ARRC Closing Report: Final Reflections on the Transition from LIBOR

The Alternative Reference Rates Committee

November 2023

The small number of transactions in the unsecured, interbank lending market underpinning reference rates like LIBOR and weak governance structures undermine market integrity and raise financial stability concerns. While ongoing international efforts are necessary to remediate deficiencies in governance, they cannot address the insufficient number of transactions, particularly in longer tenors, in the unsecured, interbank lending market. Investigations by regulators and law enforcement agencies across the globe concerning manipulations and false reporting of LIBOR and similar rates have exposed the structural vulnerabilities of these benchmarks. The shift away from banks funding each other in an unsecured market has led to a scarcity or outright absence in longer tenors of real transactions underpinning these benchmark rates and has exacerbated vulnerabilities of these benchmarks. Yet currently, hundreds of trillions of dollars in derivatives, loans, and other financial instruments reference these benchmarks. This situation leaves the financial system with benchmarks that are prone to and provide significant incentives for misconduct.

FSOC 2013 Annual Report (treasury.gov)

[T]he problems with USD LIBOR reflect several interrelated structural factors including the decline in unsecured interbank markets, the incentives to manipulate rates submitted to reference rate panels owing to the vast scale of derivatives tied to the reference rate, and the dominance of instruments tied to LIBOR in terms of market liquidity. Reliance on USD LIBOR creates vulnerabilities that could pose a threat to market integrity, the safety and soundness of individual financial institutions, and to U.S. financial stability. First, a reference rate that is not anchored in observable transactions or that relies overly on transactions in a relatively low-volume market increases the incentives and potential for manipulative activity. Second, the current and prospective levels of activity in unsecured interbank markets raise the risk that continued production of LIBOR might not be sustainable. The cessation of such a heavily used-reference rate would pose substantial legal risks and could cause substantial disruptions to and uncertainties around the large gross flows of LIBOR-related payments and receipts between financial institutions.

FSOC 2014 Annual Report | U.S. Department of the Treasury

Over the past years I, and my predecessors and colleagues at the FCA, have spent a lot of time persuading panel banks to continue submitting to LIBOR … And while we have given our full support to encouraging panel banks to continue to contribute and maintaining LIBOR over recent years, we do not think markets can rely on LIBOR continuing to be available indefinitely.

Andrew Bailey, July 2017 The future of LIBOR | FCA

[ICE Benchmark Administration] notified the FCA, following the completion of its recent consultation and notices of future departure received from the majority of the panel banks for each LIBOR setting, that it intends to cease providing all LIBOR settings for all currencies.

FCA announcement on future cessation and loss of representativeness of the LIBOR benchmarks March 2021

With the completion of its mandate, the ARRC is setting out this concluding report to emphasize three areas that it believes firms should focus on going forward in order to preserve the much more robust system of reference rates that has been achieved: (a) active review of any reference rates that firms may consider using to ensure that they are sufficiently robust and fit for purpose (b) the importance of appropriate fallback language for any contractual use of reference rates, and (c) maintaining an appropriate balance between use of SOFR and Term SOFR.

I. Background

The Federal Reserve Board and Federal Reserve Bank of New York convened the Alternative Reference Rates Committee (ARRC) on November 17, 2014, in cooperation with the U.S. Department of the Treasury, the U.S. Commodity Futures Trading Commission, and the Office of Financial Research.[1]

The formation of the ARRC rose out of concerns about the robustness and sustainability of LIBOR. A number of instances of attempted manipulation of LIBOR and other similar "interbank" reference rates (or IBORs) had been uncovered in the wake of the financial crisis, shining a light on the weak governance underpinning these rates and also on the small number of transactions underlying the markets that they were meant to represent.

In light of these concerns, in 2013, the G-20 asked the Financial Stability Board (FSB) to undertake a fundamental review of major interest rate benchmarks and of plans for reform.[2] The Financial Stability Oversight Council (FSOC) recommended that U.S. agencies cooperate with the FSB's work, in particular that *U.S. regulators cooperate with foreign regulators, international bodies, and market participants to promptly identify alternative interest rate benchmarks that are anchored in observable transactions and are supported by appropriate governance structures, and to develop a plan to accomplish a transition to new benchmarks.*[3] Following its review, in July 2014, the FSB plenary endorsed a two-pronged approach to further reforms, recommending that authorities work with market participants in developing alternative reference rates that embedded no or only small amounts of credit risk and that would be more robust than the IBORs, while at the same time continuing work with benchmark administrators to strengthen LIBOR and other IBORs.[4]

The ARRC was accordingly formed by U.S. authorities to further the development of more robust alternatives to U.S. dollar (USD) LIBOR, in line with the FSB and FSOC recommendations. The ARRC's terms of reference, as set by the Federal Reserve, required the group to (a) consider the range of existing and potential reference interest rates and identify a risk-free rate or rates that in the consensus view of the group represent best practice for use; (b) identify best practices to ensure that contracts are resilient to the possible cessation or material alteration of a benchmark; and (c) develop plans to promote the adoption of the ARRC's best practice recommendations and timelines for implementation of these plans. Similar

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[1] More information on the ARRC is available at the ARRC's website.
[2] See Financial Stability Board, Progress report on the oversight and governance framework for financial benchmark reform, Report to G20 Finance Ministers and Central Bank Governors, August 2013.
[3] See Financial Stability Oversight Council, 2013 Annual Report, June 2013.
[4] See Financial Stability Board, Reforming Major Interest Rate Benchmarks, July 2014.

national working groups were subsequently formed in the United Kingdom, Japan, Switzerland, the euro area, and a number of other jurisdictions to deal with LIBOR or similar interbank rates in other currencies.[5]

The ARRC spent its first 18 months carefully reviewing the full range of markets that could be used to form an alternative to USD LIBOR and developing the outlines of a plan (the Paced Transition Plan) to encourage the necessary liquidity in a chosen alternative.[6] The ARRC issued its Initial Review and Consultation in June 2016, laying out the details of the review it had conducted and seeking views on the two potential types of alternative rates that it considered to be most promising (the ARRC's review of rates is summarized in Section II). Before making its final recommendation, the ARRC collected views from its consultation, formed an Advisory Group of end users to help determine the best alternative, and conducted further analysis, including of the plans to publish several repo rates that were announced by the Federal Reserve Bank of New York and Office of Financial Research. The ARRC unanimously supported SOFR as its recommended alternative to USD LIBOR in June 2017.[7]

As the ARRC was developing its recommendations, authorities continued to work to strengthen the governance and base of transactions underlying LIBOR. Along with the Bank of England and Swiss National Bank, the Federal Reserve Board joined as an Observer to the LIBOR Oversight Committee in April 2014 and worked with the UK Financial Conduct Authority (FCA), the regulator of LIBOR, and with ICE Benchmark Administration (IBA), the administrator of LIBOR, to reform LIBOR. This work involved multiple market consultations and culminated in the set of reforms outlined in IBA's Roadmap for ICE LIBOR. The LIBOR reforms clarified that LIBOR sought to measure the cost of wholesale unsecured bank funding across a range of funding centers, not only interbank or London funding markets, and required panel bank submissions to be directly based on transactions when they were available.

However, despite these reforms, it became clear that a fully transactions-based LIBOR rate could not be produced. As banks found that they continued to have to rely on expert judgment rather than transactions for most of their submissions, some banks began to leave the LIBOR panels even in the face of official-sector encouragement for them to stay. The FSOC had warned as early as 2013 that banks might leave the LIBOR panels, and media coverage previously highlighted that some had sought to do so, but most market participants had not taken those warnings seriously until a July 2017 speech by then-FCA CEO Andrew Bailey. Bailey's speech marked the first direct public description of how much effort had gone in to persuading banks to remain on the panels.[8] Bailey announced that the FCA had brokered an agreement with the remaining banks to continue to submit to LIBOR through the end of December 2021 but that it could not guarantee LIBOR's existence after that date.

Bailey's announcement caused many market participants to view the ARRC's work differently. Whereas most market participants had likely viewed the recommendation of an alternative to USD LIBOR as a contingency to guard against a hypothetical risk that LIBOR *could* end, the announcement led many to see moving to an alternative as necessary with the expectation that LIBOR *would* end. The ARRC's terms of reference were updated to emphasize that the ARRC should help ensure the successful implementation of

[5] Representatives of these jurisdictions attended the meeting to convene the ARRC.
[6] See https://www.newyorkfed.org/arrc/sofr-transition#pacedtransition
[7] The ARRC Selects a Broad Repo Rate as its Preferred Alternative Reference Rate.
[8] Andrew Baily, July 27, 2017, The future of LIBOR | FCA

the Paced Transition Plan, serve as a forum to coordinate and track transition planning across cash and derivatives products, and address risks in legacy contracts language where appropriate fallbacks to LIBOR had not been incorporated.

Given that the end of LIBOR has now been successfully resolved, some may come to underestimate how difficult it was to achieve, and therefore may underestimate the importance of avoiding the types of mistakes made with LIBOR going forward. Outside of financial markets, most people paid little attention to the LIBOR transition, but it represented one of the most complicated, if not the most complicated, changes in financial market infrastructure ever required. Figure 1 provides a high-level overview of the many steps involved in transitioning away from USD LIBOR. Each of the events in this timeline took considerable work to implement. For example, prior to issuing its IBOR Protocol in October 2020, ISDA issued [5] separate consultations. During the ARRC's tenure, it produced more than 60 separate publications and held over 20 public events to support its work in the LIBOR transition (Table 1).

One of the reasons the transition was so complex was the pervasiveness of the use of LIBOR across all market segments. The FSB's 2014 review provided an inventory of all of the uses (Table 2), showing use throughout lending to businesses and households, debt issuance, derivatives and securitizations, and money markets, as well a range of other uses by nonfinancial businesses. The ARRC estimated in its Second Report that USD LIBOR was used in some $200 trillion of financial contracts globally—10 times USD GDP—and that figure did not include the many uses made in nonfinancial contracts. In order to facilitate the transition across so many different sectors, the ARRC created 12 working groups involving over 400 separate firms, organizations, and agencies. (Figure 2).

There are other financial benchmarks that are widely used, including stock indexes, foreign exchange, and commodity benchmarks, but none of these has come close to the scope of use of interest rate benchmarks represented by LIBOR. Despite that, few market participants questioned whether LIBOR was appropriately structured for its scale of use. In fact, most market participants continued to use LIBOR even after authorities flagged its underlying weaknesses and warned that it was likely to end. The widespread uses of LIBOR, and the problems that it ultimately caused for the financial system, were the product of a myriad of separate individual decisions made over years, but resolving those problems required widespread collaborative efforts.

Although successful, the transition from LIBOR involved billions of dollars and millions of hours of work by the private sector, active involvement by the U.S. official sector, and ultimately even legislation by Congress. Most financial institutions are accustomed to analyzing and limiting risks from counterparty credit or financial exposures, but their exposures to LIBOR also ended up costing them significant amounts. The ARRC therefore emphasizes, as the FSOC and FSB have done, that market participants should seek to avoid the mistakes that were made with LIBOR, and it encourages firms and their risk officers to consider their exposures to reference rate benchmarks in the same way that they consider other material sources of risk.

II. Promoting Use of Robust Rates: Reviewing Prospective Benchmarks

The ARRC has recommended SOFR for use across financial products, and the FSOC has similarly advised market participants to consider SOFR-based rates and FSOC members have emphasized that derivatives and capital markets should use SOFR given its greater robustness. At the same time, U.S. banking regulators have also clearly stated that banks would not be criticized solely for choosing a rate other than SOFR in their business loans. In noting that a supervised institution may use any reference rate for its loans that the institution's management determines is appropriate based on its funding model and customer needs, the Board, FDIC, and OCC stated that safe-and-sound practices include conducting due diligence necessary to ensure that alternative rate selections are appropriate for the supervised institution's products, risk profile, risk management capabilities, customer and funding needs, and operational capabilities and that supervised institutions should understand how their chosen reference rate is constructed and be aware of any fragilities associated with that rate and the markets that underlie it.[9] In considering which rates to use, the FSOC has similarly advised institutions to review how any alternative rates fit into their internal risk management guidelines, business strategies, and risk appetite, advising them to conduct a comprehensive evaluation before adopting any alternative reference rate. The FSOC has noted that such an evaluation would, at a minimum, review any alternative rate's fitness for the purpose of its use, ensure that the rate is based on a sufficiently active market with sufficient transactions volumes, assess the adequacy of the representativeness of the underlying interest, and evaluate the resilience of the rate during times of stress.[10]

The ARRC conducted a comprehensive analysis of potential alternatives before recommending SOFR. It may therefore be useful to market participants to review the ARRC's approach as they consider their own evaluation programs.

The ARRC's criteria for evaluating potential rates and markets are set out in Table 3. These criteria relied heavily on the International Organization of Securities Commissions' (IOSCO) *Principles for Financial Benchmarks*,[11] which were recommended by the FSB in their 2014 Review and were endorsed by the G-20. The ARRC collected data and information on a wide set of alternatives, including secured lending rates, overnight and term unsecured lending rates, policy rates, Treasury rates, and OIS rates and judged each against its criteria.

Details of the ARRC's review of each potential benchmark can be found in its Interim and its Second Reports.[12] Here, we focus on several key points that market participants may wish to keep in mind:

- The ARRC conducted its own analysis; it did not rely on any outside attestations of compliance with the IOSCO Principles. For example, the administrator of LIBOR had attested that it was IOSCO compliant, but the ARRC did not rely on those statements and instead formed its own, independent judgment of whether the types of unsecured borrowing markets underlying LIBOR were sufficient to produce a rate compliant with its understanding of the Principles.

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[9] See SR 21-17 attachment: Joint Statement on Managing the LIBOR Transition (federalreserve.gov)

[10] See the FSOC 2021 and 2022 Annual Reports.

[11] International Organization of Securities Commissions, Principles for Financial Benchmarks, July 2013. A summary of the IOSCO Principles can be found in Appendix 2.

[12] See arrc-interim-report-and-consultation.pdf (newyorkfed.org) and Second Report OF THE A (newyorkfed.org)

- The ARRC did not simply judge benchmarks (or markets that a benchmark could potentially be built from) based on their transaction volumes. Resilience to changing market conditions, structures, and regulations were also key elements in the ARRC's analysis. This included placing weight on the diversity of market participants, the stability of their participation, and stability of their credit quality over time and understanding how changes in participation could affect the benchmark.
- The ARRC also considered the transparency of the benchmark, which for the ARRC, involved an ongoing ability to assess a rate's quality and robustness. The Federal Reserve Bank of New York publishes a *detailed* set of statistics on a *daily basis* that allow end users to understand the volume of transactions in *each* market segment that underlies SOFR as well as a detailed set of statistics of the distribution of rates traded in these markets. Producing daily statistics by underlying market segment allows end users to judge the benchmark's quality in real-time. Where benchmarks are meant to represent specific maturity tenors, providing statistics related to each specific maturity window rather than aggregates across maturities would be most relevant in allowing end users to judge the quality of the specific benchmark tenor that they use.
- The ARRC involved a range of stakeholders, seeking input from all sides of the market and client types before choosing SOFR as its recommended alternative. As noted above, banking supervisors have encouraged firms to assess the appropriateness of any alternative for their respective products, risk profile, risk management capabilities, customer and funding needs, and operational capabilities.

Of note, the ARRC discussed term unsecured lending rates—rates based on financial commercial paper (CP), certificates of deposit, term Eurodollar or term federal funds transactions—but did not consider them to be appropriate alternatives because of several key structural weaknesses that they shared with LIBOR:

- **Limited Transactions**: Even in normal times, short-term wholesale unsecured transactions are relatively sparse.
- **Not Robust to Stress**: Term wholesale unsecured borrowing is substantially less frequent during periods of stress, particularly at longer maturities.
- **Unstable Sample**: The sample of firms that borrow in short-term unsecured wholesale markets is not stable over time because firms access these markets only intermittently. This will create fluctuations in observed rates unless daily changes in the credit quality of the firms accessing these markets is controlled for, something that is technically difficult to do without changing the basic nature of the benchmark. The sample of firms is also not stable across maturities, as weaker (stronger) firms typically borrow more at shorter (longer) tenors. This difference is heightened during times of stress.

Recently, IOSCO reviewed several credit sensitive rates based on these markets. Similar to the analysis published by the ARRC, IOSCO concluded that these rates were not consistent with key elements of the IOSCO Principles, despite the fact that the administrators and auditing firms they had hired had provided attestations that these benchmarks satisfied the Principles. IOSCO stated that in its view, the liquidity risks in the bank-issued CP and certificates of deposit markets are such that these markets are not sufficiently deep, robust, and reliable to underpin alternatives to USD LIBOR[13]. These findings emphasize the importance of market participants making their own, independent, assessments concerning the appropriateness of any given alternative rather than relying solely on self-assessments provided by benchmark administrators or their auditors.

[13] International Organization of Securities Commissions, Statement on Alternatives to USD Libor, 3 July 2023

III. Promoting Resilient Contracts: Fallback Language

The ARRC considers it prudent for market participants to incorporate robust, workable fallbacks in all financial instruments and contracts. As part of its mandate, the ARRC was asked to identify best practices to ensure that contracts are resilient to the possible cessation or material alteration of a benchmark. The issue of contractual fallbacks is an important one because, at the time of the ARRC's formation, most LIBOR contracts had provisions that could be practically applied if LIBOR was not published for a few days, but they did not have workable provisions in the event that LIBOR permanently ended. The lack of workable fallbacks represented a key financial stability risk in the LIBOR transition. If LIBOR had ended before this issue was addressed, consumers, businesses, lenders, and investors would have faced legal uncertainty and adverse economic impacts on hundreds of thousands of affected financial contracts, including mortgages, student loans, credit cards, business loans, business contracts, and securities.

The ARRC's Second Report provided an overview of typical fallback language in the different products referencing USD LIBOR:

- Under ISDA's (2006) LIBOR definition for interest rate derivatives, counterparties were directed to seek quotes from London or New York reference banks if LIBOR was not published. If two or more such quotes were obtained, the contract would pay the average rate, but if one or no quotes were received then the payment obligations were not specified. Most observers noted that it was unlikely that banks would be willing to provide these quotes.
- Business loan documentation often included instructions to seek quotes from a set of reference banks, similar to language in the ISDA definitions, but if quotes were not obtained, then the language typically provided that the rate paid on these loans would convert to an alternative base rate—either the prime rate or a rate which is typically close to the prime rate—that was typically well above LIBOR and would entail a significant and unplanned increase in borrowing costs.
- Typical contract language in floating rate notes directed the calculation agent (often the issuer or the trustee) to first poll a sample of banks, similar to the fallback language in ISDA's interest rate definitions, but if, as was likely, quotes were not received then the note would convert to a fixed-rate instrument at the last published value of LIBOR.
- Certain Agency CMOs allowed the noteholder (Fannie Mae or Freddie Mac) to name a successor rate if other fallback methods such as polling reference banks failed to provide a fallback rate, but as with floating rate debt, contract language in non-agency securitizations typically required a poll of banks and then converted to a fixed rate at the last published value of LIBOR if quotes were not received.
- Adjustable-rate mortgages typically had language giving the noteholder authority to name a successor rate if LIBOR were unavailable. However, typical language was silent on how or if the margin or spread to the reference rate or other terms of the contract should be adjusted to reflect a change in the reference rate.

The ARRC review noted that altering these fallback provisions generally required unanimous lender consent in syndicated loan agreements or unanimous noteholder consent in floating rate notes and securitizations issued under U.S. law, making them difficult or impossible to change.

To address the risks in derivatives, in 2016 the FSB Official Sector Steering Group (OSSG) asked ISDA to update its definitions to include more robust fallback provisions and to consider offering a protocol allowing counterparties to adopt the new definitions into legacy derivative contracts.[14] To help address the risks to the many cash products referencing USD LIBOR, the ARRC issued a series of recommendations for more robust contractual fallback language for use in new or renegotiated USD LIBOR contracts for floating rate notes, syndicated business loans, bilateral business loans, securitizations, consumer adjustable-rate mortgages, and private student loans.[15] Each of the ARRC's recommendations were made following extensive consultations with a full range of stakeholders involved in each industry, including borrowers and service providers. The deliberative processes followed by the ARRC allowed it to use its fallback language as a template for recommendations for legislative action taken up by the State of New York to address the risks of legacy LIBOR contracts that were otherwise unable to be remediated.[16] This process ultimately led Congress to pass Federal legislation, addressing the risks from legacy LIBOR contracts, on a nationwide basis, that are governed by U.S. law and that did not have practicable fallbacks.

Thanks to the efforts of legislators, as well as the widespread adoption of the ISDA protocol in derivatives and ARRC-recommended fallbacks in newer LIBOR cash products, the transition from LIBOR avoided serious disruption. However, the need for these very considerable efforts could have been avoided if counterparties had ensured that their contracts had robust, workable fallback provisions to begin with.

The FSOC and FSB have encouraged market participants to ensure that their contracts have robust fallback provisions going forward. Alongside its recommendation of SOFR, it is therefore important to the ARRC's mandate that market participants include robust contractual fallback provisions for the event that even SOFR itself could, at some date in the future, end. As part of its work in identifying a recommended alternative to USD LIBOR, the ARRC also considered potential waterfalls that could be used to support a robust fallback to its chosen rate. The ARRC accordingly encouraged ISDA to include robust fallbacks for SOFR in its SOFR definition and worked with ISDA to help formulate its fallback waterfall.

In both the current and previous versions of ISDA's definitions, the SOFR definitions (including the SOFR compounded in arrears definition used in OIS) contain a fallback waterfall of

1) A Fed Recommended Rate,
2) OBFR (the Overnight Bank Funding Rate), and
3) the FOMC Target Rate.

The current version of ISDA's definitions define the Fed Recommend Rate as the rate (inclusive of any spreads or adjustments) recommended as the replacement for SOFR by the Federal Reserve Board or the Federal Reserve Bank of New York, or by a committee officially endorsed or convened by the Federal Reserve Board or the Federal Reserve Bank of New York for the purpose of recommending a

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[14] See Appendix C, Reforming major interest rate benchmarks: Progress report on implementation of July 2014 FSB recommendations.

[15] See Fallback Contract Language - Alternative Reference Rates Committee (newyorkfed.org)

[16] See ARRC-Proposed-Legislative-Solution.pdf (newyorkfed.org) and libor-legislation-with-technical-amendments (newyorkfed.org). The ARRC's legislative template was adopted by New York, Alabama, and Tennessee and was submitted or in consideration by several other states prior to the consideration of federal legislative action by Congress.

replacement for SOFR (which rate may be produced by the Federal Reserve Bank of New York or another administrator) and as provided by the Administrator of that rate or, if that rate is not provided by the Administrator thereof, published by an authorized distributor. These definitions define the FOMC Target Rate as the short-term interest rate target set by the Federal Open Market Committee or, if the Federal Open Market Committee does not target a single rate, the mid-point of the short-term interest rate target range set by the Federal Open Market Committee (calculated as the arithmetic average of the upper bound of the target range and the lower bound of the target range, rounded, if necessary, in accordance with the rounding method in the ISDA definitions). Previous versions of ISDA's definitions contain substantially similar language.

The ARRC encourages counterparties to any contracts referencing SOFR to consider the ISDA waterfall or reasonable variations of it in their own fallback provisions. The ISDA provisions are well designed to allow for a specific, clear replacement rate under a very wide range of circumstances.[17] Because SOFR is a risk-free rate, there are a number of potential replacements including the Overnight Bank Funding Rate (OBFR) or the FOMC's target rate that move very similarly to SOFR and do not require any spread adjustments to move to, making fallbacks like ISDA's language particularly simple to implement. While ISDA's fallbacks use compound versions of these rates set in arrears, market participants could reasonably consider simple averages in arrears or averages set in advance, depending on what was most appropriate to their circumstances.

The ARRC has also encouraged use of hardwired fallback language. While the ARRC originally also issued "amendment approach" variations of fallback language for syndicated and bilateral USD LIBOR business loans in recognition of the prevalence of this approach in business loan documentation at the time, the ARRC has noted that such language was more difficult to implement and would likely need to be replaced with hardwired fallbacks. Given this, in 2020, the ARRC officially revised its recommendations, endorsing only use of its hardwired fallback language from that point forward.[18]

In line with the previous ARRC recommendations concerning the use of hardwired fallback language, the ARRC recommends that market participants move to ensure that any contracts referencing SOFR, Term SOFR, or other non-SOFR benchmarks include fallbacks to prespecified, clearly defined replacement rates and that these contracts contain a waterfall that should allow for a clear fallback in a wide array of circumstances. The fact that there are other similar risk-free fallbacks to include in a waterfall for SOFR-based rates makes the adoption of robust, hardwired language straightforward to implement. For contracts referencing SOFR, the ISDA fallback provides a template, while for contracts referencing Term SOFR, fallbacks to averages of SOFR either in advance or arrears should be considered.[19]

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[17] Of note, the ISDA language includes the possibility that the Federal Reserve Board or Federal Reserve Bank of New York could recommend a SOFR replacement or convene a committee to do so. Federal Reserve officials indicated a that they were comfortable with this reference in regards to ISDA's fallback for SOFR and ISDA conducted similar forms of outreach with other FSB members in developing its fallback definitions for other risk-free rates. However, the Federal Reserve has not indicated comfort with similar references to it in any recommended fallback for benchmarks other than SOFR, and the ARRC would discourage market participants from including reference to rates chosen by official sector agencies unless they have received approval by the agencies referred to.

[18] See Updated-Final-Recommended-Language-June-30-2020.pdf (newyorkfed.org) and Updated-Final-Recommended-Language-June-30-2020.pdf (newyorkfed.org)

[19] This recommendation is in accord with the FSB's position, which states that: *For contracts referencing Term RFRs, the OSSG encourages incorporation of fallbacks to explicitly reference, externally produced, and IOSCO compliant alternatives of a similar risk-free nature, including fallbacks to overnight RFRs either in arrears or advance, as the primary fallbacks in any rate waterfall. References to internal cost of*

IV. Promoting Sustainable Benchmarks: Limiting Use of Term SOFR to Supporting Business Loans

The ARRC is not making, and will not make, any new recommendation regarding Term SOFR. The ARRC reiterates its recommendation that use of Term SOFR should be limited and used only in support of business lending and the transition of legacy LIBOR cash products. Prior to its endorsement of CME Group's Term SOFR rates, the ARRC made clear that it believed that Term SOFR should be used only in relation to business lending activity and legacy cash products, and it has consistently held this position since.[20] The ARRC intends for its recommendations regarding Term SOFR to be considered to be permanent recommendations of best practice.

The ARRC notes that its 2023 summary and update of its recommendations regarding Term SOFR has helped to provide useful clarity to market participants by providing specific definitions and examples, and that market participants have adapted to the new environment following the end of the LIBOR panels on June 30: the market has been able to absorb the transition of a significant book of legacy LIBOR transactions to SOFR and Term SOFR without any significant move in the SOFR-Term SOFR basis; while many borrowers continue to hedge with Term SOFR derivatives, some firms have moved to hedging Term SOFR with SOFR OIS; and the ARRC's refinements recognizing somewhat wider trading of Term SOFR-SOFR basis swaps have allowed dealers to offset some Term SOFR risk taken on through their hedging of their customers Term SOFR business loans activity with non-dealers.

The ARRC believes that its recommendations regarding limiting use of Term will help to ensure that use of these rates is sustainable and consistent with a stable market structure going forward. The FSOC has welcomed CME Group's decision to incorporate the ARRC's recommendations in to the Term SOFR license agreement, and both the FSOC and FSB have both encouraged benchmark administrators to take this step in order to ensure that use of term rates is in accordance with financial stability.

While the ARRC recognizes use of Term SOFR in business loans, it reiterates its recommendation that lenders offer their borrowers a range of both Term SOFR and SOFR lending options. For completeness, a full set of recommendations regarding use of Term SOFR in business loans is set out below:

- The ARRC recognizes the use of Term SOFR in addition to other forms of SOFR for new business loan activity—including, whether syndicated or not: commercial loans; corporate loans; middle market loans; trade finance transactions including receivables finance/purchases and discounting; Islamic financing or lease facilities; and loans or other extensions of credit for business or other governmental purposes to non-profit enterprises, municipalities, or other governmental or public entities.
- The ARRC also recognizes that the Term SOFR rates may be appropriate for securitizations that hold underlying business loans, legacy cash-products, or, potentially, other securitizations that hold Term SOFR assets in order for the securitization to match the payments of its liabilities to its assets.

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funds or issuer or lender discretion show be avoided as primary fallbacks, as should references to fallbacks to be selected by a central bank or other official body unless consent for such reference has been granted by the authority named. See the FSB, July 2023, Final Reflections on the LIBOR transition.

[20] See ARRC_Scope_of_Use.pdf (newyorkfed.org)

- The ARRC recommends the use of overnight SOFR or SOFR averages in new issuance of all other products, including floating rate notes, consumer loans, intercompany loans, and securitizations that do not otherwise have Term SOFR assets. The ARRC does not support the use of Term SOFR in these products.
- The ARRC also recommends the use of overnight SOFR and SOFR averages in cases where a party wishes to hedge in the most efficient and transparent manner. Use of the forward-looking term rate in a hedged business loan will tend to involve more transactions costs than using overnight SOFR, and if end users know that they want to hedge their floating rate payments then it would involve fewer transaction costs to use overnight SOFR in arrears or SOFR averages in advance. To allow borrowers seeking hedged business loans an informed choice, the ARRC believes it is good practice for lenders to offer a range of SOFR options in such cases, including daily simple SOFR and/or SOFR averages, and to clearly lay out the cost of the loan and the associated hedge for each option.
- The ARRC does not support the use of the Term SOFR Rate for the vast majority of the derivatives markets, because these markets already reference SOFR compounded in arrears and transitioning derivatives markets to the more robust overnight risk-free rates (RFRs) is essential to ensure financial stability, as emphasized by the Financial Stability Board. Accordingly, the ARRC recommends that any use of Term SOFR-SOFR basis swaps be limited to dealers facing non-dealers and that any use of Term SOFR derivatives other than Term SOFR-SOFR basis swaps be specifically limited to non-dealer facing transactions intended to hedge an end user's direct cash product exposure to Term SOFR. Apart from the recognition of certain limited and specific offsetting transactions by non-market making dealers or lead hedge providers in syndicated or club loan deals, the ARRC recommends that use of all Term SOFR derivatives, including Term SOFR-SOFR basis swaps, between dealers be strictly avoided. These limitations are intended to avoid use that is not in proportion to, or materially detracts from, the depth of transactions in the underlying derivatives market that are essential to the construction of the Term SOFR rates over time.

V. Final Note of Thanks and Future Plans

In closing, the ARRC would like to thank the many individuals who supported its extensive work program. Over the years, this has likely included thousands of individuals. This spans individuals who served as ARRC members, ARRC working group members and their colleagues, as well as individuals who responded to ARRC consultations and outreach. This active engagement and dialogue were critical to driving the work of the ARRC forward.

The ARRC will wind down in the wake of the completion of its mandate and the publication of its Closing Report. The Federal Reserve Bank of New York will launch a new sponsored group in 2024 to focus on promoting the integrity, efficiency, and resiliency in use of reference rates across financial markets. It is envisioned that this group will build on the legacy of the ARRC's work by promoting its critical best practice recommendations. It is expected to be structured similar to other groups sponsored by the New York Fed such as the Foreign Exchange Committee and the Treasury Market Practices Group.

Figure 1: A Timeline of the USD LIBOR Transition

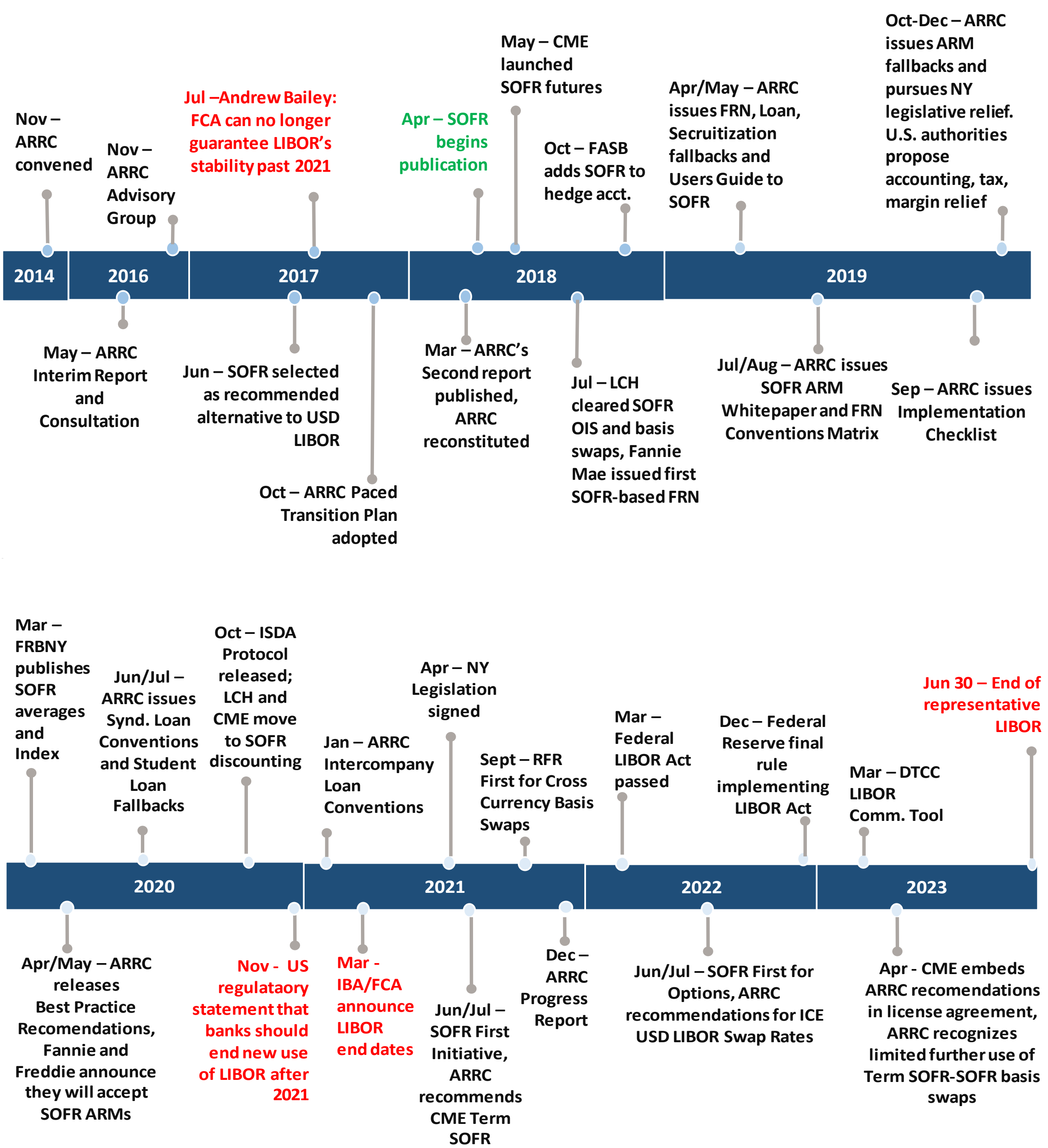

Table 1: ARRC Publications and Events 2016-2023

May-16	Interim Report and Consultation	May-20	Recommendation for Voluntary Compensation for Swaptions
Jun-16	ARRC Roundtable	May-20	Best Practices for Completing Transition From LIBOR
Jun-17	Selection of Broad Repo Rate as Preferred Alternative	Jun-20	Recommended Fallback Language for Private Student Loans
Nov-17	ARRC Roundtable	Jun-20	Updated Recommended Fallback Language for Syndicated Loans
Mar-18	Second Report on the Transition from LIBOR	Jun-20	Further Details Regarding Spread Adjustments Recommendations
Jul-18	Principles for Fallback Contract Language	Jul-20	Tool to Help Firms Move Internal Systems and Processes
Jul-18	ARRC Roundtable	Jul-20	SOFR Summer Series (6 webcasts over Jul-Aug 2020)
Sep-18	FAQs	Jul-20	Conventions Related to Using SOFR in Arrears for Syndicated Loans
Sep-18	Consultation on Fallback Language for Floating Rate Notes	Jul-20	Floating Rate Note Vendor Webcast
Sep-18	Consultation on Fallback Language for Syndicated Loans	Aug-20	Transition Resource Guides for ARMs and Private Student Loans
Dec-18	Consultation on Fallback Language for Bilateral Loans	Aug-20	Updated Recommended Fallback Language for Bilateral Business Loans
Dec-18	Consultation on Fallback Language for Securitizations	Aug-20	SOFR Starter Kit
Feb-19	Office Hours (held weekly, Feb 2019-June 2023)	Sep-20	RFP for the Administration of Spread-Adjusted SOFR Rates
Apr-19	User's Guide to SOFR	Sep-20	RFP for the Publication of Forward-Looking SOFR Term Rates
Apr-19	Recommended Fallback Language for FRNs and Syndicated Loans	Nov-20	Conventions for Using SOFR in Arrears in Bilateral Business Loans
Apr-19	SOFR: A Year in Review	Jan-21	Conventions for SOFR-Based Intercompany Loans
May-19	Recommended Fallback Language for Bilateral Loans and Securitizations	Mar-21	ARRC Confirmation a Benchmark Transition Event has occurred
Jun-19	Report on Potential Interdealer Cross-Currency Swap Conventions	Mar-21	ARRC Announces Refinitiv as Publisher of its Spread Adjustment Rates
Jun-19	ARRC Roundtable	Mar-21	White Paper on Fallback Formula for the USD LIBOR ICE Swap Rate
Jun-19	Vendor Worksop	Mar-21	Supplemental Recommendation of Fallback Language for Business Loans
Jul-19	White Paper on Using an Average of SOFR in ARMs	Mar-21	Approach to Using SOFR in New Securitizations
Jul-19	Consultation on Fallback Contract Language for Residential ARMs	Mar-21	Progress Report on Transition from USD LIBOR
Aug-19	SOFR Floating Rate Notes Conventions	Mar-21	SOFR Symposium Series (6 webcasts over Mar-Oct 2021)
Sep-19	Practical Implementation Checklist for SOFR Adoption	Apr-21	Key Principles for a Forward-Looking SOFR Term Rate
Oct-19	Treasury's Proposed Tax Relief for LIBOR Transition	Jul-21	Best Practices for Use of Forward-Looking SOFR Term Rate
Nov-19	Recommended Fallback Language for Residential ARMs	Jul-21	Formal Recommendation of Term SOFR
Jan-20	Consultation on Potential Spread Adjustment Methods	Oct-21	Summary of Spread-Adjusted Fallback Recommendations
Jan-20	Interdealer Cross-Currency Swap Market Conventions	Dec-21	Statutory Fallback Recommendations for 1-Week and 2-Month LIBOR
Jan-20	Vendor Survey and Buy-Side Checklist on Transition to SOFR	Dec-21	LIBOR Transition Progress Report
Feb-20	Consultation on Swaptions Impacted by CCP Discounting Transition	Jun-22	Recommendations for Contracts Linked to the USD LIBOR ICE Swap Rate
Feb-20	Vendor Webcast	Jul-22	Guide to Support Transition of Legacy LIBOR Cash Products
Mar-20	Proposal for New York State Legislation for U.S. Dollar LIBOR Contracts	Aug-22	Loan Remediation Survey
Mar-20	Consultation on Fallback Language for Private Student Loans	Mar-23	Recommended Fallbacks for ARRC Hardwired Fallback Language
Apr-20	Recommendation of a Spread Adjustment Method for Cash Products	Apr-23	Summary and Update of Term SOFR Scope of Use Recommendations
May-20	Supplemental Consultation on Spread Adjustment Methodology	May-23	Statement on the Last 30 Days before U.S. Dollar LIBOR Panels End
May-20	Best Practices for Vendors' Transition to SOFR	May-23	Webcast on Using DTCC's LIBOR Communication Tool

Table 2: Products Using LIBOR and other IBORs

Source: Reforming Major Interest Rate Benchmarks, FSB July 2014

Loans

- Commercial loans
- Syndicated loans
- Floating rate bank loans
- Term loan market
- Leveraged facilities
- Intercompany loans
- FHLB advances
- Agricultural loans
- Adjustable-rate mortgages
- Student loans
- Credit card loans
- Home equity loans

Derivatives

- Swaps
- Swaptions
- Options
- Forward rate agreements
- Swap futures
- Interest rate futures and options

Structured Products

- Asset backed securities (ABS)
- Mortgage backed securities (MBS)
- Commercial mortgage backed securities (CMBS)
- Collateralised loan obligations (CLOs)
- Collateralised mortgage obligations (CMOs)
- Hybrids and synthetics

Bonds

- Corporate bonds
- Commercial paper
- Medium-term notes (MTNs)
- Auction rate securities
- Subordinate debt
- Senior notes
- Agency notes
- Exim bonds
- Affordable housing bonds
- Trust preferred securities
- Covered bonds

Money Markets

- Foreign office deposits
- Time deposits
- Checking accounts
- Money market deposit accounts
- Demand deposit products
- CDs
- Securities lending

Other Products

- Taxes
- Liquidity facilities
- Penalty rates
- Capital leases
- Trade finance
- Project finance
- FA-backed notes
- Direct fund agreements
- Commercial leases
- Interest on intercompany accounts
- Pricing/accounting of debt and derivatives
- Benchmarks for asset management mandates
- Discount rates
- Fair value calculations
- Solvency II liabilities reference rate definition
- Discount rate for property valuations
- CAPM calculations of regulatory cost of capital
- Late payment, price escalation/adjustment clauses

Figure 2: The ARRC's Working Group Structure

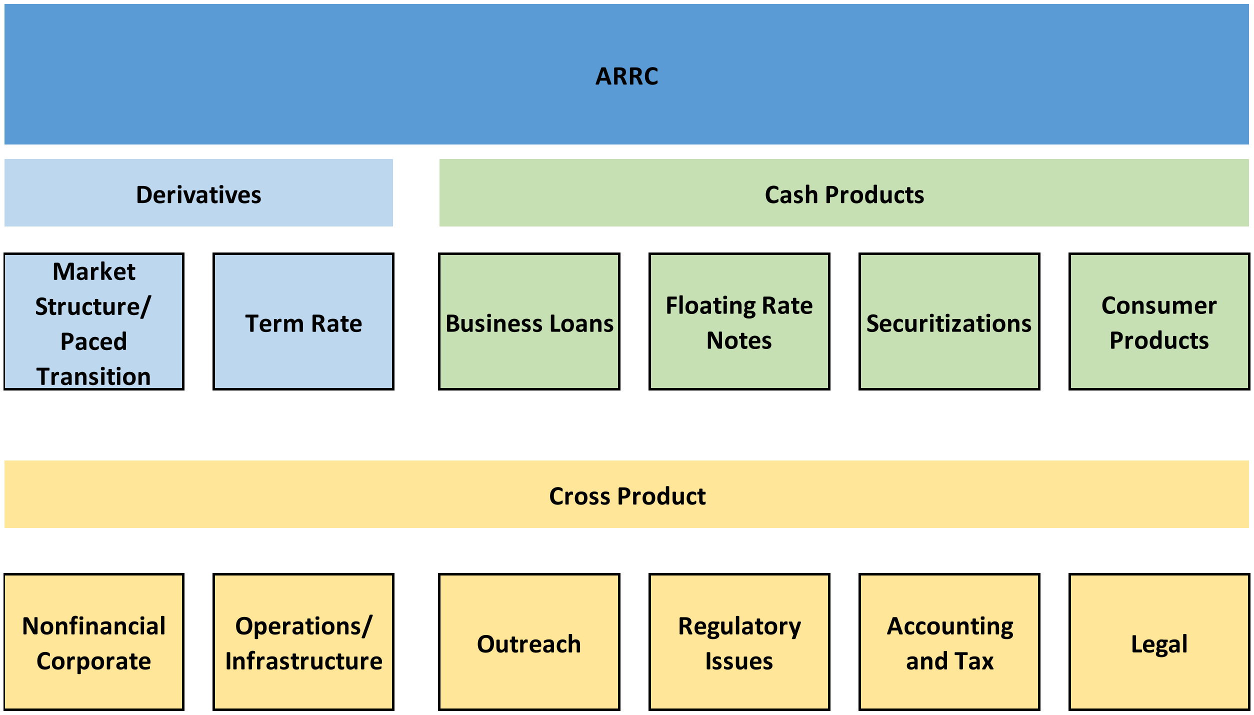

Table 3: ARRC Criteria for Potential Alternative Reference Rates

- **Benchmark Quality**

The degree to which the benchmark design ensured the integrity and continuity of the rate. The underlying market was evaluated according to its:
  - Liquidity
  - Transaction volume
  - Resilience through periods of illiquidity
  - Resilience to changes in regulatory approach
  - Potential that the benchmark may constrain or be adversely affected by changes in the monetary policy framework

- **Methodological Quality**

The degree to which the benchmark construction could satisfy the IOSCO Principles for soundness and robustness. Rates were also evaluated according to:
  - Standardized terms for data inclusion
  - Transparency of data
  - Availability of historical data

- **Accountability**

Evidence of a process that ensures compliance with the IOSCO Principles

- **Governance**

Evidence of governance structures that promote the integrity of the benchmark

- **Ease of Implementation**

Assessed ease of transitioning to the rate, including:
  - Anticipated demand for and relevance to hedging/trading
  - Existence of or potential for a term market in the underlying rate