The LIBOR Endgame

Preparing for the 2021 Transition (and Beyond?)

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Overview

- Key themes: LIBOR still ending, but the cessations are decoupled
- Dates: What needs to be done …and when?
- Level setting: The potential replacement rates – definitions and behavior
- Loan originations
- Hardwired fallback language

Key Themes for USD LIBOR Cessation & Transition

- LIBOR is still ending!
  - Non-USD LIBOR
    - Future cessation or loss of representativeness immediately after 12.31.21
    - Non-USD LIBOR likely has to be transitioned to replacement rates at/around 12.31.21
  - USD LIBOR
    - Bank regulators have called for no *new* loan originations after 12.31.21
    - Legacy USD LIBOR loans have until 6.30.23 to transition to replacement rate
    - Bank regulators may require banks to use hardwired fallbacks
- Will there be an extension?
  - Highly unlikely!
  - The ICE Benchmark Administration (IBA), the administrator of LIBOR, has announced its intention to cease providing all of the LIBOR settings as of specified dates
  - FCA confirmed the IBA's intention and further announced the future cessation or loss of representativeness for all 35 benchmark settings

Key LIBOR Cessation Timeline

- **3.5.21:** IBA Announcement on Future LIBOR Cessation; FCA Announcement on Future LIBOR Cessation and Loss of Representativeness
  - LIBOR fallback spread adjustments set, *but* LIBOR transition is not required to begin
- **3.31.21**: *Sterling LIBOR Loan Origination Ended* (not USD, but relevant to multicurrency loans)
- **6.30.21**: ARRC *Recommended* Date for Ceasing LIBOR-based Contracts
- **12.31.21**:
  - Non-US LIBOR settings to cease and non-USD LIBOR contracts to transition to replacement rates
  - 1 Week and 2 Month USD LIBOR settings to cease
  - Banking Agencies say LIBOR should no longer be used for new contracts after this date
- **6.30.23**: Remaining USD LIBOR settings cease/are declared to be no longer representative
  - Outstanding legacy contracts to transition to replacement rates after June 2023 at the latest

What Happened on March 5th and What Does It Mean?

- **IBA Announcement** - The IBA stated that as a result of its not having access to input data necessary to calculate LIBOR settings on a representative basis beyond the intended cessation dates set forth in the table below, it would have to cease publication of all 35 LIBOR settings immediately after such dates.
- **FCA Announcement** - The FCA also issued a separate announcement confirming that IBA had notified the FCA of its intent to cease providing all LIBOR settings. The FCA has since been granted expanded powers that would allow it to require the IBA to produce certain LIBOR currency tenor settings on a synthetic, non-representative basis. A consultation is underway with a statement of policy expected 3Q21.
    - 1-mo, 3-mo and 6-mo settings for GBP LIBOR and for JPY LIBOR may continue as synthetic rates for a period of time; those settings for USD LIBOR are still under consideration
- ***Bottom line***: All 35 LIBOR settings will either cease to be provided by any administrator or will no longer be representative as of the dates set forth in the table below and fallback language will cause outstanding loans to transition to a replacement rate.

LIBOR Currency	LIBOR Settings	Date
USD	1-week, 2-month	December 31, 2021
USD	All other settings (i.e., Overnight/Spot Next, 1-month, 3-month, 6-month and 12-month)	June 30, 2023 *(only for legacy contracts after 2021)*
GBP, EUR, CHF, JPY	All settings	December 31, 2021

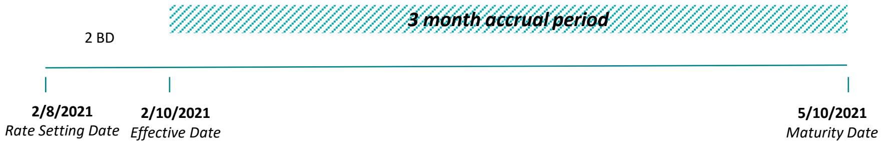
The ARRC Spread Adjustments are Now Set

- LIBOR & SOFR are different
    - LIBOR is a credit sensitive rate; Secured Overnight Financing Rate (SOFR) is a near risk-free rate
    - LIBOR is a term rate; SOFR is an overnight rate
    - Therefore, there needs to be a "spread adjustment" when contracts fall back from LIBOR to SOFR at LIBOR cessation
- Hardwired Fallback Language & Spread Adjustments
    - Contracts that "fall back" from LIBOR to SOFR using Alternative Reference Rates Committee (ARRC)'s hardwired fallback language will use the ARRC's recommended spread adjustment, which is the same numerical value as ISDA's spread adjustment set on March 5th
    - This spread adjustments are now fixed and will not change
    - Spread adjustments are published at https://www.bloomberg.com/professional/solution/libor-transition/
    - In order to minimize long-term value transfer, the spread adjustment is the "5-year historical median difference" between LIBOR and SOFR
    - The spread adjustments will generally be matched to tenor – i.e., 3-mo LIBOR falling back to 3-mo SOFR; 1-mo LIBOR falling back to 1-mo SOFR
    - These spread adjustments will apply to credit agreements with ARRC hardwired fallback language that fall back either through an Early Opt-In or are still outstanding as of June 30, 2023.

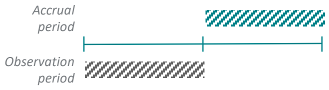
Loan Originations

Level Setting: LIBOR vs SOFR Methodologies

- **USD LIBOR** is a forward-looking term rate that is published in 7 tenors (overnight, 1 week and 1, 2, 3, 6 and 12 months)
    - LIBOR is published by ICE Benchmark Administrator. The rate used is published 2 business days prior to its effective date. Below is an example accrual period showing 3m USD LIBOR with effective date 2/10/2021:



- **SOFR** is an overnight rate published each day by the New York Fed. Financial products generally use an *average* of SOFR (not a single day's rate), though the methodology by which that average is calculated and applied may differ. The US loan market has not come to a consensus around which SOFR is most appropriate, though primary options are the following:

	Methodology	Description	Diagram	Pros	Cons	Current Use Cases
1	**SOFR Compounded in Advance**	Previous period's average of daily SOFR rates is used to accrue interest in the current period		• Rate known at beginning of period • Robust rate based on ~$1Tn daily repo transactions	• Not reflective of current interest rate environment	• Adjustable rate mortgages
2	**SOFR Compounded or Simple in Arrears**	Current period's daily SOFR rates are used to accrue interest in the current period		• Reflective of current interest rate environment • Robust rate based on ~$1Tn daily repo transactions	• Rate not known until end of period	• Floating rate notes • Interest rate derivatives
3	**Forward Looking Term SOFR**	Forward looking rate based on SOFR futures market, set in advance and accruing during the current period		• Rate set in advance, similar to LIBOR • Reflective of forward expectations of interest rates	• Does not currently exist • Based on SOFR futures contracts, unlikely to be as robust as SOFR itself	• N/A (rate does not yet exist)

Comparison of SOFR in Advance and Credit Sensitive Rates

- The Alternative Reference Rates Committee has not yet recommended Term SOFR but expects to "soon"; CME Group will be the administrator of ARRC's recommended Term SOFR; CME's Term SOFR is live and currently available to use in cash products
- Credit sensitive rates have emerged as potential alternatives to USD LIBOR; BSBY and Ameribor have been verified as compliant with the International Organization of Securities Commissions (IOSCO) Benchmark Principles

	SOFR in Advance	Bloomberg Short-Term Bank Yield (BSBY)	ICE Bank Yield Index (BYI)	IHS Markit Credit Rate	Ameribor
Secured / unsecured	Secured Not credit sensitive	Unsecured Credit sensitive and represents bank unsecured wholesale funding			
Tenors	O/N, 1M, 3M, 6M, 12M	O/N, 1M, 3M, 6M, 12M	1M, 3M, 6M, 12M	O/N, 1M, 3M, 6M, 12M	O/N, Term-30, *Term-90, Term-180, Term-360*
Underlying data	Overnight repo lending	CP, CD, bank deposits and ST corporate bonds from large, global banks (transactions and firm executable offers)	CP, CD, wholesale unsecured deposits, short-term bonds, CDS from large, global banks (transactions)	CP, CD, short-term corporate bonds from Banks that constitute the top 75% of trades in terms of trade size each day (transactions and price quotes)	CP and CD from AFX members (AFX represents approximately 25% of all U.S. banks) (transactions); Ameribor forty days and under (for Term-30)
Rate calculation methodology	Volume-weighted median of tri-party repo transactions	Volume weighted and trimmed curve fitting line	Best-fitted yield curve	Median of tenor and volume weighted data	Tenor and volume weighted average
Are the rates being published?	✓	✓	✓	April 2021	O/N and Term-30 Other tenors by 1H21
IOSCO compliance	✓	Independent attestation in April '21	Self attestation	Self attestation	Independent attestation in April '21 for Term-30
Minimum volume threshold	None Daily volume ~750bn	60bn for O//N 10bn for other tenors	15bn for all tenors	5bn to 500mm across tenors	Not disclosed
Is rate representative of cost of banks?	No	Yes	Yes	Yes	Yes
Requires credit spread adjustment?	Yes	No	No	No	No
Administrator	Federal Reserve	Bloomberg	ICE	IHS Markit	AFX / CBOE

Source: Federal Reserve, Bloomberg, AFX, ICE, IHS Markit, J.P. Morgan

For disclosures, please consult: www.jpmorgan.com/disclosures

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US-style Multicurrency Facilities Post-Sterling LIBOR

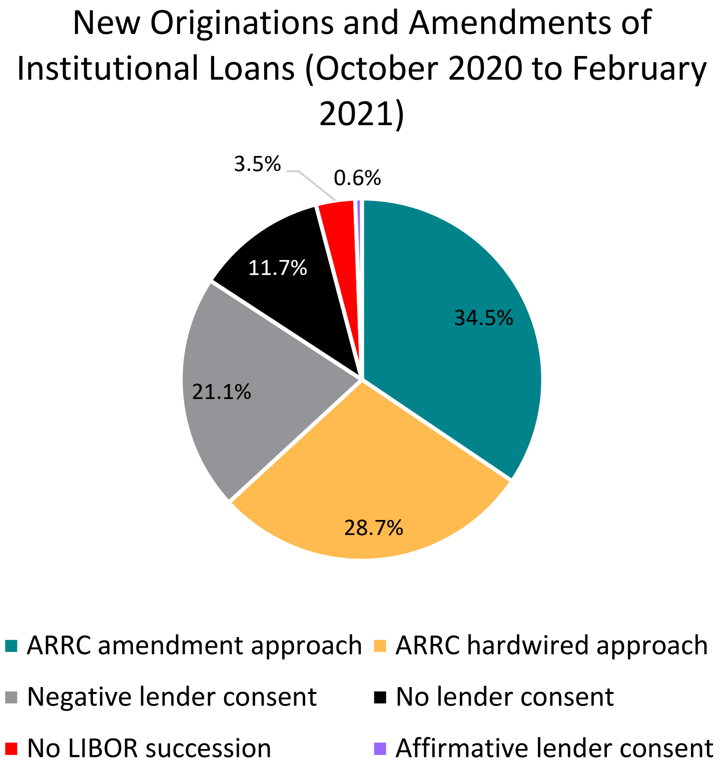
- Global lending markets have accepted that no new loan originations may reference Sterling LIBOR after 1Q21
- LSTA has published two alternative multicurrency facility concept documents:
  - **IBOR/RFR Concept Document**: USD LIBOR, EURIBOR and TIBOR for Dollars, Euros and Yen, respectively; Daily Simple SONIA and Daily Simple SARON for Sterling and Swiss Franc, respectively
  - **RFR Concept Document**: Daily Simple SOFR for Dollars, Daily Simple SONIA for Sterling, Daily Simple €STR for Euros, Daily Simple TONAR for Yen and Daily Simple SARON for Swiss Francs.
    - Optional drafting to instead use EURIBOR and TIBOR for Euros and Yen.
- Anecdotally, there has been a clear preference for using the IBOR/RFR-style version in the US market. Few known instances of using a daily compounded rate in the US although that is the market standard in the UK.

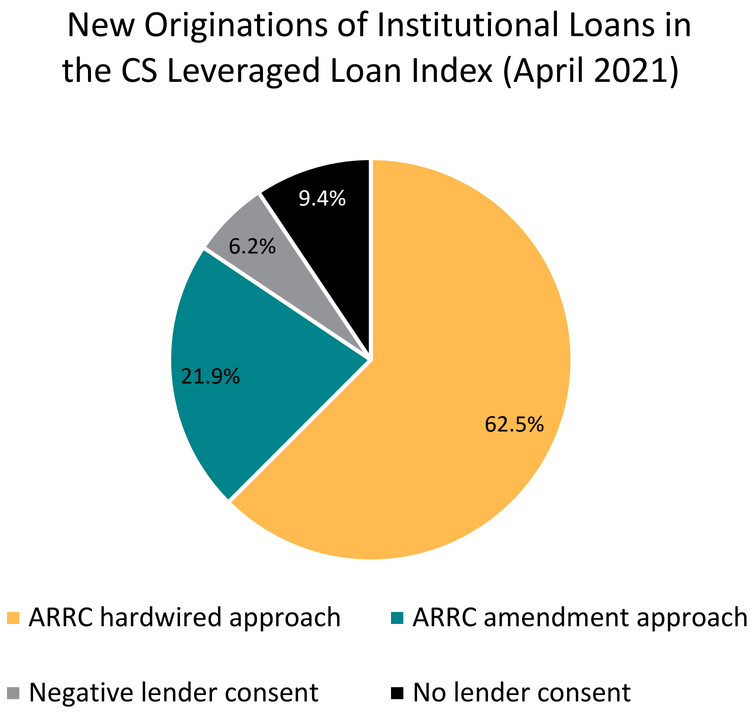
Fallback Language

ARRC Recommendations For US$ Syndicated Loans

- The ARRC is a Fed-sponsored private sector group tasked with spearheading the transition away from LIBOR; ARRC focus is on USD LIBOR (each LIBOR currency has a dedicated counterpart group). One of the ARRC's first orders of business for each cash product (e.g. business loans, floating rate notes, securitizations, adjustable rate mortgages) was the development of robust fallback language that was executable and minimized value transfer upon transition.
- Fallbacks answer the question *"If LIBOR disappeared, what is its replacement rate?"*
  - Pre-2018 NY-law governed credit agreements: Typically, "ABR" or the prime rate is the ultimate fallback rate (on average about 300 bps higher than 3-mo LIBOR)
- LIBOR fallbacks for syndicated loans should have three components:
  - Specific, objective trigger events (e.g., what triggers conversion, such as LIBOR cessation)
  - Replacement rate and spread adjustment
  - Ability for the Administrative Agent to make conforming changes to properly administer the replacement rate
- In June 2020, the ARRC published an updated recommendation for syndicated business loans which only sets out a hardwired approach. After the March 5th announcements, the ARRC published a supplemental, abridged version of fallback language. Both are currently effective versions of ARRC recommended language.

Hardwired Fallback Language is Taking Hold





Source: Covenant Review, a Fitch Solutions Service

A High-Level Look at the ARRC's Updated Hardwired Language

Triggers: Permanent cessation and pre-cessation (i.e. LIBOR is not representative) – "Benchmark Transition Event" has occurred; early opt-in (unique to business loans)

Effectiveness: The successor rate is determined in accordance with the specified rate and spread adjustment waterfalls and replaces LIBOR on the date that LIBOR is no longer available or is declared non-representative

Step 1: Term SOFR + Adjustment

Step 2: Daily Simple SOFR + Adjustment
*Daily Compounded SOFR or Compounded SOFR in Advance could replace this step (as noted in the ARRC release)
Includes a lookback; established in accordance with the ARRC conventions, but Administrative Agent can use alternative conventions in its reasonable discretion if any convention is not administratively feasible

Step 3: Streamlined Amendment Approach + Adjustment
Borrower and Administrative Agent select an alternate benchmark giving due consideration to a recommendation by the ARRC or evolving or then-prevailing market convention for USD-denominated syndicated loans

Step 1: Relevant Governmental Body Selected Adjustment
The ARRC has stated that it will recommend a spread adjustment which matches ISDA's adjustment value (at least for non-consumer products). Values are now fixed.

Step 2: ISDA Fallback Adjustment
Published by Bloomberg. Values are now fixed.

Streamlined Amendment Adjustment
Similar to the "Amendment Approach", *i.e.*, selected by the Borrower and Administrative Agent giving due consideration to an ARRC recommendation or evolving or then-prevailing market convention for USD-denominated syndicated loans.

Key Enhancements in the Updated Hardwired Language

- **Early Opt-in – *reduces the backlog of loans that have to be switched at LIBOR cessation, thus reducing market disruption risk***
  - Available while LIBOR is still in existence
  - Administrative agent or borrower can initiate this process if there are at least "[five]" (the exact number to be selected by the parties to the contract) publicly available new or amended syndicated loan facilities referencing a SOFR-based rate; the administrative agent and the borrower then jointly elect to trigger a fallback from USD LIBOR and the provision of notice of such election to the lender group.
  - Election is then subject to negative consent by Required Lenders
- **Tenor(s) by Tenor(s) Cessation/Pre-cessation – *addresses the scenario where certain tenors are affected and not the benchmark generally***
  - The trigger events are with respect to "all Available Tenors of such Benchmark" to allow parties to continue to use USD LIBOR for as long as possible in the event that some tenors cease or are not representative before others.
  - March 5th statements covered all 35 LIBOR settings; for USD LIBOR, transition occurs after June 30, 2023
- **Administrative Agent's Ability to Remove Tenors – *offers flexibility and permits consistency of rates across tenors***
  - The Agent has the ability to remove a tenor(s) of term rate benchmarks (e.g. USD LIBOR or Term SOFR) if such tenor is no longer published or is subject to a statement that it is or will no longer be representative.
  - Tenors can later be reinstated.
  - This ability complements the approach to trigger events described above.

A High-Level Look at the ARRC's Abridged Hardwired Language for Replacing LIBOR

Triggers: No mandatory trigger (March 5th statements have occurred); early opt-in retained

Effectiveness: The successor rate is determined in accordance with the specified rate waterfall and <u>replaces LIBOR on the date that LIBOR is no longer available or is declared to be non-representative</u>

Step 1: Term SOFR + ARRC/ISDA Adjustments
Term rate with interest elections (like LIBOR today); e.g. 1-mo Term SOFR + 1-mo Adjustment

Step 2: Daily Simple SOFR + ARRC/ISDA Adjustment
*Daily Compounded SOFR or Compounded SOFR in Advance could replace this step (as noted in the ARRC release)

Anticipated that daily SOFR loans will have set payment frequency. Abridged language specifies the frequency and clarifies which spread adjustment applies for loans with interest elections, i.e. if interest will be paid monthly, then the 1-month Adjustment is used.

Futureproofing: Streamlined Amendment Approach + Adjustment
Borrower and Administrative Agent select an alternate benchmark giving due consideration to evolving or then-prevailing market convention for USD-denominated syndicated loans including an applicable recommendation by the Relevant Governmental Body

Emerging Feature: “Other Rate Early Opt-in Trigger”

- The Other Rate Early Opt-In Trigger would permit the transition to rates other than SOFR (i.e., the hardwired waterfall) in advance of the permanent cessation of USD LIBOR.
- The agent and the borrower can invoke the Other Rate Early Opt-In Trigger if new issue or amended deals using an alternative rate (such as a credit sensitive rate) are in the market.
  - There is no specified threshold for the number of deals in the market using the alternative rate.
  - Majority lenders have five business days to object to the amendment implementing the new non-SOFR rate.
- This feature is included in addition to the ARRC “Early Opt-in” feature where the borrower and administrative agent can elect to transition away from USD LIBOR once [five] USD-denominated syndicated credit facilities have come to market (and are publicly available).
  - Replacement rate is determined in accordance with the hardwired waterfall
  - Required Lenders have five business day window to object or transition is successful

Transition Timeline: 2021 and Beyond

- ***March 2021**: IBA/FCA Announcements; ISDA/ARRC spread adjustments set*
- ***1Q2021**: Sterling LIBOR can no longer be used in new loan originations*
- **1H2021**: Use hardwired fallback language in LIBOR loans
  Begin originating non-LIBOR loans as soon as practicable
- **2Q2021**: ARRC target for cessation of use of USD LIBOR in new business loans

  ARRC may not have recommended a forward-looking term version of SOFR
- **4Q2021**: Originations of LIBOR-referenced loans presents “safety and soundness risks”

  Non-USD LIBOR and 1-wk and 2-mo USD LIBOR cease
- **2Q2023**: Remaining USD LIBOR settings cease or are declared non-representative

Appendix: Helpful Reference Materials

- **NY Fed's Website Regarding Publication of SOFR and SOFR Averages***:* https://apps.newyorkfed.org/markets/autorates/SOFR; https://apps.newyorkfed.org/markets/autorates/sofr-avg-ind
- **The ARRC's A User's Guide to SOFR**: https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2021/users-guide-to-sofr2021-update.pdf
- **The ARRC's Transition Report:** https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2021/USD-LIBOR-transition-progress-report-mar-21.pdf
- **The ARRC's Best Practices for Completing Transition from LIBOR:** https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2020/ARRC_Press_Release_Best_Practices.pdf
- **The ARRC Supplemental Recommended Fallback Language for USD Business Loans:** https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2021/arrc-supplemental-hardwired-recommendation
- **The ARRC Updated Recommended Fallback Language for USD Syndicated and Bilateral Business Loans:** https://www.newyorkfed.org/arrc/fallbacks-contract-language
- **Spread adjustments published by Bloomberg on March 5, 2021**: https://assets.bbhub.io/professional/sites/10/IBOR-Fallbacks-LIBOR-Cessation_Announcement_20210305.pdf
- **ARRC Announcement Selecting CME Group as Future Recommended Term SOFR Administrator**: https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2021/20210521-ARRC-Press-Release-Term-Rate-RFP.pdf