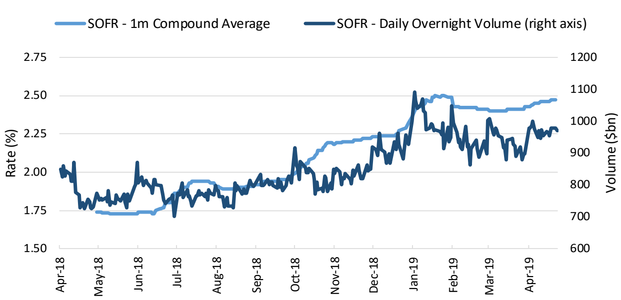
April 2019

SOFR: A Year in Review

In the year since the New York Fed, in collaboration with the Office of Financial Research, began daily publication of the Secured Overnight Financing Rate (SOFR), significant progress has been made in building liquidity in SOFR-linked markets and preparing for the transition from U.S. dollar (USD) LIBOR. In 2017, SOFR was selected by the Alternative Reference Rates Committee (ARRC) as its preferred alternative to USD LIBOR following extensive analysis and public consultation.

About SOFR. SOFR is a broad measure of the cost of borrowing cash overnight collateralized by U.S. Treasury securities in the repurchase agreement (repo) market. The volumes underlying SOFR are far larger than the transactions in any other U.S. money market. Since its inception in April 2018, there has been an average daily volume of over $800 billion in overnight Treasury repo transactions underlying it. This rate was developed in alignment with international best practices and it is not at risk of cessation being based on a deep, liquid market. To help explain how market participants can use SOFR in cash products, the ARRC released [A User's Guide to SOFR]. This addresses a range of topics, including differences between using *simple* or *compound* averages of SOFR and differences between calculating payments using *in arrears* or *in advance* conventions.

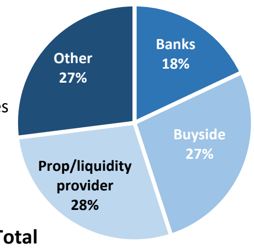
Secured Overnight Financing Rate Chart



Sources: Volumes (FRBNY), Rates (Federal Reserve Board estimates)

SOFR-Linked Products by the Numbers[1]

Futures



130+ **Number of Participants**

Since it's launch in May 2018, futures participants have steadily increased across dealers and buy side. Block trades have been executed (outright and in spread)

Over $97bn & $468bn **Average Daily Notional and Total Outstanding Open Interest**

CME and ICE futures contracts have continued to increase since trading began on each exchange with a sharp increase in activity during February

Swaps[2]

Over $49bn **Outstanding Notional**

Cleared SOFR swaps have shown a steady increase, with more than $49 billion outstanding

Cash Issuances

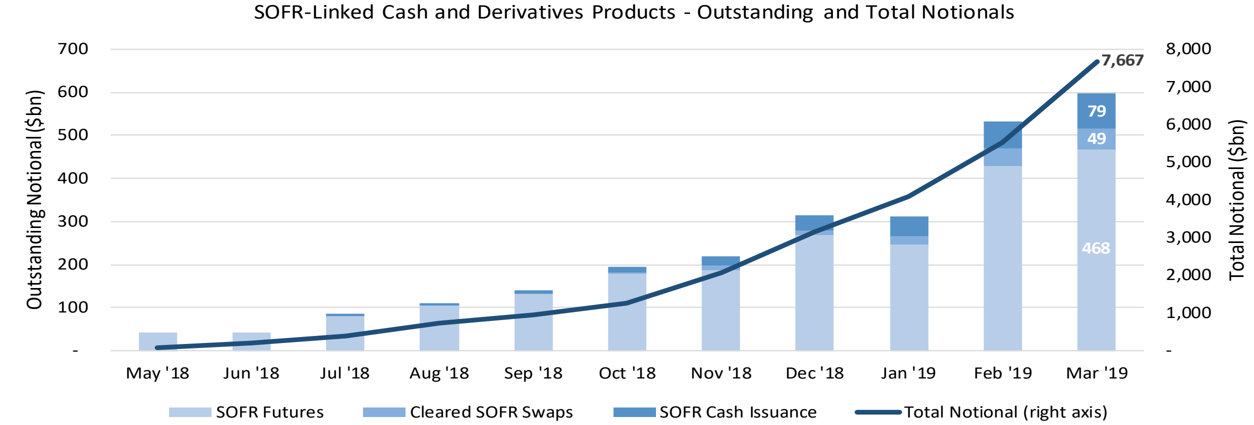
Over $79bn **Outstanding**

SOFR cash issuance has reached more than $79bn outstanding with market participation across corporates, financial institutions and government sponsored agencies

SOFR-Linked Outstanding and Total Notionals[1]

- Outstanding SOFR-linked notional steadily grew throughout 2018, with a large spike in activity occurring between January and February 2019, indicating increased interest and involvement from market participants
- In the short period since inception of SOFR in April 2018, total notional has reached more than $7tn in the market

SOFR-Linked Cash and Derivatives Products - Outstanding and Total Notionals



[1] **Sources**: CME Group (cash issuances, futures and cleared swaps), ICE (futures) and LCH (cleared swaps). Historical data provided as of March month-end.
[2] SOFR cleared swaps are based on consolidated outstanding notionals provided by LCH and CME

ARRC

Fallback Language. The ARRC Second Report noted that most contracts referencing LIBOR may not have robust fallback language. In response, the ARRC has published *Guiding Principles for More Robust Fallback Contract Language in Cash Products* and has consulted on proposed fallback language for bilateral business loans, floating rate notes (FRNs), securitizations, and syndicated loans. The ARRC received extensive comments (~120 response) on the fallback consultations from market participants. The ARRC released final recommended contractual fallback language for FRNs and syndicated loans, and it is working to finalize the other recommended language in 2019. The ARRC has also been actively engaged in the work led by International Swaps and Derivatives Association (ISDA) to consider best practices for contract robustness in derivatives contracts.

For more information see Fallback Contract Language on the ARRC's website

ARRC has broad participation across the financial services industry and representation from the official sector

ARRC

- 9 Industry Associations
- 9 Banks
- 7 Asset Managers, Insurers, & Other End Users
- 10 Official Sector (ex officio)
- 3 Financial Exchanges
- 3 Gov.-Sponsored Enterprises

ARRC Working Groups *(includes members and non-members)*

- 25+ Asset Managers & Insurers
- 50+ Banks & Fin. Service Firms
- 20+ Fin. Infrastructure & Consulting Firms
- 20+ Industry Associations

Timeline / Key Milestones

2018 · 2019 · 2020 · 2021

Apr 2018
New York Fed/OFR began **publishing SOFR**

May 2018
CME launched SOFR futures

Jul 2018
LCH began clearing SOFR swaps

Jul 2018
ARRC issued guiding principles for fallback contract language

Sept - Dec 2018
ARRC issued consultations on fallback language for FRNs, syndicated loans, bilateral loans, and securitizations

Oct 2018
CME began clearing SOFR swaps with SOFR PAI/discounting

ICE launched SOFR futures

Financial Accounting Standards Board approved SOFR OIS as a benchmark interest rate for hedge accounting purposes

Jan 2019
Consumer Product Working Group launched

1H 2019
ARRC released final recommendations for robust contract language in FRNs and syndicated loans, and expects to release final recommendations for business loans, and securitizations

ARRC released a paper to explain how market participants can use SOFR in cash products

YE 2019
ISDA to finalize definitions amendments to include fallbacks in new derivative contracts, including triggers, fallback rates, and spread adjustments

ARRC to consult on robust contract fallback language for consumer products

2H 2020
LCH to move to SOFR PAI/discounting on both new and legacy swaps

YE 2021
LIBOR may cease to be produced

Forward-looking SOFR term reference rate expected

Anticipated Dates
Completed Milestones

About ARRC. The ARRC is a group of private-market participants working to help ensure a successful transition from USD LIBOR to a more robust reference rate, its recommended alternative, SOFR. It is comprised of a diverse set of private-sector entities, each with an important presence in markets affected by USD LIBOR, and a wide array of official-sector entities, including banking and financial sector regulators, as *ex-officio* members. It was initially convened in 2014, to identify risk-free alternative reference rates to USD LIBOR, identify best practices for contract robustness, and create an implementation plan for an orderly adoption. It accomplished that initial set of objectives, and today, the ARRC is working to help ensure the successful implementation of the Paced Transition Plan, address the increased risk that LIBOR may no longer be usable beyond 2021, and serve as a forum to coordinate and track planning across cash and derivatives products and market participants currently using USD LIBOR.

For more details, see the ARRC's website: https://www.newyorkfed.org/arrc.

The ARRC's work complements parallel efforts in each of the other LIBOR currency jurisdictions. For more details on international efforts for reference rate reform, see the working groups in the U.K., Switzerland, Japan, the euro area, and the Financial Stability Board's Official Sector Steering Group. To the extent possible, the ARRC seeks to coordinate its plans with these groups.