

Financial Stability Considerations in connection with the Invesco / SOFR Academy USD Across-the-Curve Credit Spread Indexes (AXI) and Invesco / SOFR Academy USD Financial Conditions Credit Spread Indexes (FXI).

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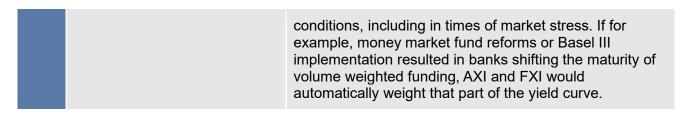
SOFR Academy and Invesco Indexing LLC support the Secured Overnight Financing Rate (SOFR). Over time, we also support the introduction of Across-the-Curve Credit Spread Indices such as AXI and FXI as robustly designed credit spread supplements to SOFR. SOFR, AXI and FXI are well-designed benchmarks and grounded in market transactions.

#	Potential financial stability considerations in connection with credit-sensitive rates	USD-AXI	USD-FXI
1	Measure a small fraction of banks' actual funding costs, as issuance of Commercial Paper (CP) and Certificates of Deposit (CD) represent only a small proportion of banks' funding	Large banks no longer fund themselves at LIBOR in the same way that they used to, and there are not enough transactions with which to calculate LIBOR. Regulations have induced banks to "term out" most of their unsecured funding to longer maturities (Committee on the Global Financial System (2018)). AXI and FXI are not limited to short term funding markets such as Commercial Paper (CP) and Certificates of Deposit (CD). Rather, AXI and FXI depend on a broad set of debt issuances with maturities ranging from short term to multiple years.	
2	Typically have very low average transaction volumes, and almost none in periods of market stress. As seen during the 'dash for cash' in March 2020, transactions in underlying CP and CD markets fell away, and the liquidity premium for cash placed upward pressure on rates. In comparison, the volume of transactions underpinning SONIA and SOFR rose over the same period	Utilizing transactions from across-the-curve maximizes the underlying transaction volume that are used to calculate the benchmarks. Transaction volume increased during the most recent market stress period. In mid-March 2023, underlying transaction volumes for the longer-term bond component of AXI increase by approximately 500%.	FXI follows the same methodology as AXI, but the underlying transactions are expanded beyond banks to include all financial institutions as well as corporate funding transactions.



3	Are highly sensitive to liquidity conditions, introducing large risk premia during stressed periods, which do not reflect wider funding conditions and could disproportionately affect borrowers.	Recent research shows that in a SOFR only regime, borrowers might be adversely affected during stress periods (Cooperman, Duffie, Luck, Wang, and Yang (2023)). AXI and FXI can counteract the adverse impact on bank lending in distress times (Ghamami, 2023). AXI is, by definition, highly correlated with banks' contemporaneous marginal costs of funds.	FXI is, by definition, a direct reflection of wider funding conditions across the United States. Movement of FXI relative to AXI in times of market stress will likely depend on the nature of the stress event. For example, during a broadbased stress event such as COVID, FXI moved higher than AXI. For a stress event centered on the banking sector, such as the March 2023 banking turmoil, AXI will likely move higher than FXI.
4	Rely on models, quoted rates and other techniques, such as expanding the window of "daily volumes," to compensate for low underlying volumes.	Input data for AXI and FXI is of publicly available sources. The data comes from Financial Ind Authority (FINRA) Trade Report Compliance Engine (TRACE), is obtained from Depository Tr (DTCC) Money Market Kinetic daily feed of anonymized CP as settlement transactions data. If in the construction of AXI or FX A one-month observation period would produce with greater susceptibility to many point in time, a bank's recordetermined by the yields of its liabilities, most of which are isodates (Berndt, Duffie, Zhu, 2020).	btained only from e long-end component lustry Regulatory orting and The short-end component rust & Clearing Corporation es. This provides a single, and CD secondary No proprietary data is used XI. and was selected for I. Reliance on a smaller luce a more volatile index canipulation. Moreover, at ent cost of funds is recently issued stack of sued on a range of past
5	Are vulnerable to potential structural market shifts, such as from potential future money market fund reforms	AXI and FXI automatically ada composition for banks (AXI) at States economy (FXI). The be to maintain their hedge effective over time and can be reliably of	nd the broader United nchmarks were designed veness and robustness





USD-AXI and USD-FXI are available only as credit spread supplements to SOFR, and therefore leverage the robust foundation of SOFR. Whenever a loan is indexed to an across-the curve credit spread index, it would also reference SOFR. So, use of a credit spread index does not imply less frequent reference to SOFR.

For questions, comments or to request additional information please complete the contact for at:

https://www.invescosofracademyaxi.com/

For information about Invesco Indexing's governance of benchmarks please visit:

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Darrell Duffie, who is the Adams Distinguished Professor of Management and Professor of Finance at the Stanford Graduate School of Business and a co-author of the proposal for AXI, has no related compensation and is not affiliated with SOFR Academy.

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SONIA = Sterling Overnight Index Average

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