SOFR vs. LIBOR:

Key Differences and Resulting Challenges for a LIBOR Transition

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Discussion:

- Contrasting SOFR and LIBOR
- Using SOFR for Loan Products – Challenges and Potential Solutions
- Market Status – SOFR Based Lending
- Development of Loan Products in the Farm Credit System

Baseline: *What is a Benchmark Interest Rate?*

- Reflect the cost of borrowing money in different markets.
- Regularly updated interest rates that are publicly accessible.
- Calculated by an independent body.

"The data used to construct a Benchmark should be… anchored by observable transactions entered into at arm's length…"
(IOSCO Principles for Financial Benchmarks, 2013)

SOFR vs. LIBOR

	SOFR	LIBOR
Market Represented	Treasury Repo	Bank Unsecured Wholesale Financing
Maturity Points	Overnight Only	Overnight, 1-week, 1-month, 2-months, 3-months, 6-months and 12-months
Underlying Transactions	Overnight Repo	Unsecured Deposits, Primary Issuance CP and CD’s.
Collateral	U.S. Treasury Securities	Unsecured
Relative Market Depth	**$1 Trillion Daily**	**< $500 Million Daily**
Term Structure	No	Yes
Credit Sensitive Component	No	Yes

SOFR Loan Product Challenges

- Using an overnight rate in a market accustomed to term rates.
- Using a risk free rate in a market accustomed to a credit sensitive benchmark.
- Keeping Loan Pricing, Funding, and Hedging in Sync.
- Having the systems and capabilities to support new products with new conventions.

Overnight Rate Considerations

- SOFR based products use an average of the daily indications over the reset period (1-month, 3-months, 6-months, etc.).
- LIBOR based products “fix” the rate paid at the start of the interest period based on forward looking term rates corresponding to the reset period.
- With LIBOR – the interest due is known at the start of the payment period.
- With SOFR – whether or not the interest due for the payment period is known at the outset *depends…*

Overnight Rate Considerations

	LIBOR	SOFR – In Advance	SOFR – In Arrears
Rate Known at Start of Billing Period?	Yes	Yes	No
Bill Rate Lags Market Rate?	Possibly	Yes	No
Can Be Used for Consumer or FCS Floating Rate Loans?*	Yes	Yes	Depends*
Hedged with Cleared Derivative Products?	Yes	No	Yes

**The use of "in arrears" conventions may be appropriate for some segments like syndicated credits to capital markets participants, but present challenges for other borrower segments.*

Overnight Rate Challenges

- Gaining borrower acceptance of averaged rates.
- Having systems in place to perform the necessary computations.
- Aligning product conventions with disclosure requirements and standards.
- The “push / pull” between funding providers (market investors) and borrowers.

Market Developments and Potential Solutions

- FRBNY Published SOFR Averages (30, 90, and 180 days) and a mathematical index to derive an average for any period.

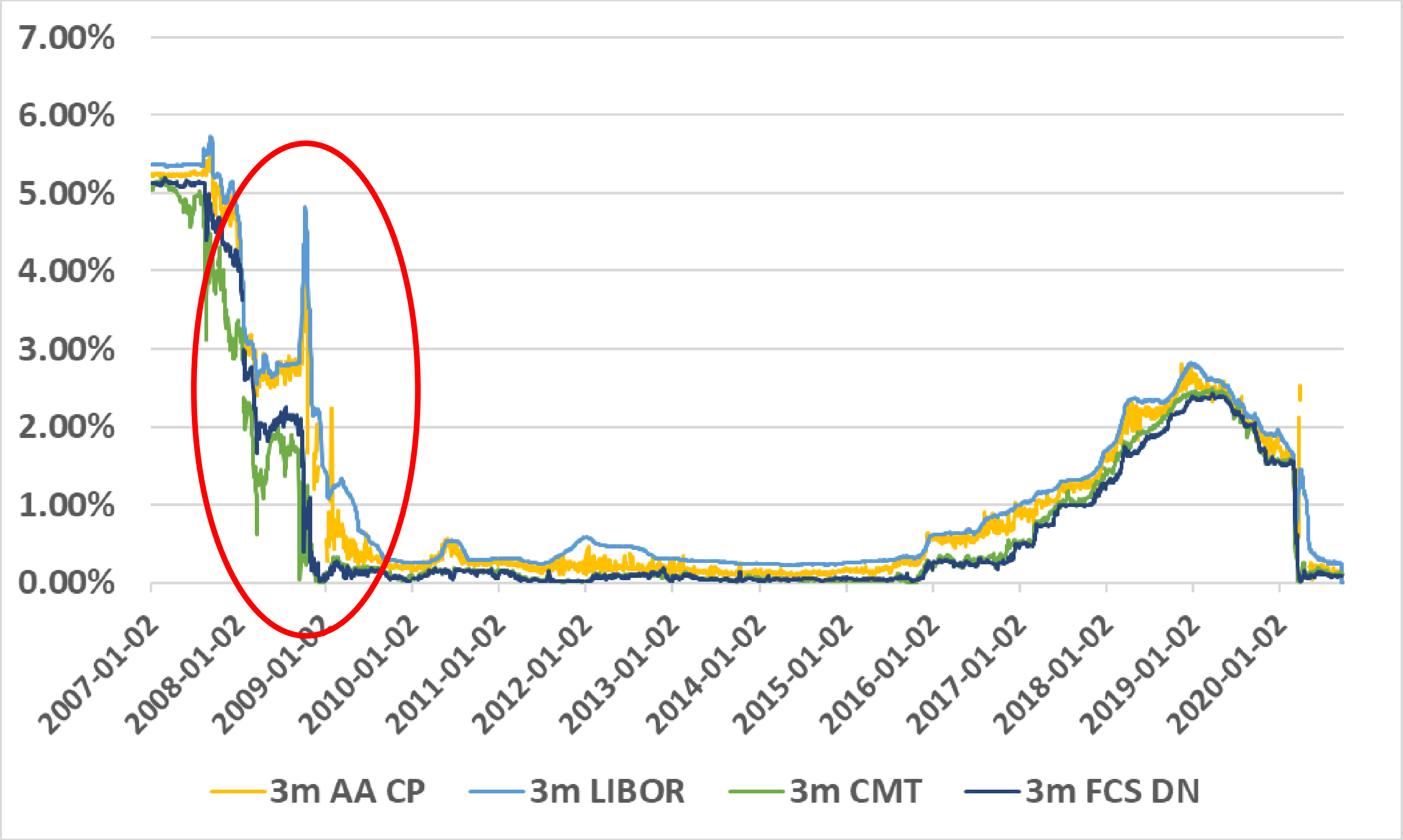
- ARRC recommended conventions (e.g., look-backs, lock-outs, etc.) for specified market segments.

- Intent to develop a Term SOFR rate.

Risk Free vs. Credit Sensitive Rates

- In theory, LIBOR allowed “cost plus” pricing, without requiring borrowers to take on exposure to the price impacts of their lender’s own specific credit risk.
- As credit spreads on bank funding increase due to economic stress, assets tied to LIBOR repriced in tandem with funding.
- SOFR reflects rates on borrowings secured by U.S. Treasury Securities – a safe haven asset during times of economic stress.
- As credit spreads on bank funding increase in times of stress, the SOFR benchmark rate will tend to decrease, dropping yields on assets tied to SOFR.

Risk Free Rate Challenges



Risk Free Rate Challenges

- Challenges in pricing SOFR based products.
- SOFR countercyclicality and potential impacts on commitment utilization.
- Balance sheet management constraints.

Market Developments & Potential Solutions

- FRBNY Private Sector Working Group to evaluate development of a credit sensitive add-on for SOFR.
- Exploration of alternative indexes for certain rate products.
- Not likely to be resolved prior to the end of 2021.

Market Status – SOFR Based Lending

- Slow to no movement to date, within the System and Broadly.

- Many lenders anticipate bringing SOFR products to market and begin SOFR based lending in the first quarter of 2021.

- Fannie Mae and Freddie Mac pushing SOFR based ARMS.

- The market may potentially move to a wider range of rates (beyond SOFR) for loan products.

System SOFR Product Development

- SOFR Based Administered Variable Rates.
- FCS 1-Month Forward SOFR Index.
- SOFR In Arrears.
- SOFR in Advance.*

Closing Thoughts

- The switch from LIBOR to SOFR is not “plug-and-play.” The differences in the rates themselves present multiple challenges to be overcome.

- System institutions continue to develop products to facilitate the transition.

- The SOFR products we see today will likely continue to evolve in response to market developments.