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June 21, 2021

Via Electronic Mail

Mr. Thomas G. Wipf
Chair – Alternative Reference Rates Committee
Federal Reserve Bank of New York
33 Liberty Street
New York, NY 10045

Copy to:

Dr. David Bowman
Senior Associate Director
Board of Governors of the Federal Reserve System
20th Street and Constitution Avenue N.W.
Washington, DC 20551

RE: Progress update for the Alternative Reference Rates Committee (ARRC) regarding the Across-the-Curve Credit Spread Index (AXI)

Dear Chairman Wipf,

I am writing to you on behalf of SOFR Academy LLC, a U.S. based education technology firm and data provider headquartered in New York. Our panel of advisors includes academics from Harvard University, the MIT Sloan School of Management, the University of California Berkeley, New York University, Tsinghua University, and Australian National University as well as experienced financial services professionals[1]. We provide educational services to corporations, financial institutions, governments, regulators, and individuals on critical topics that impact

[1] https://sofracademy.com/our-people/

financial markets, such as the transition from LIBOR to more robust reference rates such as SOFR. Since our inception, we have reached more than 37,000 individuals[2] in more than 190 countries[3]. We believe this reflects the important global funding role of the US-dollar as the world's reserve currency.

We support SOFR and believe that the immediate priority of market participants should be to focus their time and energy on operationalizing SOFR. In the longer run, we also support a menu of credit sensitive add-ons, such as the Across-the-Curve Credit Spread Index (AXI) and the Financial Conditions Credit Spread Index (FXI)[4,5]. As you may be aware, SOFR Academy is driving their operationalization. The purpose of this letter is to provide you with a brief update on our progress and our approach.

Over recent months, we have received numerous requests from financial market participants, including ARRC member firms and media outlets, regarding the nature and timing of AXI's launch. Inbound inquiries regarding AXI have increased since the June 11, 2021, Financial Stability Oversight Council Meeting[6]. While we acknowledge the current market demand, we believe that judiciousness and operational excellence supersede haste. We are committed to taking a more measured approach incorporating feedback from sell side and buyside financial institutions, non-financial corporates, industry associations, regulators, members of the ARRC, and central banks.

We appreciate that the ARRC supports a vibrant and innovative market with reference rates that are robust, IOSCO compliant, and available for use before the end of 2021.[7] We believe that the usage of a robustly defined and sustainable credit spread add-on to SOFR like AXI for certain products will represent an important option for market participants and provide an element of transparency, clarity and fairness for both the lender and borrower in the loan market. Importantly, a SOFR + AXI approach will promote the industry adoption of SOFR.

Recently published surveys from the ARRC's non-financial corporate working group have indicated a preference for loans without any credit sensitive element. We have two concerns in relation to this. First, it is possible, that respondents to the survey were only aware of LIBOR-like rates[8] and were not aware of AXI (which is not a LIBOR-like rate). Second, if lenders instead price loans off of SOFR plus a fixed margin, we believe (based on our client conversations) there is a material risk that lenders may use a higher overall margin to account for the uncertainly in

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[2] Data as at June 16, 2021
[3] Top countries by users (in order): United States, India, Bangladesh, United Kingdom, Pakistan, Nepal, Iraq, Singapore, Hong Kong, Indonesia, Brazil, Canada, United Arab Emirates, Australia, Mexico, Philippines etc.
[4] The Financial Conditions Credit Spread Index (FXI) is an extension of AXI that incorporates data based on transactions of both financial and non-financial corporate debt instruments. An advantage of including non-financial issues is the much larger volume of transactions that can be exploited for robustness. It has been estimated that this scales up the dollar volume of covered transactions over the period 2014–2019 by factor of nearly 500%. AXI and FXI are highly correlated, especially over the past few years. Berndt, A., D. Duffie, and Y. Zhu (2020)
[5] For the purposes of this letter, both AXI and FXI will be referred to as AXI
[6] See ARRC Welcomes and Highlights Messages from Recent FSOC Principals Meeting https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2021/20210615-arrc-release-fsoc-meeting-final
[7] ARRC Frequently Asked Questions https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/ARRC-faq.pdf
[8] We define a LIBOR-like rate as a rate that has a high correlation to LIBOR and that is primarily constructed by the short-term unsecured markets that once underpinned LIBOR

their funding costs and to ensure that loans are economically viable over time. This could lead to undesirable and unintended macroeconomic outcomes with potential negative implications for broader financial conditions.

Despite our best efforts, some media outlets have positioned AXI as being in competition[9] with other credit sensitive rate proposals. We disagree with this portrayal. The construction and application of AXI is fundamentally different to any other proposal that we are aware of. Because it does not seek to emulate LIBOR, SOFR + AXI is an alternative rather than a competitor to the balance of proposals.

About the Across-the-Curve Credit Spread (AXI)

AXI is a weighted average of the credit spreads of unsecured bank funding transactions with maturities ranging from overnight to five years, with weights that reflect both transactions volumes and issuance volumes. AXI is calculated as one number that is then scaled down to standard tenors that the market is familiar with, for example, overnight, 1- month, 3- months, 6-months etc.

AXI can be added to SOFR, for example, CME Term SOFR[10], simple daily SOFR, SOFR compounded in arrears, or other SOFR variants, to form a credit-sensitive interest rate benchmark for loans and eventually derivatives, and other products. AXI was one of the proposals discussed at the Federal Reserve Bank of New York's Credit Sensitivity Group Workshops[11] and the Forum on ongoing innovation in reference rates for commercial lending. It was conceived in an academic paper[12] by Professor Antje Berndt, Professor Darrell Duffie, and Dr. Yichao Zhu to assist with US-dollar LIBOR transition.

Unlike all other credit sensitive proposals to our knowledge, AXI was not developed to replicate LIBOR. We believe that AXI's lack of correlation with LIBOR is a strength, not a weakness. AXI reflects broader credit conditions based on a longer and deeper pool of transactions and is less volatile than a LIBOR-like rate. Criteria taken into account when developing AXI included:

1. Hedging effectiveness: The index should be highly correlated with U.S. bank cost of funds, as determined by recent market credit spreads for wholesale unsecured issues of U.S. banks and bank holding companies.

2. Robustness: Computed from a large enough pool of market transactions that the index can underly actively traded derivatives instruments used by banks and their borrowing customers to hedge their floating-rate exposures, without significant risk of statistical corruption or manipulation.

[9] https://www.risk.net/derivatives/7842646/the-libor-replacement-stakes-runners-and-riders
[10] The CME recently announced the launch of Term SOFR Reference Rates https://www.cmegroup.com/market-data/cme-group-benchmark-administration/term-sofr.html
[11] Federal Reserve Bank of New York website - Transition from LIBOR: Credit Sensitivity Group Workshop https://www.newyorkfed.org/newsevents/events/markets/2020/0225-2020
[12] Berndt, A., D. Duffie, and Y. Zhu (2020), Across-the-Curve Credit Spread. Stanford University Graduate School of Business Research Paper No. 3884, Available at SRN: https://ssrn.com/abstract=3662770

3. Adaptable to changes in issuance patterns: The index should, within reason, maintain the first two properties even as banks change the maturity and instrument composition of their issuances in response to changes in regulation and market conditions.

SOFR Academy's Ability to Operationalize AXI

After much internal discussion and due diligence in the fourth quarter of 2020, SOFR Academy worked with an academic commercialization department in the first few months of 2021 to reach an exclusive agreement to operationalize AXI.

We believe AXI may be best positioned for adoption if it is calculated and administered by an experienced administrator authorized by the FCA to ensure the highest international standards of governance and oversight as well as alignment with the IOSCO principles and European Union benchmark regulation. We are currently in discussions with administrators who have indicated a willingness to support AXI.

We have been active over the past few months in preparation for the publication of an AXI prototype rate from a communications, education and operationalization standpoint. We have met with representatives of the Loan Syndications and Trading Association (LSTA), where SOFR Academy is a member, and ISDA. Both associations have indicated that they are taking an agnostic view toward credit sensitive rates (CSR).

We have set up a microsite on our website, made available an educational video, provided a centralized inbox for questions, published a user-friendly infographic, and established a set of Frequently Asked Questions (which will be continually updated)[13].

Regulatory Communications on Credit Sensitive Rates

Regulators in both the United Kingdom and the United States have recently intensified their warnings about CSRs. However, these concerns are by and large, applicable only to LIBOR-like rates and not to an Across-the-Curve approach like AXI, which is added to SOFR and references a larger and deeper pool of transactions.

In summary, concerns voiced by regulators in the United Kingdom and United States generally center around three elements of credit sensitive rates or spreads: First, that they lack the necessary volume of underlying transactions to be robustly determined. Second, that their robustness may be diminished in times in market stress. Third, that their robustness may not be sustainable over time due to changes in regulation or market structure. These concerns do not apply to SOFR + AXI (See Table 1 for further details).

[13] See SOFR Academy's AXI webpage https://sofracademy.com/axi/

Table 1. Summary of Selected Regulatory Speeches on Credit Sensitive Rates

Speech	Attribute	Applicability	Explanation
Descending safely: Life after Libor - speech by Andrew Bailey. Given at Alternative Reference Rates Committee – the SOFR symposium: The final year. May 11, 2021[14]	Use of executable quotes	Does not apply to SOFR + AXI	SOFR + AXI does not use executable quotes as input data
	Use of Regression approaches	Does not apply to SOFR + AXI	SOFR + AXI does not use Regression approaches
	Concern over how stable these rates will be in the future as these underlying markets continue to evolve	Does not apply to SOFR + AXI	SOFR + AXI is not limited to the short-term unsecured markets that once underpinned LIBOR
	Concern over stability and representativeness against the backdrop of money market reform	Does not apply to SOFR + AXI	AXI automatically adapts to future changes in bank funding composition
Prepared Remarks Before the Financial Stability Oversight Council. Chair Gary Gensler June 11, 2021[15]	“Term rate is underpinned primarily by trades of commercial paper and certificates of deposit”	Does not apply to SOFR + AXI	AXI is not limited to the short-term unsecured markets that once underpinned LIBOR
	“These markets underpinning a LBOR-like rate not only are thin in good times; they virtually disappear in a crisis. Last spring, the primary commercial paper lending market evaporated for about five weeks during the initial stresses of the pandemic.”	Does not apply to SOFR + AXI	AXI is not limited to the short-term unsecured markets that once underpinned LIBOR

[14] https://www.newyorkfed.org/newsevents/speeches/2021/wil210511
[15] https://www.sec.gov/news/public-statement/gensler-fsoc-libor-2021-06-11?utm_medium=email&utm_source=govdelivery

A Commitment to Safety & Soundness

SOFR Academy is committed to operationalizing AXI in a fair, transparent fashion that prioritizes the safely and soundness of the financial system.

— AXI Term Rates are being designed to meet industry best practices and the IOSCO Principles for Financial Benchmarks. A statement of IOSCO compliance will be made publicly available. Independent assurance of alignment with IOSCO principles will be carried out by a reputable accounting / auditing firm. SOFR Academy has received interest from a number of Big-4 accounting firms for this work, all of whom have demonstrated the ability and willingness to successfully complete the work.

— AXI will be aligned with ARRC principles to the extent practicable. As ARRC criteria emphasizes, any forward term rate should have a limited scope of use so that the use does not materially impact volumes in the underlying derivatives transactions that are relied upon to construct that rate. SOFR Academy intends to limit the licensing of its AXI Term Rates to cash market transactions initially until June 30, 2023. The creation of derivatives instruments such as swaps, forwards and options or other derived works, shall not be permitted until a sufficiently robust cash market has developed[16]. Overall, we intend for our approach toward AXI licensing to be aligned with the ARRC's recently published principles[17] for recommended forward term rates. We look forward to any potential communications arising from the ARRC's Term SOFR scope of use sub-working group.

— The academic paper in which AXI was conceived included some limited data under one year of maturity in the construction methodology, the intention of its inclusions was to complement the primary longer-term data. Since the financial crisis of 2008 there has been a trend towards a reduction in liquidity in these short-term unsecured markets[18]. Under the guidance of one of AXI's co-creators, an analysis was performed which showed that removing these transactions under one year did not materially reduce the robustness of the index. Nor would it complicate the process of inferring a 1-month, 3-month or 6-month etc. credit spread from bond transactions of longer maturities. After some internal debate, we can see reasons both for and against including transactions under one year. However, AXI methodology remains both robust and representative should short term transactions be removed entirely from the construction methodology.

[16] SOFR Academy seeks to make this determination in cooperation with the ARRC.
[17] Key Principles to Guide the ARRC as it Considers the Conditions it Believes are Necessary to Recommend a Forward-Looking SOFR Term Rate
https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2021/20210420-term-rate-key-principles
[18] 'Measure Twice, Cut Once; Speech by John C Williams, Remarks at SOFR Symposium: The Final Year (Part II)
https://www.newyorkfed.org/newsevents/speeches/2021/wil210511

Conclusion

SOFR Academy is committed to operationalizing AXI in a considered and measured way that incorporates feedback and guidance from a wide range of stakeholders and prioritizes financial stability of the global market. We do not in any way intend for the operationalization of AXI to serve as a distraction for the market from the important work of the ARRC or the transition from USD LIBOR to SOFR.

At an appropriate time of your choosing, we would appreciate the opportunity to have a virtual meeting with you to discuss AXI, to provide feedback from the industry that we have received[19] on AXI and to address any questions. If it is agreeable to you, we would also include in the discussion representatives from our academic team.

We commend the work that you and the ARRC have completed over recent years for the betterment of United States economy and the financial stability of global market, and we thank you kindly for your time and consideration.

Respectfully,

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[19] http://www.westernasset.com/us/en/research/blog/libor-transition-update-2021-05-10.cfm