Eurodollar futures due to an Index Cessation Event, CME Clearing would affect a one-time reassignment of open interest in remaining Eurodollar Options. Remaining positions would be converted into corresponding options on SR3 futures via a simultaneous two-step conversion process.

1. Eurodollar options inventories would be mapped to a corresponding non-standard SOFR Options strike calculated by adding the ISDA fallback spread to the original ED Option strike. The resultant strike prices would very likely not align with the standard exercise price arrays (integer multiples of 12.5 basis points)
2. Positions assigned in conversion would, therefore, be allocated to the nearest optimal standard strike(s) and like contract months in CME options on Three-Month SOFR futures according to standard options valuation methodologies determined by the exchange. The methodology would be discussed with clients and made transparent before its application on the cessation effective date.

Fallback Flow Chart – Eurodollar Futures & Options



Feedback

We are eager to hear your comments and questions.

If you wish to speak with us, please contact us at InterestRate@cmegroup.com.

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Disclaimer

CME Group remains engaged with market participants, industry bodies and regulatory authorities regarding IBOR fallbacks, and will continue to promote industry standards for the orderly transition from IBORs to corresponding alternative reference rates as and when transition may be required. We reserve the right to make necessary adjustments to our proposed approach based on, among other things, consultations with our clients. We will continue to keep all participants informed throughout the process

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