Options for Using SOFR in New ABS, MBS, and CMBS Products

The Alternative Reference Rates Committee

March 2021
Executive Summary

This paper describes one model for using the Secured Overnight Financing Rate (SOFR)\(^1\) in asset-backed securities (ABS), mortgage-backed securities (MBS), and commercial mortgage-backed securities (CMBS) products. The Alternative Reference Rates Committee (ARRC)\(^2\), convened by the Board of Governors of the Federal Reserve System and Federal Reserve Bank of New York (FRBNY), asked the Securitizations Working Group (SWG)\(^3\) to identify the key considerations relevant to developing new issuances of securitized products based on SOFR.

SWG members, including representatives of issuers, underwriters, arrangers, trustees, servicers, calculation agents, note administrators, trust administrators, and investors (Market Participants), participated in a months-long process sharing insights and perspectives on current ABS market operations, investor preferences, and market trends in reaching a consensus view on one option for the use of SOFR in ABS, MBS, and CMBS products.

This paper refers to ABS to represent collectively ABS, MBS, and CMBS\(^4\) products, and does not address corporate collateralized loan obligation (Corporate CLO) products. This paper describes one option for how new issuances of ABS products could use 30-day Average SOFR\(^5\), with a monthly reset, set \textit{in advance} of the interest accrual period. This methodology uses published 30-day Average SOFR which uses the actual SOFR rates from the 30-day period before the applicable reset date, which members of the SWG determined to be preferable to other alternatives to address operational complexities in many cases.

While this paper does not include a discussion on how ABS products could use SOFR set \textit{in arrears}, SWG members did invest significant effort discussing that possibility. The SWG acknowledges that an \textit{in arrears} methodology may be preferred by some market participants in certain transactions depending on the asset class and structural features of the transaction and therefore expects to continue to work with market participants to explore an \textit{in arrears} methodology. In addition, this paper does not include considerations for how new issuance of Corporate CLOs could use SOFR because related discussions continue within the SWG and dedicated workstreams are being undertaken to produce separate observations for Corporate CLOs.

\(^1\) The Secured Overnight Financing Rate (SOFR) is a broad measure of the cost of borrowing cash collateralized by Treasury securities. https://apps.newyorkfed.org/markets/autorates/SOFR.

\(^2\) The ARRC is a group of public and private sector entities, convened and sponsored by the Federal Reserve with a mandate to develop recommendations for a successful transition from USD LIBOR. https://www.newyorkfed.org/arrc/about. The ARRC’s members include private-market buyside, sellside, and intermediary participants in a broad range of interest rate products and transactions, and ex-officio members of the official sector, including the Federal Reserve and other market regulators.

\(^3\) To help meet its mandate, the ARRC has established numerous working groups with additional public and private sector market participants to study market transition issues potentially affecting various products currently based on USD LIBOR. The Securitizations Working Group includes hundreds of representatives from a wide variety of Market Participants.

\(^4\) Includes Single-Asset, Single-Borrower (SASB) transactions and Commercial Real Estate (CRE) CLOs.

\(^5\) The Federal Reserve Bank of New York publishes the 30-day Average SOFR on its website (https://apps.newyorkfed.org/markets/autorates/sofr-avg-ind) every day other than a Saturday, a Sunday or a day on which the Securities Industry and Financial Markets Association recommends that fixed income departments of its members be closed for the entire day for purposes of trading in U.S. government securities.
The published 30-day Average SOFR incorporates several beneficial attributes that make the rate a preferable alternative to U.S. dollar (USD) LIBOR for certain securitized products. The SWG believes that the use of 30-day Average SOFR aligns well with current market practices and will meet Market Participants’ expectations for a vibrant and well-functioning market for the foreseeable future. The recent SOFR-based issuance in consumer and commercial (including multifamily) loans as well as securitizations primarily use 30-day Average SOFR. \(^6\) By adopting a consistent approach across securitizations in a wide variety of asset classes, Market Participants cited significant advantages to the overall function of markets. Although this paper sets forth one option for how ABS, MBS, and CMBS products could use 30-day Average SOFR, Market Participants may select appropriate adjustments to the methodologies described herein in connection with any particular ABS issuance based on the unique attributes of the collateral backing the applicable securitization as well as the desired terms of the related securities.

SWG members include a disparate group of Market Participants, each with their own perspectives on implementing SOFR in securitized products. In order to present the reader with a complete understanding of the process used by the SWG to develop the methodologies described herein, this paper will also include a description of various considerations raised by Market Participants.

Regulators have stressed the need to cease issuing USD LIBOR-based products as soon as is practicable \(^7\) and although the ARRC has work underway to develop a forward-looking term rate based on SOFR (Term SOFR), there is no guarantee when or if the ARRC will recommend the use of Term SOFR, whether for securitized products or otherwise. It is also not certain whether any recommendation would apply to all securitized products, and may be limited to use in legacy securitized products solely in connection with a transition from LIBOR. The conventions set forth in this paper do not constitute binding rules or regulatory guidance, and market participants must decide for themselves whether or to what extent they will adopt and apply them consistent with the size and complexity of their activities and institutions, and with the nature of their engagement in relevant transactions, taking into account relevant supervisory and regulatory policy. Nothing in this paper is intended to limit the range of possible new product development based on SOFR, or the terms and conditions under which market participants transact in any variable rate products based on SOFR (or any other rate); and it is not intended to address or be inconsistent in any way with alternative product development based on other forms of SOFR or other rates in the future, including use of SOFR in arrears or potentially Term SOFR, to the extent that those rates are established and meet the criteria set forth by the ARRC.

While forward-looking rates may offer some attractive features to investors, the ARRC has emphasized that it is important not to wait for those rates to be available and regulators have noted that the use of term rates should be limited. Further, the U.S. official sector has emphasized that market participants should seek to transition away from LIBOR as soon as possible instead of relying on the inclusion of fallback language in any LIBOR products. \(^8\) Given the risks to LIBOR and the length of time that it can take to build

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\(^6\) To date, multifamily loan originations and CMBS transactions that have issued securities publicly based on SOFR have been sponsored by the Government Sponsored Enterprises (GSEs).


\(^8\) The methodology described in this paper would be one alternative in the priority of fallback rates available if Term SOFR is not available. See https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2019/Securitization_Fallback_Language.pdf. The conventions proposed in this paper with respect to 30-day Average SOFR are compatible with an eventual replacement with Term SOFR should Term SOFR become available and recommended for use in new issue ABS.
new product systems, there are persuasive arguments for using robust, International Organization of Securities Commissions (IOSCO)-compliant rates that already exist. The SWG intends to continue its work to develop additional methodologies for using SOFR to the extent such rates become available and are adopted by the ARRC.

Background

In 2014, the Federal Reserve convened the ARRC and tasked it with identifying an alternative to USD LIBOR that was a robust transaction-based rate derived from a deep and liquid market, and using a rate with a construction, governance and accountability that would be consistent with the IOSCO Principles for Financial Benchmarks. The ARRC engaged in a several-year process to evaluate a range of potential alternative rates, and considered a variety of factors including the depth of the underlying market and its likely robustness over time as well as the rate’s usefulness to market participants.

In 2017, the ARRC fulfilled this mandate by selecting SOFR. SOFR is relatively new, and many market participants do not have experience using it. SOFR is also an overnight rate, and while the ARRC believes that most market participants can adapt its use by using compounded averages (such as the SOFR averages) or simple averages over the relevant term, the ARRC has, at the same time, set a goal of seeing an administrator produce a forward-looking term rate based on SOFR derivatives (once these markets develop to sufficient depth) in order to aid those cash market participants who may have greater difficulty in adapting to an overnight rate.

As the ARRC has discussed in its previous releases, SOFR has several advantages that LIBOR and other similar rates based on wholesale term unsecured funding markets do not. However, as an overnight rate, SOFR differs from the 1M USD LIBOR, and other tenors, that serve as the basis for the floating rates in the ABS markets because SOFR is not a term rate. Although many Market Participants have become accustomed to using forward-looking term rates like LIBOR, overnight rates have long been used in other financial instruments, including futures, overnight index swaps (OIS), loans (for example, loans based on overnight LIBOR or the Prime Rate) and floating rate notes.

On March 2, 2020, the FRBNY, as administrator of SOFR and in cooperation with the Treasury Department’s Office of Financial Research (OFR), began publishing 30-, 90-, and 180-day SOFR Averages, in order to support a successful transition away from USD LIBOR. The SOFR Averages are referred to as “30-day Average SOFR”, “90-day Average SOFR” and “180-day Average SOFR.”

The SOFR averages employ daily compounding on business days, as determined by the SOFR publication calendar. Specifically, the SOFR averages are calculated as:

transactions. In addition, certain multifamily mortgage loans and related securitizations have included a “retest” feature through which a designated transaction party may elect to replace the existing rate with Term SOFR. The SWG acknowledges that the terms of the underlying financial assets will also inform the timing of any subsequent transition by Market Participants to Term SOFR. An issuer may seek to tie any subsequent transition to Term SOFR to any transition of the financial assets that serve as collateral for the ABS. Other methods for converting to Term SOFR may be identified and also provide an appropriate method to govern the transition to Term SOFR if desired.
\[
SOFR\ Average = \left[ \prod_{i=1}^{d_b} \left( 1 + \frac{SOFR_i \times n_i}{360} \right) \right] - 1 \times \frac{360}{d_c}
\]

Where:

\( SOFR_i = \) SOFR applicable on business day \( i \)

\( n_i = \) number of calendar days for which \( SOFR_i \) applies (often 1 day, or 3 days for typical weekend)

\( d_c = \) the number of calendar days in the calculation period (that is, 30-, 90-, or 180- calendar days)

\( d_b = \) the number of business days in the calculation period

\( i \) denotes a series of ordinal numbers representing each business day in the calculation period

The SOFR averages for a given publication date incorporate all SOFR values starting exactly 30-, 90-, and 180-calendar days before the publication date, regardless of whether or not that date is a weekend or holiday, and extend through SOFR published that day. In order to preserve the fixed-day count structure, SOFR averages are assigned the SOFR value from the preceding business day when the start date of a given tenor falls on a weekend or a holiday. For example, if the start date falls on a Saturday, SOFR for the preceding Friday is applied for two calendar days (Saturday and Sunday). If the start date falls on a Sunday, SOFR for the preceding Friday is applied for one calendar day (Sunday). SOFR averages are published as percentages rounded to the fifth decimal place on each day that SOFR is published, to a dedicated web page on the FRBNY website, shortly after the SOFR is published at approximately 8:00 a.m. ET.9

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9 With regard to the publication of the SOFR, if errors are discovered in the transaction data provided by either BNYM or DTCC Solutions, or in the calculation process, subsequent to the rate publication but on that same day, the affected rate or rates and accompanying summary statistics may be republished at approximately 2:30 p.m. ET. Additionally, if transaction data from BNYM or DTCC Solutions had previously not been available in time for publication, but became available later in the day, the affected rate or rates may be republished at around this time. Rate revisions will only be affected on the same day as initial publication and will only be republished if the change in the rate exceeds one basis point.
I. Basics of Asset-Backed Securities Transactions

To meet its mandate to act as a forum to develop voluntary recommendations, the ARRC formed multiple working groups and, as part of that process, formed the SWG in March 2018. After deliberation, the SWG determined it would be beneficial to the market to create two separate workstreams in order to analyze the nuances of certain underlying assets collateralizing securitized products: one workstream to discuss ABS specifically, and another to discuss Corporate CLO issuance specifically. Through the SWG, a diverse array of Market Participants volunteered to form a new product development workshop and discuss the development of new ABS products using SOFR. This paper is intended to explain the considerations raised by the SWG during the exploration of ways in which SOFR could be used in ABS (other than Corporate CLOs), as well as addressing some of the differences that such products would have compared with current LIBOR-based products. As noted, this paper is not intended in any way to preclude alternative product development based on SOFR or any other rate and recognizes that there may be structures and products that require alternatives to be used. The primary objective of this paper is to provide a framework that facilitates SOFR-based products that are consistent with the ARRC’s principles.

In an ABS transaction, cash flows or financial assets are typically pooled together, transferred to a separate Special Purpose Entity (SPE), and structured to be isolated from the credit risk of the seller of the assets. These cash flows or financial assets include receivables or loans to consumers or businesses, including auto and equipment loans and leases, personal unsecured loans, commercial and residential mortgages, floorplan loans or contractual rights, such as licenses or royalties. An ABS transaction is typically structured as a “true sale” of the securitized assets to the SPE, as distinguished from a borrowing secured by such assets, with the essential structural goal of isolating the securitized assets from insolvency or the bankruptcy estate of the seller. These structural characteristics permit investors to purchase securities,

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10 The SWG determined a separate workstream to discuss CMBS was not warranted, given the industry’s coalescence around 30-day Average SOFR discovered by dedicated efforts of the Commercial Real Estate Finance Council; this conclusion was concurrently supported by separate exploratory efforts of the Structured Finance Association.
the payments on which are dependent on the underlying cash flows associated with the financial assets backing the ABS, without taking on the credit risk of the seller.

ABS transactions are generally structured in a manner that ties the terms of the ABS securities issued in the transaction with the characteristics of the financial assets that are securitized. In many ABS transactions, the payments on the ABS securities are required to be made on a monthly basis. Often, payments are structured monthly because the financial assets backing the ABS securities require monthly payments by the related obligors.

The SWG acknowledges that the terms of the underlying financial assets will dictate, in large part, the structuring decisions that are made by Market Participants. The terms of the underlying financial assets and the market conventions that are used to develop those assets should be considered by Market Participants when structuring the related ABS securities. The SWG recognizes that the ARRC’s publications for using SOFR in other products, including mortgages and student loans, floating rate notes and business loans, may provide further guidance for Market Participants structuring ABS securities backed by those products or require adjustments to the methodologies set forth herein.

A sample structure of a common consumer ABS securitization is illustrated below. As there is variability in the specific structures of particular ABS transactions, this illustration is intended for explanatory purposes only. In addition, certain products (such as MBS and CMBS) may have structures and key parties to the transaction that differ from what is shown.
To the extent possible, approaches for using SOFR in new ABS products were developed giving due consideration to the benefit of aligning the recommendations with existing practices. Members of the SWG viewed having a limited number of market standards for using SOFR to be a necessary step for adoption. By looking to existing, thoroughly vetted practices for using SOFR in ABS today, the SWG seeks to minimize confusion and complexity and maintain consistency within the market, thereby facilitating its adoption by Market Participants in ABS products. In addition, the market has begun to show nascent signs of accepting a SOFR-based rate with recent issuances by a government sponsored entity of ABS using 30-day Average SOFR set in advance. ¹¹

¹¹ Through January 31, 2021, Freddie Mac has issued 25 floating-rate “K-Deals” with a total outstanding balance of over $23 billion containing SOFR bond classes. While the initial four transactions referenced a calendar month average of SOFR set in advance, all SOFR bond classes and underlying SOFR loans thereafter have incorporated the published 30-day Average SOFR, also set in advance. Additional detail on the SOFR bonds can be found at https://mf.freddiemac.com/investors/k-deals.html.
A. Payment Calculation

i. SOFR Averages

For Market Participants that choose to use SOFR, the consensus among SWG members suggested using 30-day Average SOFR for ABS products where 1M USD LIBOR has been used historically. For products that use 3M USD LIBOR or 6M USD LIBOR, those issuers may seek to use 30-day Average SOFR depending on the appetite of investors and other Market Participants, the payment characteristics of the financial assets backing the related ABS, and other considerations such as hedging and asset-liability management. Members of the SWG discussed how quarterly or semi-annual resets do not necessitate the use of 90- or 180-day SOFR, emphasizing that 30-day Average SOFR provides a more recent reflection of the current interest rate environment. The ARRC does not recommend using overnight spot SOFR for cash products because of the volatility that can be present in day-to-day market rate changes. As a result, the SOFR Averages are preferred by the SWG because they smooth out fluctuations while accurately reflecting interest rate movements over the applicable tenor.

Using an average of SOFR over time presents other benefits. Unlike overnight SOFR, 30-day Average SOFR is an end product that does not require further calculation, similar to current LIBOR usage. The FRBNY and OFR provide transparency and certainty to the calculation of 30-day Average SOFR, reducing the risk that errors or disputes arise.

SWG members noted that because the SOFR Averages by their nature reflect the interest rate environment over the prior 30-, 90- or 180-day periods, the longer the day span, the staler the rate is relative to a forward-looking term rate or if the rate were reset in arrears. Those risks may make using 90-Day Average SOFR or 180-day Average SOFR less desirable to some Market Participants. The SWG believes that indices based on shorter periods of prior observed daily rates, such as 30-day Average SOFR, mitigate those concerns. Using 30-day Average SOFR as a standard across ABS products with monthly payment dates has the potential benefit of minimizing distinctions among issuers if the market widely adopts this methodology. The SWG believes that the adoption of a consistent approach across the industry can allow SOFR issuance volume to safely grow more rapidly because investors will not need to analyze offering documents to discern methodology permeations when comparing ABS issuances. Such consistency would facilitate a smoother marketing process for issuers, and would likely result in more efficient pricing.

In some cases, the financial assets may receive payments quarterly or semi-annually or have other less common characteristics that may lead to the ABS securities being more appropriately structured to pay quarterly or semi-annually. Market Participants should consider techniques for mitigating the basis risk with such products. Market Participants may also need to use methodologies other than those set forth herein as a result.

ii. Payment Determination in Advance

The approach generally favored by the SWG was to use 30-day Average SOFR for calculating payments, resetting the rate in advance of the related interest accrual period. The rate of interest for a particular interest period can be set at any point in relation to an interest period, including at the beginning of the interest period, on each day of the interest period, or at the end of an interest period. Contracts that set the floating rate at the beginning of the interest period are termed in advance because the rate is locked-in or set in advance of the start of the interest accrual period; an in advance payment structure based on 30-day Average SOFR would reflect the average of SOFR observed for the 30-day period prior to the rate
reset date at the beginning of the related interest accrual period. Contracts that set the floating rate at the end of the interest accrual period are termed in arrears; an in arrears structure indexed to 30-day Average SOFR would reflect the average of SOFR over the most recent 30 days during the interest accrual period prior to the reset date. An in arrears methodology would result in the interest accrued for any applicable interest accrual period reflecting the actual interest rate environment during that interest accrual period. However, with an in arrears methodology, the interest rate would only be known at the end of the interest period, subject to any lookback or lockout periods as discussed below.

SWG members discussed considerations for aligning the methodology for using SOFR in ABS with other products, noting the relationship ABS has with the underlying assets and with the derivatives market for hedges. Consumer loans and residential or commercial mortgages commonly serve as collateral in ABS structures and these loans reset in advance, regardless of the interest rate used, in order for borrowers to know in advance what they will owe on the related payment date, thus permitting the related borrowers to manage household budgets or monthly cashflows. Members of the SWG recognized the importance of this timing for borrowers. Resetting the ABS in arrears would introduce basis risk where the underlying assets reset in advance. Unless an ABS qualifies for an exception to derivatives regulations as outlined in the Commodity Exchange Act, an ABS vehicle would not be able to enter into a swap hedge within the structure to address such basis risk.

Although some investors may prefer the interest rate to reset at the end of an interest period in order to align more with the interest rate environment that existed during the actual interest accrual period, members of the SWG noted that doing so presents significant operational challenges for Market Participants. Market Participants responsible for the ongoing maintenance and operations of a securitization were concerned that a reset date at the end of an interest period would be operationally infeasible, and estimated the need for at least a 7-business day lockout in order to properly calculate and timely release funds. For a 30-calendar day accrual period, the operational time is not insignificant relative to the length of the accrual period. Calculating the payment in advance of the interest period provides Market Participants with ample time to prepare calculations and notices and minimizes potential disruptions in the relationship between the issuer and investors. SWG participants further noted that issuers will benefit from knowing the rate that will be applicable to the interest accrual period in advance, thereby facilitating easier cash flow management and forecasting.

Some SWG members indicated that knowing the interest rate in advance of the interest accrual period is an important aspect of a stable and liquid market because it allows trades in ABS securities to occur without adjustment during the month. Without knowing the amount of interest that will accrue for each day during the interest accrual period, a party that trades the ABS securities during the period would have more difficulty calculating the amount of interest accrued that should be allocated to each of the parties because settlement amounts would need to be adjusted once the actual accrued interest for the month is determined.

In addition, SWG members pointed out that although the in arrears methodology may better reflect current market trends than the in advance methodology, when considering the required lookback or lockout period that would be necessary to support such an approach, the SWG felt the benefits of matching the term of the rate to the interest accrual period were outweighed by the increased operational challenges associated with not knowing the applicable interest rate until the end of the related interest accrual period. SWG members viewed these structural limitations as potentially placing an undue burden
on the liquidity of ABS securities. For these reasons, an *in advance* approach was preferred over an *in arrears* approach.

### iii. Reset Frequency and Payment Frequency

ABS products typically have an interest rate reset date that is one or two business days prior to the start of the related interest accrual period. The frequency and timing of interest rate resets relative to the interest accrual period were key attributes considered by the SWG. Certain SWG members provided feedback that maintaining the one- or two-business day *in advance* reset period would provide continuity with existing LIBOR based products while other members felt a shorter period of time was possible considering the nature of 30-day Average SOFR and its representation of the interest rate environment over the prior 30-day period. The SWG concluded that resetting the interest rate either one or two business days prior to the beginning of the interest accrual period would be acceptable, with issuers continuing to independently decide whether variations are warranted and use their discretion when structuring transactions.

SWG members concluded that payment frequency and securities’ payment dates should also be determined by the issuer in consideration of the timing of the financial assets serving as collateral and the particular structuring constraints of the transaction. If the financial assets accrue interest *in arrears*, it may be appropriate for the securities issued in the securitization to accrue interest *in arrears*. This approach is consistent with current practices and was acceptable to SWG members representing all Market Participants’ perspectives.

### B. Spread

The primary means of pricing an ABS product typically involves the Market Participants in the transaction adding some percentage to the index rate, called the “spread.” The amount of the spread differs from one security to another, but is usually fixed for the anticipated life of the security. Investors seeking different risk profiles seek prices for bonds that reflect such risks. This spread compensates investors for the riskiness of a particular bond, such as its subordination and duration and the payment and credit risk of the financial assets that collateralize it.

The “fully indexed rate” is equal to the spread plus the index. For example, if the ABS issuer uses an index that currently is 2.5 percent and adds a 3 percent spread, the fully indexed rate would be 5.5 percent. If the index on these securities rose to 3.5 percent, the fully indexed rate at the next adjustment would be 6.5 percent (3.5 percent + 3 percent). If the index fell to 2 percent, the fully indexed rate at adjustment would be 5 percent (2 percent + 3 percent). In practice, ABS linked to different underlying indices often have different spreads, e.g. LIBOR bonds at 2.25 percent, versus Prime bonds at 1.75 percent, to take in to account the different levels of the indices.

The SWG did not discuss spread levels and believes that spreads should remain at the discretion of the Market Participants involved in a particular transaction.
III. Conclusion

Although still relatively new, Average SOFRs carry several advantages over USD LIBOR. The widespread adoption of Average SOFR in ABS transactions will help stabilize the market during the LIBOR cessation and reduce systemic risk. The model described in this paper is not a binding directive nor exhaustive of all other acceptable possibilities but a consensus-based example of how a successful SOFR-based ABS product could be created using Average SOFR, with interest rates determined prior to the commencement of the interest accrual period.