

LIBOR Transition: Announcement Risk and Compression Auctions

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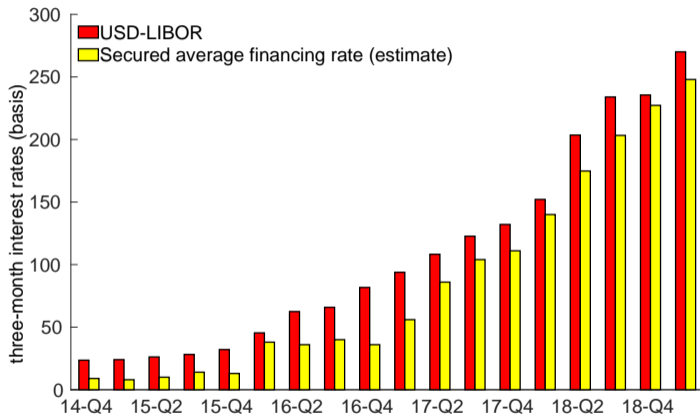
Planning for the End of LIBOR
Cass Business School, London, June 2019

With the research assistance of David Yang

Major Transition Progress

- 1 FCA will not compel banks to produce LIBOR after 2021.
- 2 Working group on euro risk-free rates: Same target timing for transition to €str.
- 3 SOFR, SONIA, and SARON are robust and increasingly referenced benchmarks.
 - SONIA is now the dominant reference rate for GBP floating rate notes.
 - Over 72 notes referencing SOFR, totalling over \$80 billion.
 - CME open interest in SOFR futures approaching \$500 billion.
- 4 Significant progress in the design of LIBOR fallbacks.
- 5 Coming next: new-rate discounting of derivatives by clearinghouses, final fallback designs, term new-rate benchmarks, announcement of IBOR cessation dates, IBOR cessations.

3mo LIBOR and compounded SOFR (estimated)



Data: FRBNY and Bloomberg.

Likely fallback designs

- ▶ For LIBOR derivatives, LIBOR is replaced with the sum of (a) compounded new overnight rate (CNOR) and (b) the average or median of the spread between LIBOR and CNOR over the previous n quarters (ISDA).
- ▶ For LIBOR cash products, LIBOR is replaced with the sum of (a) term new-rate benchmark and (b) the average or median of the spread between LIBOR and CNOR over the previous n years.
- ▶ EONIA will likely be replaced with €str plus a small fixed spread.
- ▶ EURIBOR might be replaced with term €str plus a fixed spread.

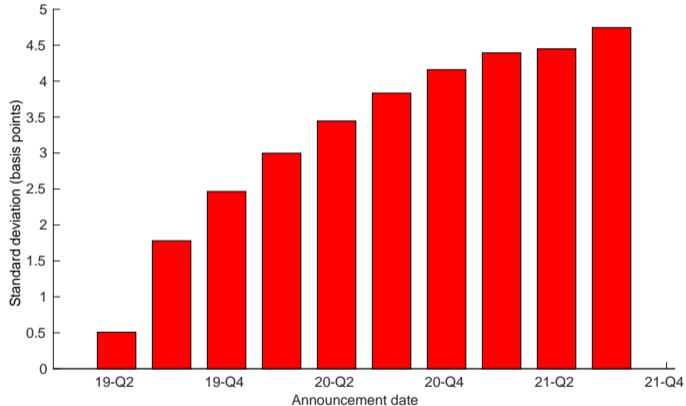
Some significant challenges remain

- 1 The development of liquidity in long term new-rate products.
- 2 Potential jumps in value when the IBOR cessation date is pre-announced.
 - The magnitudes of value jumps are reduced by pre-announcing the cessation date as far in advance as possible.
- 3 Potential difficulty with fallback design and conversion for some product types:
 - option-embedded products.
 - securitizations.
 - in-arrears swaps.
- 4 Conversion of legacy long-term IBOR products into new-rate products before the long-term new rates are liquid.
 - For swaps, auctions can prime the price discovery and development of liquidity.

Jump risk when the LIBOR cessation date is pre-announced

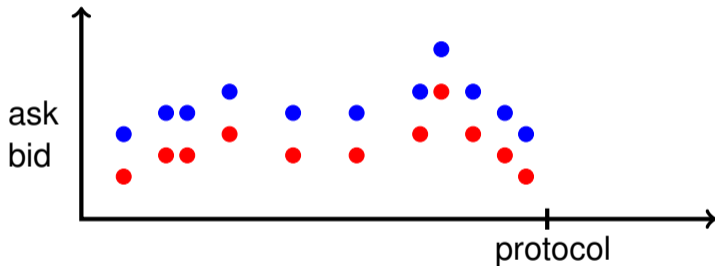
- ▶ Let S_t be the LIBOR-CNOR spread, whose dynamics we estimate as a first-order autoregressive process.
- ▶ Given some cessation date T , let D_T be the difference between the LIBOR-CNOR spread S_T and the fallback spread $n^{-1} \sum_{i=1}^n S_{T-i}$.
- ▶ Let $\tau < T$ be the date on which the cessation date T is announced.
- ▶ Let $\bar{D}_{\tau,T} = E(D_T | S_\tau, T = Q1, 2022)$, and let σ_τ be the standard deviation of $\bar{D}_{\tau,T}$ given information in May, 2019.
- ▶ The risk of the jump in market value on the announcement date of an FRA settling on the cessation date T is related to σ_τ .

Announcement of LIBOR cessation: Vol of spread change

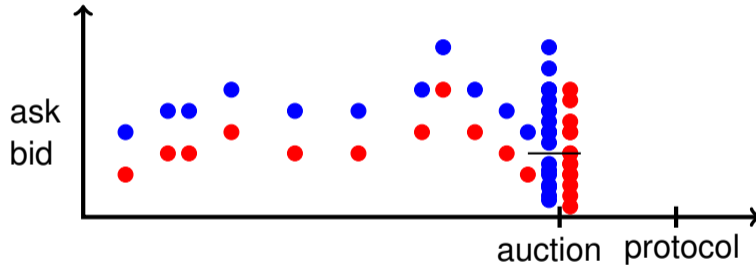


Preliminary estimate of the standard deviation at May 2019 of the announcement-conditional expected difference between LIBOR-SAFR at cessation (assuming end of 2021), and the fallback spread based on $n = 8$ lagged quarters.

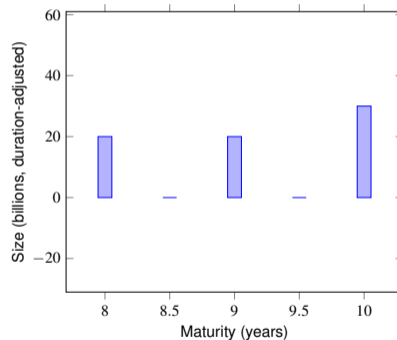
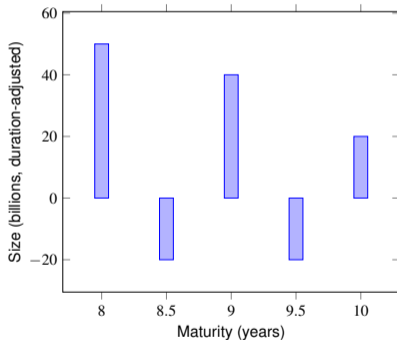
New-rate swap market liquidity is limited at any point in time



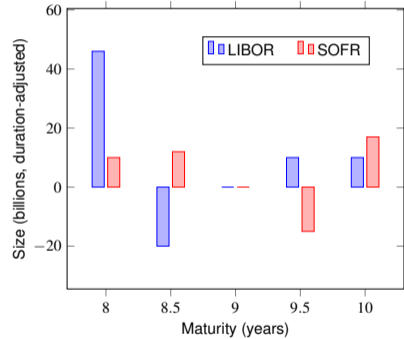
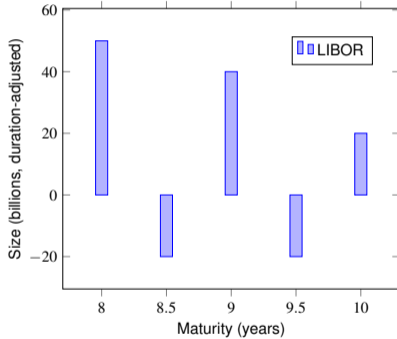
Market depth can be increased by adding auctions



Example: Dealer's LIBOR swap positions before and after conventional compression



LIBOR and SOFR swap positions before and after compression



Example bids and offers in a compression auction

	LIBOR offer	LIBOR bid	SOFR offer	SOFR bid
8 years	310.1	310.0	290.1	289.9
8.5 years	312.5	312.3	292.2	292.0
9 years	315.4	315.2	295.5	295.3
9.5 years	324.3	324.1	305.0	304.8
10 years	330.1	329.9	311.8	311.6

(bids and offers in basis points)

Overview of a compression-conversion auction design

- ▶ Each participant submits:
 - 1 A list bid and offer rates for LIBOR swaps, by maturity.
 - 2 A list of bid and offer rates for SOFR swaps, by maturity.
 - 3 Risk tolerances for changes in duration (both LIBOR and net), by maturity bucket.

- ▶ The CCP (or its agent) solves an optimization problem: Find the allocation of LIBOR and SOFR swaps to bidders that minimizes a weighted sum of gross notional LIBOR and total gross notional SOFR, subject to:
 - 1 compatibility with all bid and offer rates and all risk tolerances.
 - 2 market clearing: exact CCP balanced positions for each swap type, each maturity.
 - 3 budget balance: possibly allowing for balanced up-front payments if a discriminatory-price auction format.