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The End of LIBOR Means the Start of – What, Exactly?

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Today's Discussion Leaders

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- Lead of LIBOR Platform
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STRUCTURED FINANCE ASSOCIATION

- Represents SFA as a member of the ARRC
- Co-chair, ARRC Securitization Work Group
- Former Head of the LIBOR transition office for a Fortune 500 financial services company
- Chair, ARRC Student Loan Sub-Work Group
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Agenda

1 Status and Timeline

2 The Rat(e) Race

3 What You will Need to Do

1 Status and Timeline

Regulators Have Had Issues with LIBOR for >10 years

LIBOR, “inter-bank” lending, is based on quotes that often use “expert judgment”

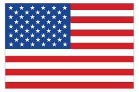
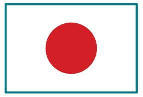
Trading volume is not adequate to support ~$400 trillion in contracts

Regulators established transition timing in 2017; most tenors end this year but USD ends June 2023

- Syndicated
- Retail loans
- Corporate loans
- Floating rate notes
- Derivatives
- Asset backed
- Mortgage backed
- Deposits

The Federal Reserve ARRC built a new rate, SOFR, based on ~$1 trillion of daily repo trading.

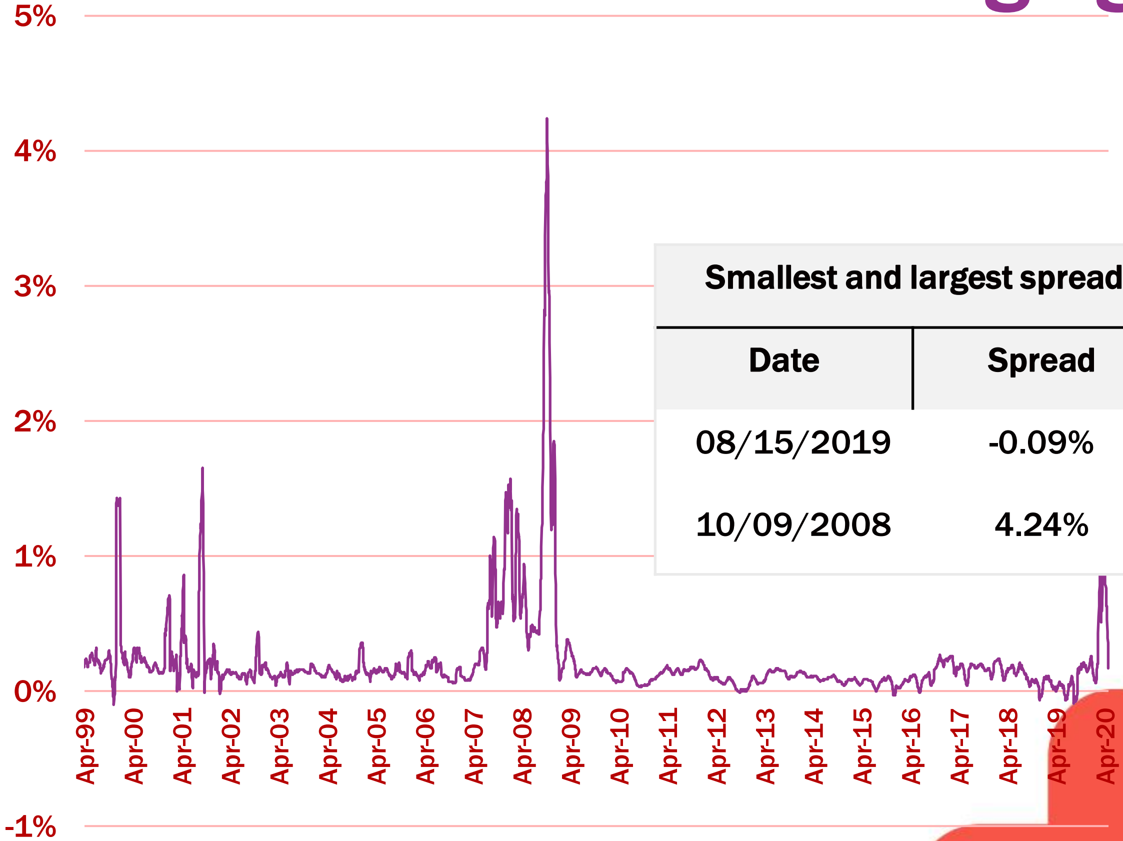
Regulator Recommended Rates are "Safe to Use" but Different From Each Other and From LIBOR

Currency	Risk-Free Rate	Administrator	Underlying	Transactions	Overnight	Term Rate Available
	SOFR	Federal Reserve	Secured	Repurchase Agreements	✓	✓ Limited scope of use
	Reformed SONIA	Bank of England	Not Secured	Transactions brokered by WMBA	✓	✓ Limited scope of use
	SARON	SIX Exchange	Secured	Repurchase agreements	✓	✗
	TONAR	Bank of Japan	Not Secured	Money market	✓	✓
	ESTR	ECB	Not Secured	Deposits >€1MM	✓	✗

Borrowers Need to Understand How Base Rates are Changing

- LIBOR is a market forward term rate; SOFR is a risk-free overnight rate
- LIBOR contains a premium for credit risk, for liquidity, term and funding; SOFR does not
- LIBOR is based on unsecured transactions; SOFR is based on secured transactions
- LIBOR spikes during stress as it incorporates credit/liquidity risk; SOFR does not

LIBOR was designed for balance sheet lending



Smallest and largest spreads

Date	Spread
08/15/2019	-0.09%
10/09/2008	4.24%

Spread of 1-month LIBOR to 1-month SOFR

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SOFR Has Been Successful in Derivatives But Not Yet in Lending

- **Daily SOFR started publishing in April 2018 but has had little take-on in lending**
  - Can vary widely each day; averages/"flavors" were created
  - Works differently economically than LIBOR
  - Not known in advance
  - Has new tech/ops requirements
- **In 2021 ARRC approved "Term SOFR", known in advance, but economically different than LIBOR**
- **Some banks are prefer a lending rate more like LIBOR**
  - Credit Sensitive Rates ("CSRs") were created by Bloomberg and others
  - They have little history and are not favored by regulators
- **So the lending market is still evolving but count on no new LIBOR lending after 2021**

2 The Rat(e) Race

Lending Continues to Evolve

- Regulators expect banks to focus on SOFR due to its robustness and many will
- But a typical US bank has ~20-25% of its balance sheet in LIBOR, so the choice of base rate is significant economically and for liquidity management.
- Banks have been looking at base rates critically and it turns out there are good reasons both SOFR and CSRs
- SO: expect a wider range of base rate choices AND more disclosure AND **a need for borrowers to understand base rates and the base to LIBOR spread**

Many Banks Believe Credit Sensitive Rates are Better for Lending

“Credit sensitive rates historically **are highly correlated with loan loss provisions, unsecured bank spreads, and revolver utilization** increases…

Changing reference rate from a pro-cyclical one to a counter-cyclical one **fundamentally changes the way banks manage and allocate capital,** which ultimately would **increase the cost of lending and reduce the availability of credit** ”

- Bank of America

“We believe SOFR is a good reference rate for use in a wide variety of liquid capital market derivative and debt instruments…

However, **SOFR alone is not likely to be a good benchmark for commercial lending…**

We believe that a benchmark with **a credit sensitive component that aligns with bank funding costs is the best approach for the commercial lending markets** ”

- PNC Bank and M&T Bank

Quotes taken from written materials prepared for the Federal Reserve “Credit Sensitivity Workshops”

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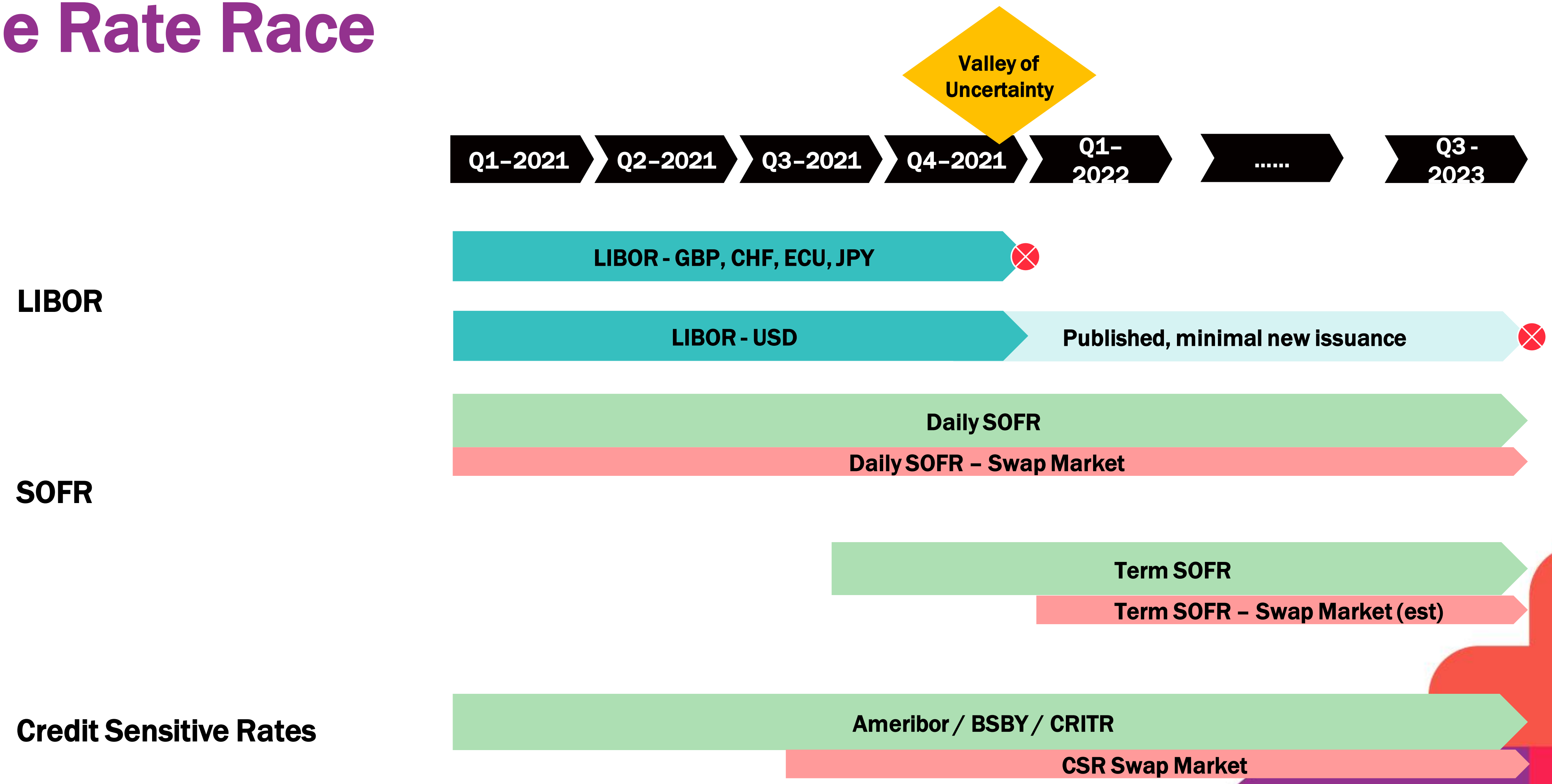
Regulators Expect Banks to "Make SOFR Work" and Focus on the Rate's Robustness

Speaker	Key Quotes
Janet Yellen, Treasury	• "**SOFR** provides a **robust** rate, suitable for use in most products and with underlying transaction volumes that are **unmatched** by other LIBOR alternatives".
Randal Quarles, Fed	• While lenders and borrowers have been free to use whichever rates they please, Quarles notes that it's imperative that they "are aware of any **fragilities** associated with that rate, and … that they use **strong fallback provisions**" • Quarles boasts the stability of SOFR versus other ARRs mentioning that "it rests on one of the **deepest** and most **liquid** markets in the world and … is likely to remain available even when other financial markets are disrupted"
Gary Gensler, SEC	• BSBY "has many of the same **flaws** as LIBOR … [where] a **modest market**, [is] shouldering the weight of hundreds of trillions of dollars in transactions" which results in "a heck of an economic incentive to **manipulate** it" • Instead, he highlights SOFR as a "**preferable alternative rate** … based on a nearly trillion-dollar market"
Michael Hsu, OCC	• "SOFR is a robust replacement rate that has been **carefully developed,** … **reliably produced,** … [and] will promote **financial stability** for all participants in the financial system." • Hsu lays out the expectation that "every bank, regardless of size, … demonstrate[s] its replacement rate selections are appropriate for the bank's products, funding needs and operational capacities"
Bill Huizenga, Representative Jerome Powell, Chairman of the Fed	• "So Chair Powell, is the Federal Reserve's view that there should be a choice among qualified benchmark as it relates to those regional and community institutions that believe there are more appropriate options other than SOFR given their business model, lending activity size, and customer base?" • "Yes. I mean, honestly I think we've been pretty clear on that. We think people use of SOFR is voluntary and market participants can use other suitable replacement rates if they see fit."

The Rate Race



Oliver Wyman "Weather report"
"Cloudy with a chance of SOFR"

Expected issuance by segment in mid-2022

Lending Base Rate	Syndicated	Middle Market	Commercial RE	Securitization	Consumer	Small Business
Daily SOFR	🟢	🟡	🟢	🟢 (in adv)	🟢 (in adv)	🟡⇩
Term SOFR	🟡⇧	🟢	TBD	🟡⇧	🟡	🟡⇧
Credit Sensitive Rates	🟡⇧	🟢	🔴	🟡	🟡	🟡⇧
Prime						🟢

🟢 Projected Leader 🟡 Acceptance 🔴 Laggard

⇧ Interest Trending Up ⇩ Interest Trending Down

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3 What You Need to Do

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When LIBOR Ends, Existing Loans "Fall Back" to the Contract. New Loans Need a New Base and Possibly Different Spread.

A. Base Rate is Changing from LIBOR	• What are the choices? • How do these compare under market scenarios? To LIBOR? • Which can I hedge? • Which do I want?
B. Existing Loan Fallback	• What are the fallbacks? Rely on ARRC? Market? • What is "fair"? • What is the impact of proposed legislation?
C. New Loan Choices	• What is the bank proposing? Is there a choice? • Do I prefer a CSR or SOFR? • What are going-forward choices and spread? • Will new customer spread == existing spread?

A. Base Rate Change Will Require Analysis / Understanding

LIBOR

Needed to ~= LIBOR

New Base	+ Adjustment
SOFR/Term	+ ARRC Historic? Spot? Forward?
BSBY	+ 0? Other?
Ameribor	+Spot? Forward?

Base Rate Choices, Fall 2021

Vendor	Rate	Can be hedged?	Forward Tenors	Credit Sensitive	Real-World Pricing
Intercontinental Exchange	LIBOR	Ends 12/2021	Yes	Yes	At LIBOR
Federal Reserve	Daily SOFR	Yes	No	No	> LIBOR but better in stress
Federal Reserve	Term SOFR	Expected	Yes	No	> LIBOR but better in stress
Bloomberg	BSBY	Yes, new	Yes	Yes	At LIBOR
American Financial Exchange	Ameribor	Yes, new	Yes	Yes	~At LIBOR

You will have a choice – and need to have an opinion

Daily SOFR Strengths and Concerns

More expensive borrowing

- Lack of a credit component in the rate will drive lenders to increase spreads to price for this uncertainty

Liquidity in stress may decline

- In a crisis, borrowers may "hoard" liquidity if reference rate does not spike to reflect conditions
- This may create issues for bank liquidity, and may adversely impact borrowers

Daily SOFR Positives:

- REGULATORY SUPPORT
- STRONGEST UNDERLYING MARKET
- EASIEST TO HEDGE
- FLAVORS FOR SPECIFIC NEEDs

Does not reflect forward expectations

- In rising or falling rate environments, backward looking overnight SOFR will not be fully reflective of the rate environment and takes time to adjust

Operational complexities

- Complex calculations
- Not known in advance

Term SOFR Strengths and Concerns

More expensive borrowing

- Lack of a credit component in the rate will drive lenders to increase spreads to price for this uncertainty

Liquidity in stress may decline

- In a crisis, borrowers may “hoard” liquidity if reference rate does not spike to reflect conditions
- This may create issues for bank liquidity, and may adversely impact borrowers

Term SOFR Positives:

- REGULATORY SUPPORT
- RATE KNOWN IN ADVANCE – AND MANY PREFER A TERM RATE

Does not reflect forward expectations

- In rising or falling rate environments, backward looking overnight SOFR will not be fully reflective of the rate environment and takes time to adjust

Additional concerns

- Based on futures, not the “$1 trillion” market of daily SOFR
- Hedge market still forthcoming

Operational complexities

- Complex calculations
- Not known in advance

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Credit Sensitive Rates Strengths and Concerns

More expensive borrowing

- ~~Lack of a credit component in the rate will drive lenders to increase spreads to price for this uncertainty~~

Liquidity in stress may decline

- ~~In a crisis, borrowers may “hoard” liquidity if reference rate does not spike to reflect conditions~~
- This may create issues for bank liquidity, and may adversely impact borrowers

CSR Positives:

- RATE KNOWN IN ADVANCE – AND MANY PREFER A TERM RATE
- +N SIMILAR TO LIBOR
- ECONOMICS / RISKS SIMILAR

Does not reflect forward expectations

- ~~In rising or falling rate environments, backward looking overnight SOFR will not be fully reflective of the rate environment and takes time to adjust~~

Additional concerns

- Smaller underlying market
- Banks must justify their choices
- Hedge market just starting
- Costs more when markets in stress

Operational complexities

- ~~Complex calculations~~
- ~~Not known in advance~~

B. Existing Loans – Unless Modified, Will "Fall Back"

- **Fallbacks define what happens when LIBOR ceases:**
  - **Trigger**
  - **Rate or method for determining a rate**
- **Many loans have poor language; what are yours?**
- **ARRC (etc.) have defined standard fallbacks – but must be incorporated in loan documents**

"If [BBA LIBOR, as published by Bloomberg] is not available at such time…"

– *Example trigger*

"…the rate … **at which deposits in Dollars for delivery on the first day of such Interest Period in same day funds being made, continued or converted by the Administrative Agent and with a term equivalent to such Interest Period would be offered by the Agent's London branch to major banks in the applicable London interbank eurocurrency market**"

– *Example fallback*

Fallbacks Can Create Significant Value Differences

Example: $10 million loan due 6/26 priced @ 3M USD LIBOR + 1.95%. Impact is to borrower.

Fallback	Impact, stable rates	Impact, rising rates
Prime	-$418K	-$448K
Last LIBOR	+$119K	+$1,032K
ARRC Standard	+$12K	-$21K

- Fallbacks not "at the market" that are enforceable are problematic
- Legislation may resolve some of the more complex / difficult cases (but generally not for loans)

Evaluating value change is crucial; analytical capabilities mandatory if exposure is large

Legislative Solutions to Existing Contracts

- State legislation passed in New York & Alabama
- Federal legislation in Congress passed the House Financial Services Committee July 2021. What does the legislation do?
  - State legislation scope is only contracts governed by the particular state
  - Federal legislation would pre-empt state legislation and apply to contracts governed by any US state
  - The spirit of the legislation passed and proposed is the same:
    - Addresses the end of LIBOR
    - Automatically replaces inadequate or ambiguous “fallback provisions” with direction of when and with what other benchmark rate to replace LIBOR
    - Provides the opportunity for certain contracts to “opt-in”
    - Contract parties that either opt-in or whose contracts are amended by the legislation benefit from a ‘safe harbor’

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C. New Loans: What Do You Want; What Does the Bank Want?

New Base	Possible Adjustments	Considerations
SOFR	• Historic ARRC spread • Spot spread • Forward projection spread	• Spread? • Higher rate in normal times v. LIBOR? • Easiest to hedge • Operations issues
Term SOFR	• Historic ARRC spread • Spot spread • Forward projection spread	• Spread? • Higher rate in normal times v. LIBOR? • Immature hedge market
CSRs such as BSBY or Ameribor	• Historically near zero • Forward projection spread	• Bank v. Regulator • Fallbacks • Pricing – both in good times and bad

Follow Up Resources

- The Federal Reserve ARRC – www.newyorkfed.org/arrc
- Oliver Wyman Libor transition site – libortransition.com
  - Webinars
  - Documents / history
  - Questions or newsletter subscription: email Adam.Schneider@OliverWyman.com
- Structured Finance Association - structuredfinance.org/issues/libor-transition/
- Your Lender transition site and team

Q&A

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