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May 4, 2021

Via Electronic Mail

R. Christopher Marshall
Executive Vice President and Treasurer
BBVA USA Bancshares, Inc.

Thomas A. Feil
Senior Vice President, Treasurer
Capital One Financial Corporation

David C. Lindenauer
Treasurer, Executive Vice President
Citizens Bank

James J. Herzog
Executive Vice President and Treasurer
Comerica Incorporated

James C. Leonard
Executive Vice President, Treasurer
Fifth Third Bancorp

Scott Warman
Executive Vice President and Corporate Treasurer
M&T Bank Corporation

John C. Trohan
Managing Director, Treasurer
MUFG Americas Holdings Corporation

Randall C. King
Executive Vice President, Treasurer
The PNC Financial Services Group, Inc.

M. Deron Smithy
Executive Vice President, Treasurer
Regions Financial Corporation

Matthew Tyler
Corporate Treasurer
Zions Bancorporation, National Association

Dear Messrs Marshall, Lindenauer, Leonard, Trohan, Smithy, Feil, Herzog, Warman, King and Tyler:

SOFR Academy LLC is a leading education technology firm and data provider headquartered in New York. Our panel of advisors include academics from Harvard University and the MIT Sloan School of Management. We provide financial education services to corporations, financial institutions, governments, regulators and individuals.

We refer to your letter¹ dated as of September 23, 2019 supporting the market's transition away from the London Interbank Offered Rate to the Secured Overnight Financing Rate (SOFR). Your

¹ Letter from Regional banks to U.S Regulators
<https://www.newyorkfed.org/medialibrary/media/newsevents/events/markets/2020/credit-sensitivity-letters.pdf>

letter also suggested exploring the inclusion of a credit sensitive rate element in the lending markets as a supplement to SOFR.

We are writing to bring attention to the Across-the-Curve Credit Spread Index (AXI), which will be an available option for market participants. AXI was one of the proposals discussed at the Federal Reserve Bank of New York's Credit Sensitivity Group Workshops². It was conceived in an academic paper³ by Professor Antje Berndt, Professor Darrell Duffie, and Dr. Yichao Zhu to assist with US-dollar LIBOR transition.

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 can be added to Term SOFR⁴ (or other SOFR variant) to form a credit-sensitive interest rate benchmark for loans, derivatives and other products.

Unlike other credit sensitive alternatives, AXI was not developed to replicate USD LIBOR. AXI reflects broader credit conditions based on a deeper pool of transactions and is generally 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.
- (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.

We have made available some educational resources on AXI including a set of Frequently Asked Questions⁵ at [SOFR.org/AXI](https://sofr.org/AXI). We welcome your feedback and questions.

Sincerely,



Marcus Burnett
Chief Executive Officer

² Federal Reserve Bank of New York website - Transition from LIBOR: Credit Sensitivity Group Workshop <https://www.newyorkfed.org/newsevents/events/markets/2020/0225-2020>

³ 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>

⁴ The CME recently announced the launch of Term SOFR Reference Rates <https://www.cmegroup.com/market-data/cme-group-benchmark-administration/term-sofr.html>

⁵ See SOFR Academy's website – AXI Frequently Asked Questions <https://sofracademy.com/axi/axi-faq/>