LIBOR Transition / Rate Replacement
Discussion Materials

October 2021

LIBOR (London Interbank Offered Rate)

What is LIBOR?

- Provides an indication of the average rate at which 16 panel banks estimate they could obtain wholesale, unsecured funding
- Created to better represent true cost of bank borrowings versus other benchmarks
- Widely used to price financial contracts for over 30 years
- Currently serves as the benchmark for roughly $200 trillion of USD-denominated financial contracts
    - Derivatives (roughly 95% of total exposure)
    - Business & Consumer Loans
    - Bonds
    - Securitizations

The Problem with LIBOR

- Significant decline in interbank unsecured lending after financial crisis
- Relatively small volume of actual underlying transactions
    - Approximately $500 million daily transaction volume supporting $200 trillion of financial contracts
- High reliance on “expert judgment” of panel banks resulted in manipulation of the rate, discovered in 2012

Global Transition Plan

- In 2014, the Fed convened the Alternative Reference Rates Committee (ARRC) in order to identify best practices for alternative reference rates
    - Asked to identify best practices for contract robustness, develop an adoption plan, and create an implementation plan with metrics of success and a timeline
- In June 2017, the ARRC recommended the Secured Overnight Financing Rate (SOFR) as its choice to replace LIBOR
- In July 2017, the U.K. Financial Conduct Authority (FCA) announced that it would no longer compel panel banks to provide LIBOR submissions past 2021

IMPORTANT TAKEAWAYS

Common LIBOR Misconception

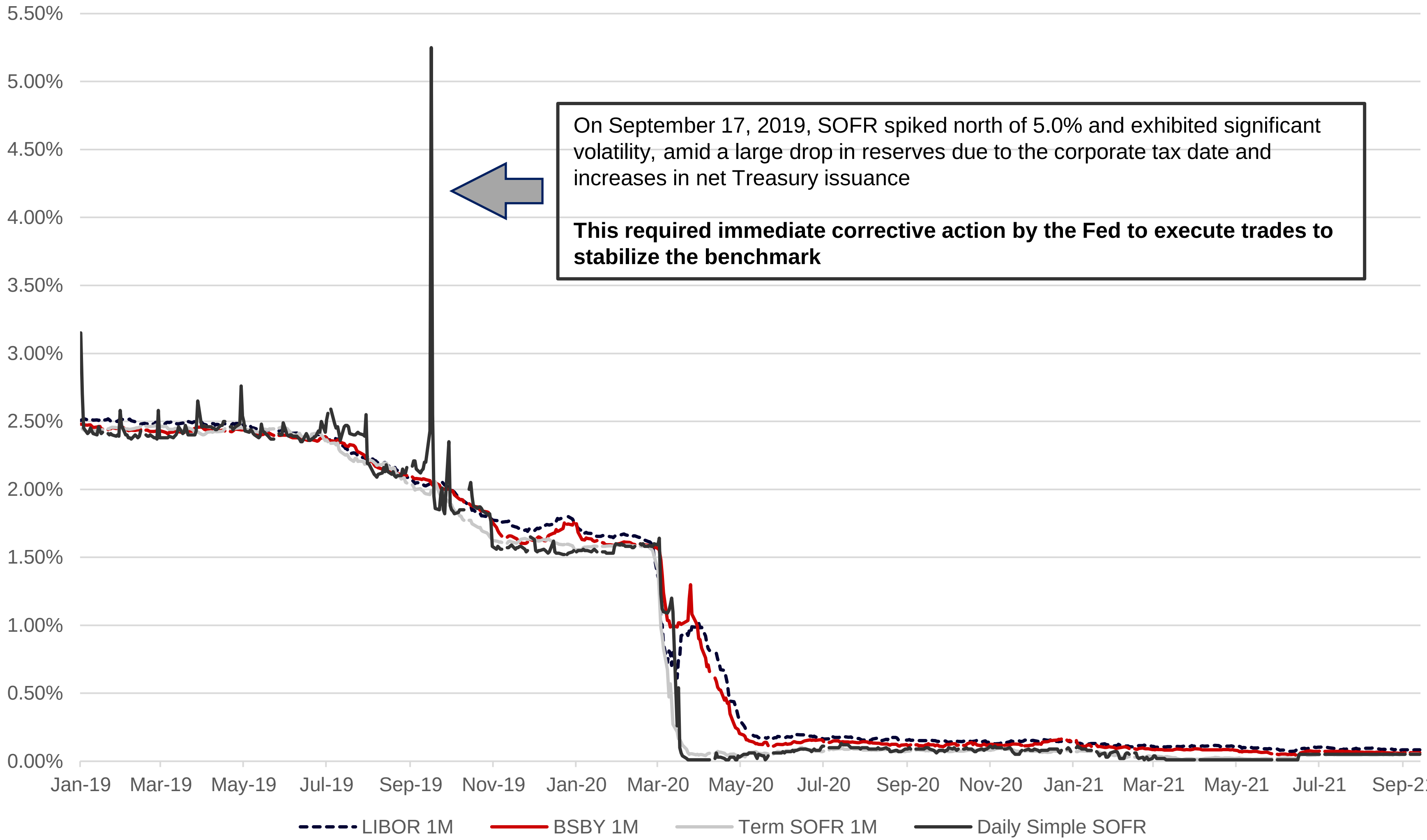
- LIBOR is not going away on December 31, 2021
- Rather regulators expect banks to cease entering into ***NEW*** loan agreements with LIBOR-based pricing by then

Active Deal Impact

- LIBOR will be quoted through June 2023, and deals priced off of LIBOR will function normally until then without any near-term modifications

General Benchmark Rate Stability

1-Month LIBOR vs. 1-Month BSBY vs. 1-Month Term SOFR vs. Daily Simple SOFR



Source: Bloomberg as of 9/14/2021

Historical Look: Replacement Rates Variance from LIBOR (1M)

		Average				
	9/14/2021	1-Month	3-Month	6-Month	1-Year	2-Year
LIBOR 1M	0.085%	0.085%	0.091%	0.096%	0.115%	0.565%
BSBY 1M	0.062%	0.062%	0.066%	0.070%	0.093%	0.534%
Variance from LIBOR	*(0.022%)*	*(0.023%)*	*(0.025%)*	*(0.026%)*	*(0.023%)*	*(0.032%)*
Term SOFR 1M	0.052%	0.050%	0.047%	0.033%	0.049%	0.434%
Variance from LIBOR	*(0.033%)*	*(0.035%)*	*(0.044%)*	*(0.062%)*	*(0.067%)*	*(0.132%)*
Daily Simple SOFR	0.050%	0.050%	0.049%	0.029%	0.050%	0.451%
Variance from LIBOR	*(0.035%)*	*(0.035%)*	*(0.042%)*	*(0.066%)*	*(0.066%)*	*(0.114%)*

BSBY does not require “Adjustment” as it tracks closely to LIBOR (historical variance is ~2-4 bps and in the borrower’s favor)

Due to the variance from LIBOR, Term SOFR and Daily Simple SOFR require “Adjustment” when used as benchmark replacement

Historical Look: Replacement Rates Variance from LIBOR (3M)

		Average				
	9/14/2021	1-Month	3-Month	6-Month	1-Year	2-Year
LIBOR 3M	0.118%	0.121%	0.128%	0.147%	0.181%	0.674%
BSBY 3M	0.093%	0.096%	0.097%	0.114%	0.145%	0.620%
Variance from LIBOR	*(0.025%)*	*(0.025%)*	*(0.031%)*	*(0.033%)*	*(0.036%)*	*(0.054%)*
Term SOFR 3M	0.052%	0.051%	0.048%	0.038%	0.051%	0.424%
Variance from LIBOR	*(0.066%)*	*(0.070%)*	*(0.080%)*	*(0.109%)*	*(0.130%)*	*(0.249%)*
Daily Simple SOFR	0.050%	0.050%	0.049%	0.029%	0.050%	0.451%
Variance from LIBOR	*(0.068%)*	*(0.071%)*	*(0.079%)*	*(0.118%)*	*(0.132%)*	*(0.222%)*

BSBY does not require "Adjustment" as it tracks closely to LIBOR (historical variance is ~2-5 bps and in the borrower's favor)

Due to the variance from LIBOR, Term SOFR and Daily Simple SOFR require "Adjustment" when used as benchmark replacement

Key Takeaways

- For TCB-led loans, BSBY margins will be quoted in lieu of LIBOR margins effective immediately, with the TCB-approved LIBOR benchmark replacement order as follow:
    1. BSBY Rate
    2. Term SOFR + related benchmark replacement adjustment
    3. Daily Simple SOFR + related benchmark replacement adjustment

- Regulators expect banks to cease entering into new contracts that use USD LIBOR as a reference rate as soon as practicable and in any event by December 31, 2021

- There will be no changes to your current interest rate calculation methodology for existing LIBOR loans until the amended fallback language is triggered by LIBOR's cessation in June 2023

Appendix: Universe of Replacement Alternatives

	Description	Pros / Cons
Bloomberg's BSBY (Short-Term Bank Yield Index)	▪ Unsecured overnight, 1m, 3m, 6m, 12m rates based on unsecured transaction-related and executable data from large international banks ▪ Derived from curve fitted to data	✓ Offers credit-sensitive rate ✓ Forward looking rates across several tenors ✓ Full suite of hedging options/contracts available × Moderate volume
Term SOFR (forward looking)	▪ Term, secured rate derived from SOFR derivatives	✓ ARRC supported if derivative volume robust × No credit component
Daily Simple SOFR (Secured Overnight Financing Rate)	▪ Overnight, secured rate based on ~$1 trillion in repo transactions ▪ Volume-weighted median ▪ International Organization of Securities Commissions (IOSCO) compliant	✓ Robust volume ✓ ARRC selection × No credit component × Backward looking
Ameribor (American Interbank Offered Rate)	▪ Overnight, unsecured rate based on >$2 billion in loan transactions on AFX (small and mid-sized bank with <$150 billion in assets) ▪ Volume-weighted average ▪ IOSCO compliant	✓ Offers credit-sensitive rate reflecting bank borrowing costs ✓ >150 banks / market participants on AFX × Low volume × Backward looking