SOFR So Good

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Idiós Libor!

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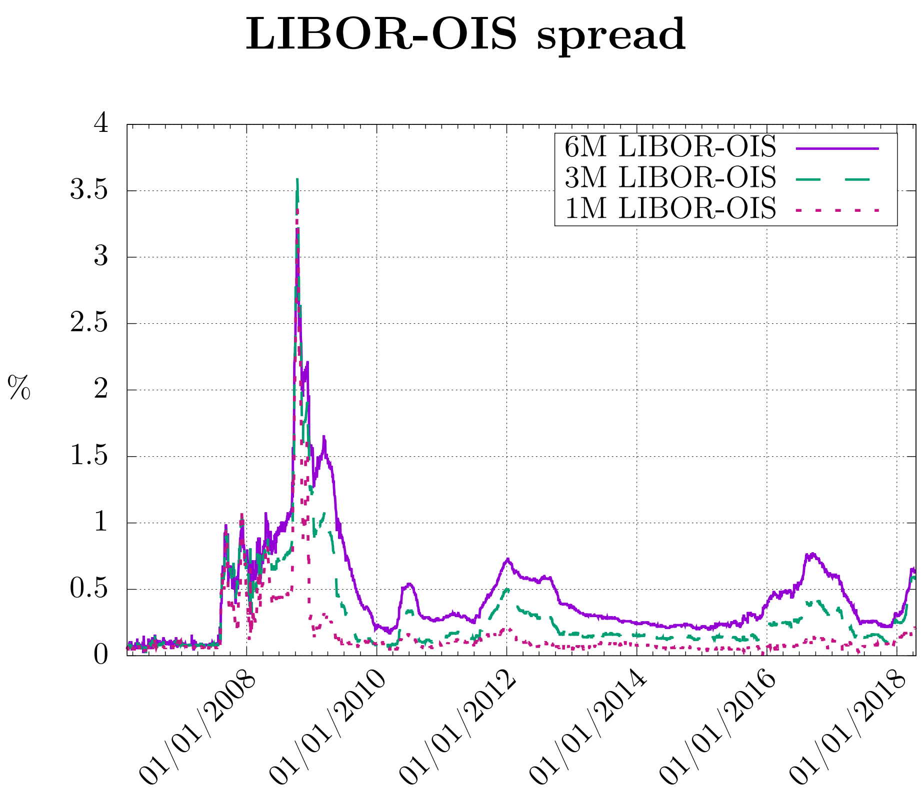
but...why?

Libor is not risk-free



Libor is not transaction-based

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Note:

- Libor is a bank's perception of its funding cost. It does not represent the actual funding cost.
- Libor can be easily manipulated.

It was indeed manipulated

Figure 1: “Done...for you big boy”

SOFR so good!

Farewell Libor. But, SOFR so good!

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Table 1: Reference Rates (Bloomberg, 2020)

Currency	IBOR	RFR
USD	Libor	**SOFR**
EUR	Libor/EURibor	**€STR**
GBP	Libor	**SONIA**
JPY	Libor/Tibor/Euroyen Tibor	**TONA**
HKD	Hibor	**HONIA**
CAD	CDOR	**CORRA**
AUD	BBSW	**RBA Cash Rate**
CHF	Libor	**SARON**

Err...what happen to existing contracts...?

Fallback calculation

All Libor-type rates should be replaced by its Fallback Rate (FR) as follows:

$$\begin{aligned} FR_t :=& ARR_t + SA_t && (1) \\ ARR_t \approx& \prod_{u \in \mathrm{AP}_t} (1 + \tau_u RFR_u) - 1 && (2) \\ SA_t \approx& \mathrm{Median}\big(\{L_u - ARR_u \mid u \in \mathrm{MP}_t\}\big), && (3) \end{aligned}$$

where RFR represents the risk-free rate, e.g., SOFR in the case of USD Libor. In (3), the Median Period (MP) is approximately 5 years. Once SA_t is set prior to the fixing date, it then is fixed, i.e., $SA_t = SA_{t-1}$. For the detail, you may want to refer to ISDA & Bloomberg (2020).

Concerned Products: FRN, IRS, CRS, Unfunded BtB, CMS note

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$\Rightarrow$ IRS/CRS together with the swap curves will be gone.
$\Rightarrow$ Overnight Index Swap (OIS) and its curve will come in play.

Therefore, some issues arise:

- booking OIS in MyNury
- curve change (swap curve to OIS curve)
- P&L impact

Overnight Index Swap (OIS)

Definition

OIS is a derivative that swaps the geometric sum of an overnight rate with a fixed interest rate.

Example

Let K be the fixed rate, $\{T_1, \ldots, T_n\}$ be the payment date, $\{r_t\}_{t \geq 0}$ be the overnight rate. Then the cash-flow of the payer OIS at T_i becomes:

$$\left[\prod_{T_{i-1} \leq t_i < T_i} \left(1 + \tau_i r_{t_i}\right) - 1\right] - K \tag{4}$$

Notice that OIS sets the floating amount in-arrears, while typical Libor-IRS sets that in advance.

Remark

- OIS curve is $10 \sim 20$bp below the IRS curve. There should be an impact on P&L when the risk-free rate is converted to OIS curve.
- For now, the most liquid OIS in USD markets swaps with the *Effective Federal Funds Rate* (EFFR) not with SOFR.

Bloomberg. (2020). Ibor fallback rate adjustments. *Retreived from https://data.bloomberglp.com/professional/sites/10/Frequently-Asked-Questions-on-IBOR-Fallback-Adjustments1.pdf.*

ISDA, & Bloomberg. (2020). Ibor fallback rate adjustments rule book. *Retreived from https://data.bloomberglp.com/professional/sites/10/IBOR-Fallback-Rate-Adjustments-Rule-Book.pdf.*