Constructing a Credit Sensitive Supplement to SOFR – The Bank Yield Index

ICE Benchmark Administration

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November 2020

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Agenda

- Background
- Transaction based data sets available to build a supplement to SOFR
- Data set IBA has used in developing a potential supplement to SOFR
- Producing a supplement to SOFR – Yield based
- Producing a supplement to SOFR – Spread based
- Meeting the IOSCO Principles
- Next steps for IBA

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Background

- U.S. dollar LIBOR has been widely used in lending transactions over the past thirty years.
- Lenders and borrowers have generally expressed comfort in the economic premise behind U.S. dollar LIBOR, as the benchmark:
  - Allows lenders to extend credit based upon marginal unsecured bank funding cost; while
  - Facilitating competitive credit markets where the borrower does not need to take its specific lender's, or a small group of lenders', cost of funds risk.
- The transition to risk free rates has raised questions on the risks related to moving away from LIBOR to overnight rates and, in the case of U.S. dollars, a secured overnight rate for lending arrangements.
- For lenders these risks include a potential:
  - Divergence between realized marginal funding cost and the yields on overnight rates; and
  - Increased usage in undrawn liquidity facilities; particularly during a period of stress.
- For borrowers these risks include a potentially:
  - Less competitive lending market; and
  - Reduced access to undrawn lending facilities.

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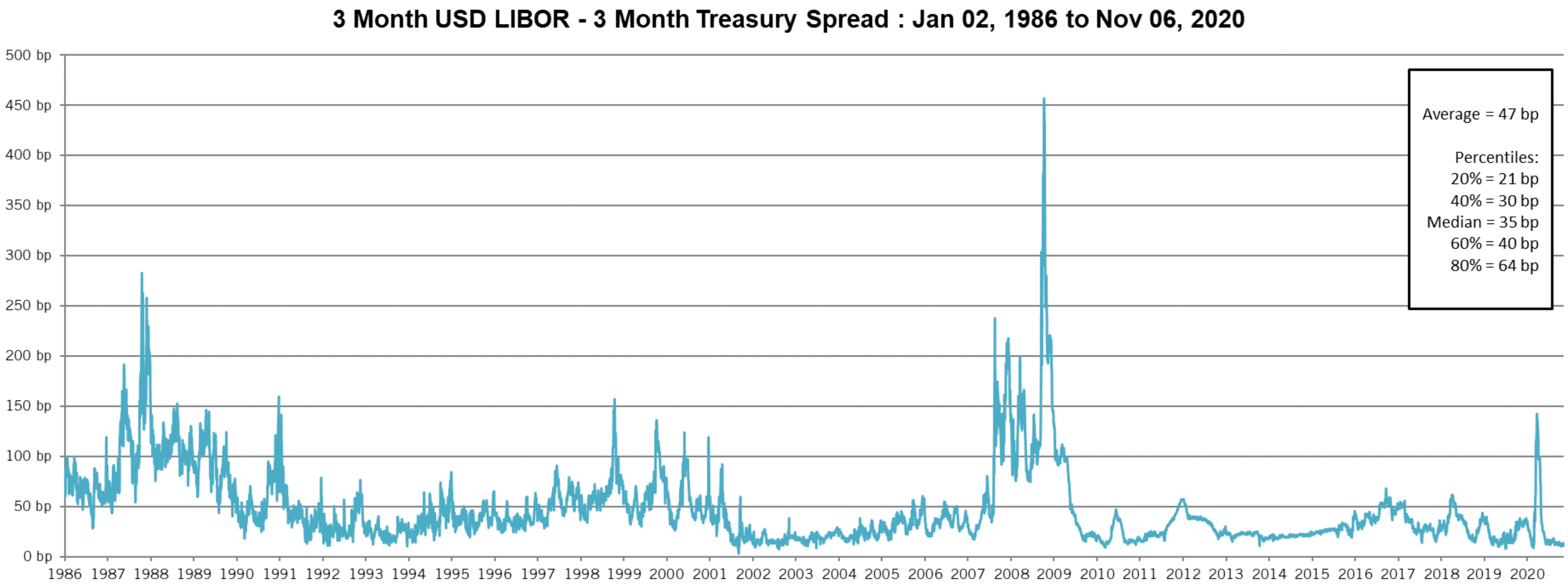
Rationale for a credit sensitive supplement to SOFR

Risk free rates (e.g. UST & SOFR) and marginal unsecured bank borrowing costs are different and can diverge



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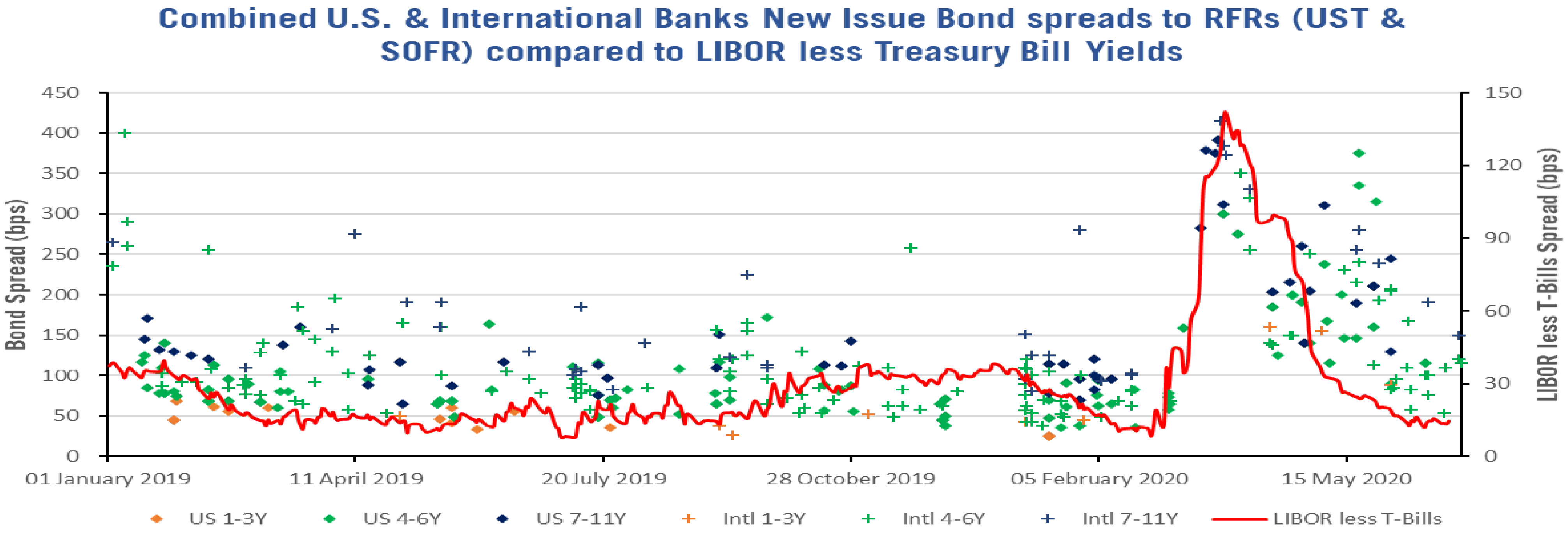
Rationale for a credit sensitive supplement to SOFR

Money market credit spreads are correlated with term debt spreads paid by banks for bond financing



- The chart above shows the new issue spreads to either U.S. Treasuries or SOFR paid by U.S. and International banks for new term unsecured U.S. dollar bonds (left hand axis) compared to the spread between 3M LIBOR and T-Bill yields (right hand axis)
- The chart demonstrates that these banks' marginal funding cost is correlated to risk premiums associated with LIBOR or other unsecured benchmarks that measure bank funding cost

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Available transaction based data sets

- Primary money market transactions in unsecured bank liabilities:
  - **Institutional Certificates of Deposit (CDs)**
  - **Commercial Paper (CP)**
  - **Wholesale unsecured deposits**
  - Short dated primary market issuance of unsecured bonds

- Secondary market transactions in unsecured bank liabilities:
  - **Unsecured bonds that have rolled down the yield curve**
  - Secondary transactions in CDs and CP

- Transactions in Credit Default Swaps (CDS)

A subset of the data sets ***in bold above*** *has been used by IBA to evaluate a potential supplement to SOFR through the creation of the Bank Yield Index*

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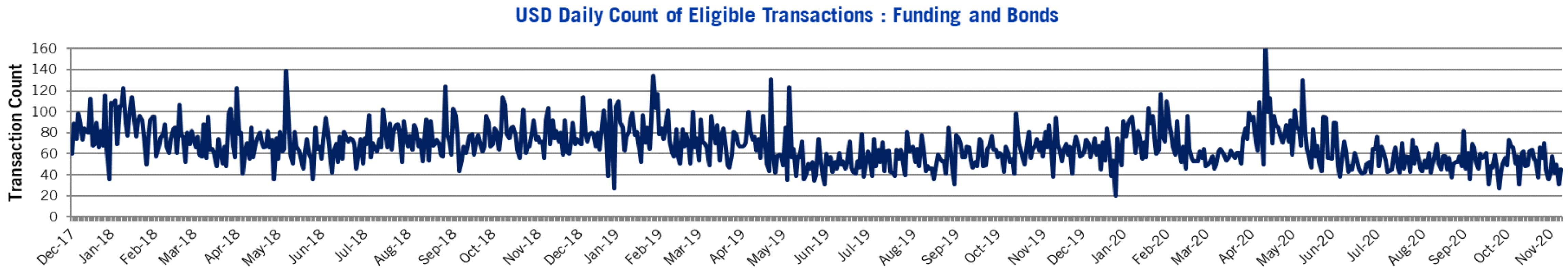
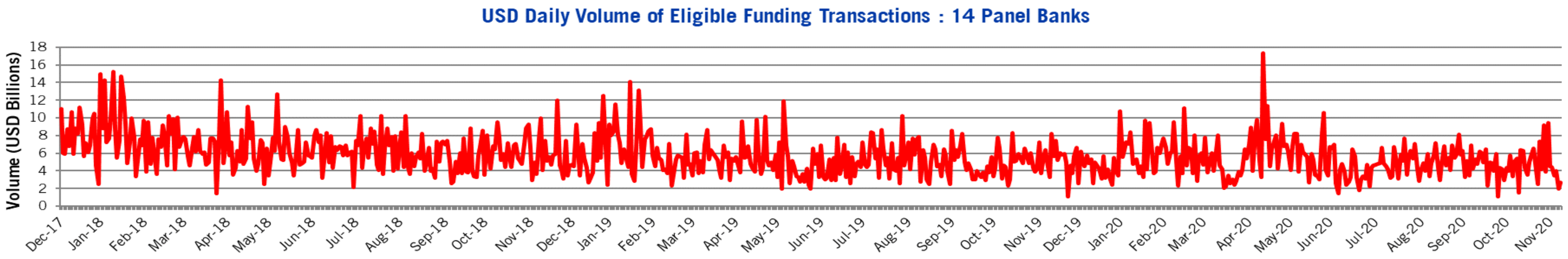
Data set used by IBA to explore a potential supplement to SOFR

Review of daily data sourced to build the Bank Yield Index test rates since December 2017



Note – Funding transactions are primary unsecured money market borrowings =/>$10MM in notional from fourteen global banks and the bond transactions are secondary money market trades in the unsecured debt of thirty internationally active banks that are =/> $5MM in notional (block transactions)



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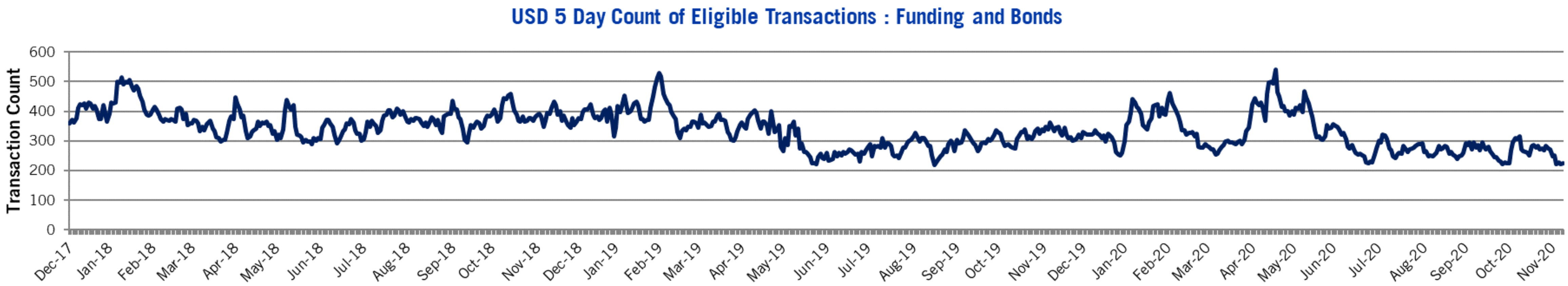
Data set used by IBA to explore a potential supplement to SOFR

Rolling five day average of data sourced to build the Bank Yield Index test rates since December 2017



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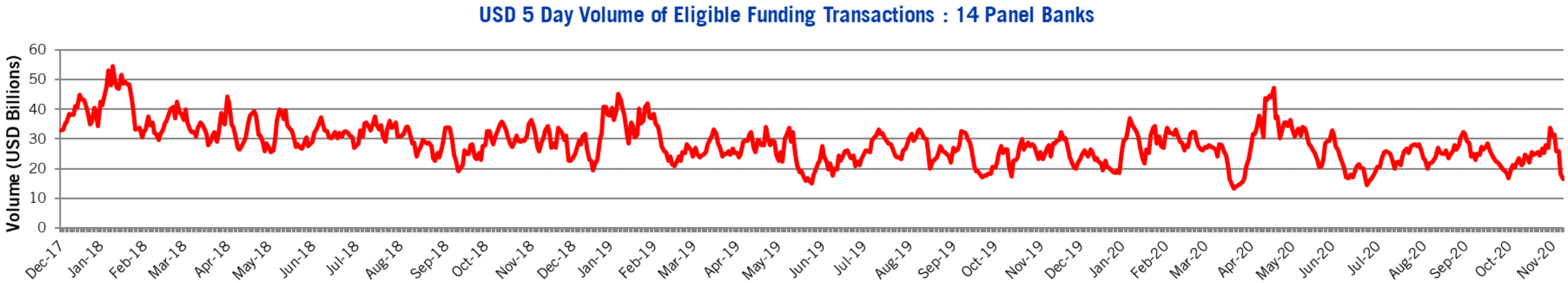

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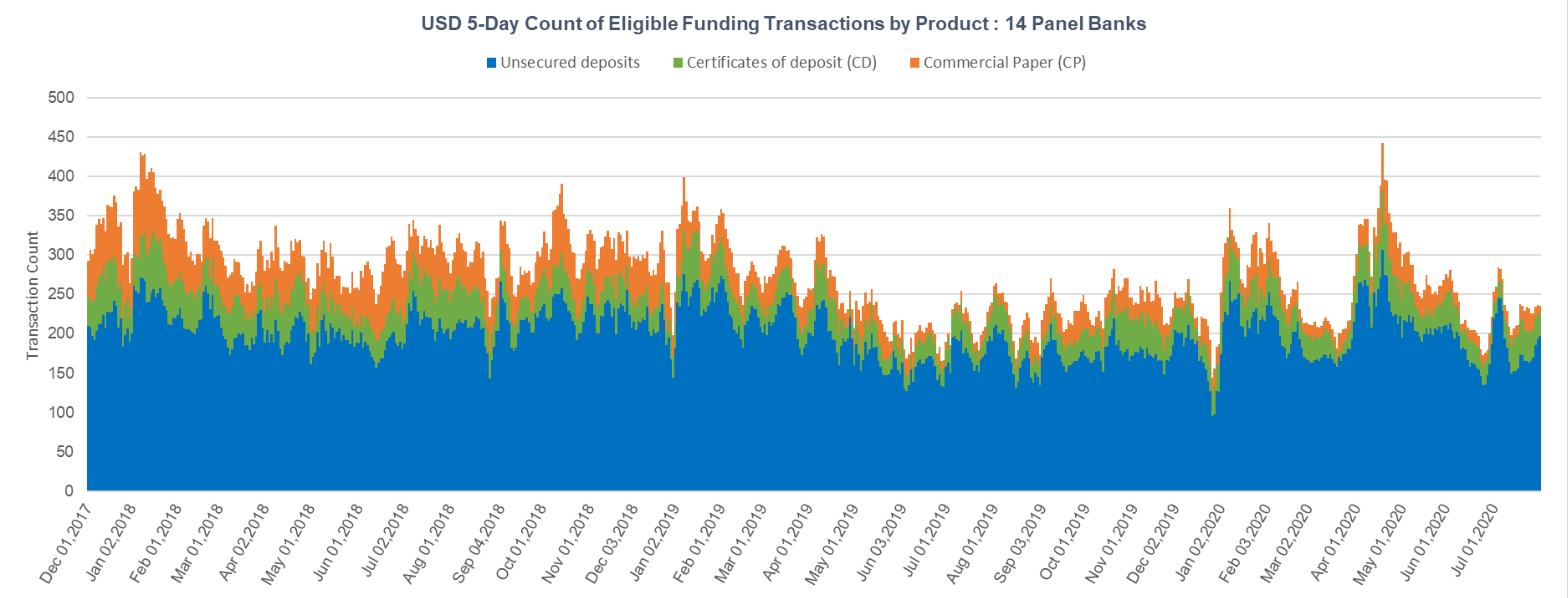
Data set used by IBA to explore a potential supplement to SOFR

Composition of funding data



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Building a supplement to SOFR – The Bank Yield Index

IBA collates bank funding transaction data ($10MM or greater[1]) and secondary market transaction data ($5MM or greater[1]), and calculates the Bank Yield Index. This involves:

1. Aggregation of eligible transactions over initial five day window; increasing the window if necessary to meet minimum aggregate trade count and volume thresholds (currently $15B and 100 discrete transactions[1]);
   - IBA chose a five day window to ensure a diverse and robust data set that reflects average bank yields
   - Minimum funding volumes and transaction counts are set to ensure a representative benchmark

2. Calculation of a fitted unsecured bank yield curve using a regression analysis across all eligible data points;

3. Review of transaction data points against fitted curve to identify extreme outliers for exclusion (currently any trades over 200bps above or below the curve are excluded), and the curve fitting is repeated using the remaining transactions; and

4. Determination of 1M, 3M and 6M Index rates from the fitted bank yield curve.

[1] IBA also uses minimum trade count thresholds for various maturity buckets across the yield curve. Further detail can be found on the IBA website here: https://www.theice.com/publicdocs/IBA_US_Dollar_ICE_Bank_Yield_Index_Fourth_Update.pdf

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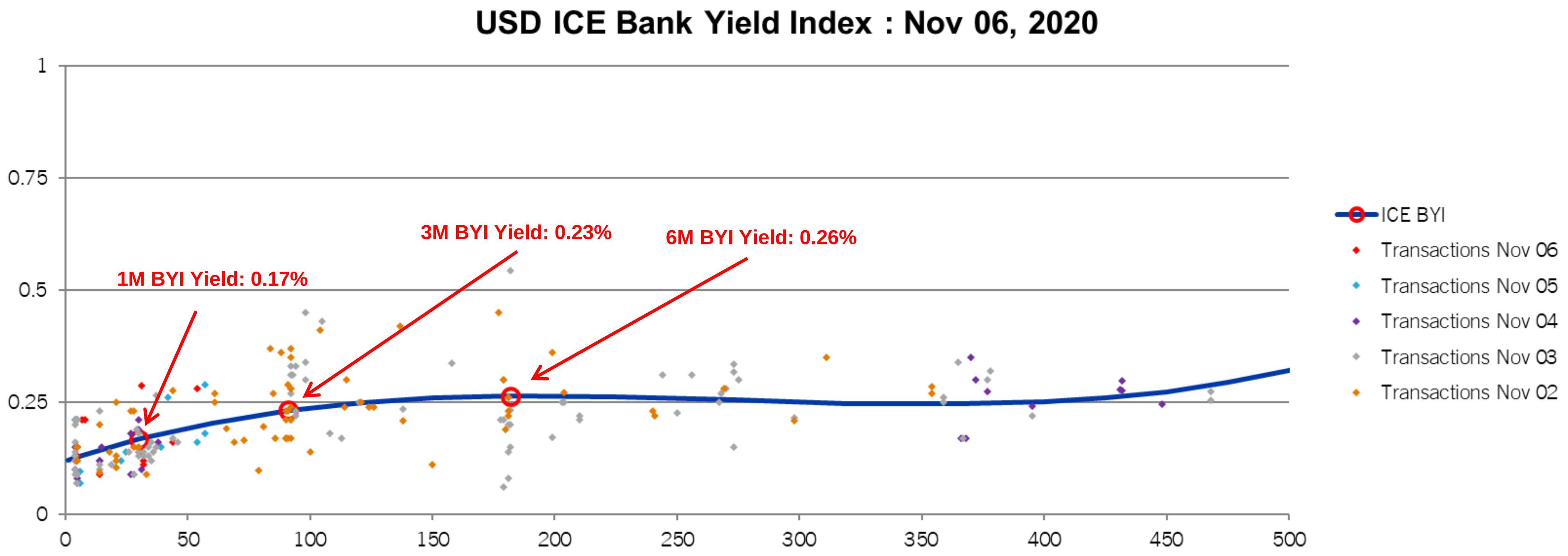
Bank Yield Index – Example calculation from Nov 6, 2020



The dots in the chart are transaction data points sourced over 5 business days (Nov 2 to Nov 6) which are used to derive a best-fit bank yield curve. From this yield curve one-month, three-month and six-month points can be determined (red circles) and used as the Index settings.

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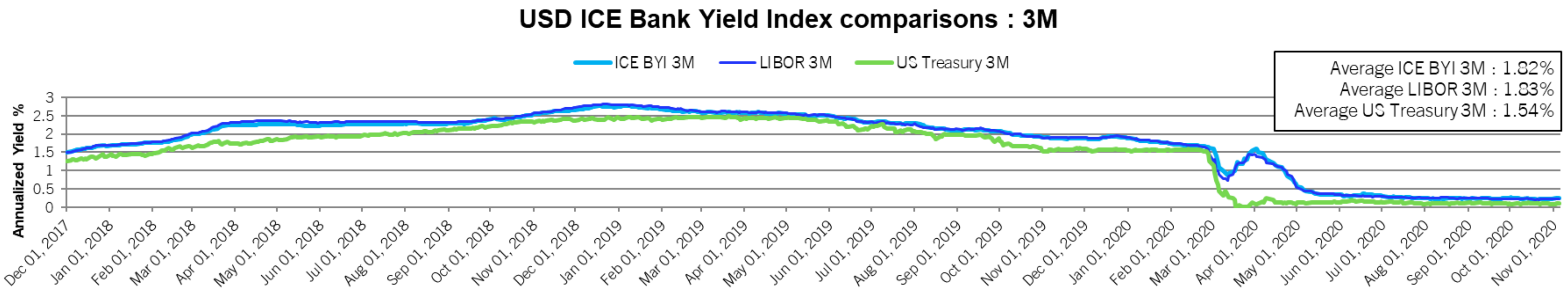
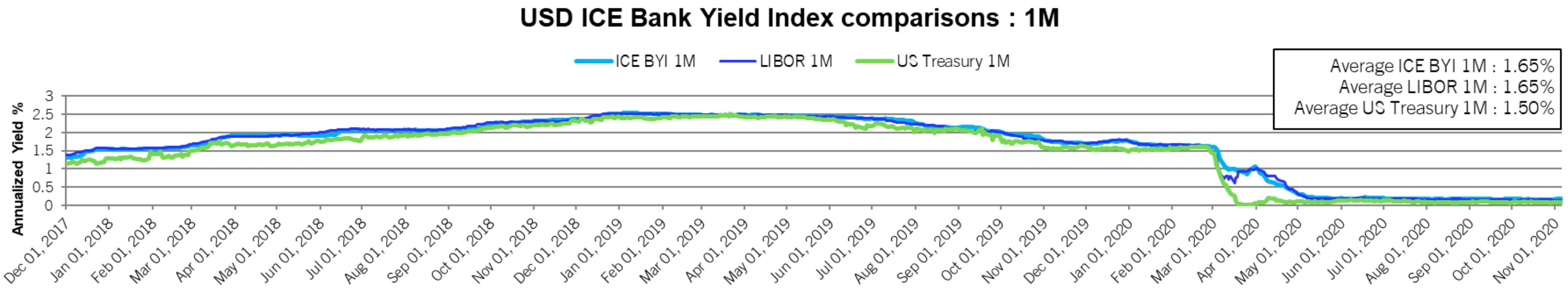
Bank Yield Index – Correlation with other indexes

Comparison of test results to U.S. dollar LIBOR and Treasury Yields





Test results are updated daily at https://www.theice.com/iba/Bank-Yield-Index-Test-Rates

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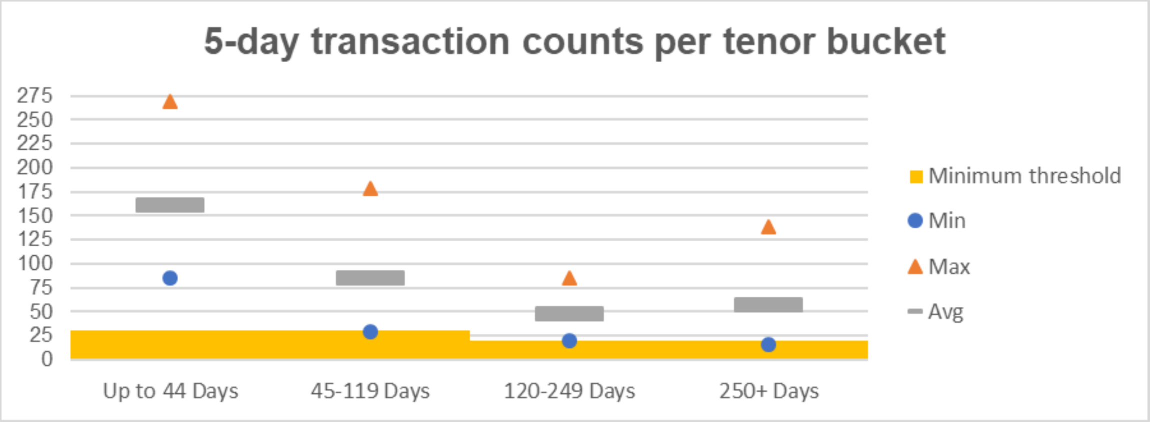
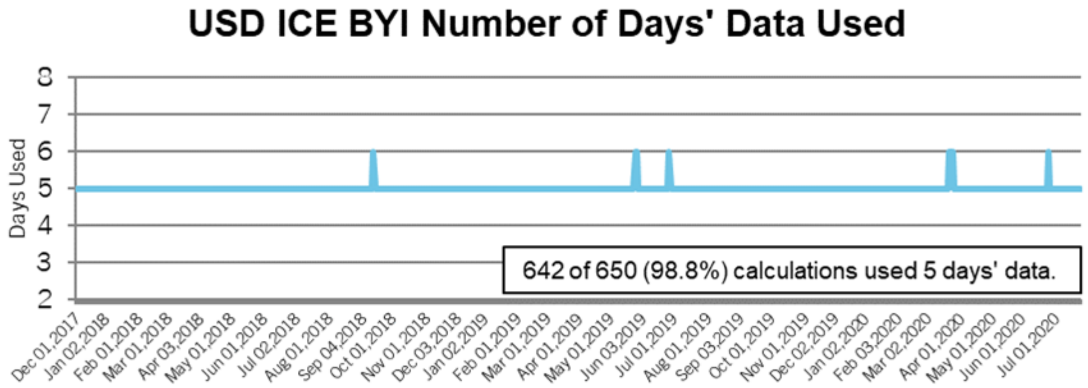
Bank Yield Index – Calculation Contingencies

- The Bank Yield Index methodology leverages a rolling five days of input data in order to anchor the proposed benchmark in transactions.
- To ensure a representative and diverse set of transactional input is used, IBA sets minimum volume and transaction count thresholds:
  - Minimum total funding volume threshold: $15B
  - Minimum transaction count across the money market curve: 100
  - Minimum transaction count by key tenor buckets:
    - 5 - 44 Days: 30
    - 45 – 119 Days: 30
    - 120 – 249 Days: 20
    - 250+ Days: 20
- If these thresholds are not met, IBA uses look back day(s) to add data (i.e. add one or more previous days' data) to meet the requirement.
- In three years of testing, 1.2% of calculations have extended to six days of input data. There has not been a need to add more than one day of "look-back" data.
- IBA is exploring an incremental contingency methodology that would incorporate third party valuations and associated yields on unsecured bank bonds in the event that transactional activity dries up for a prolonged period.





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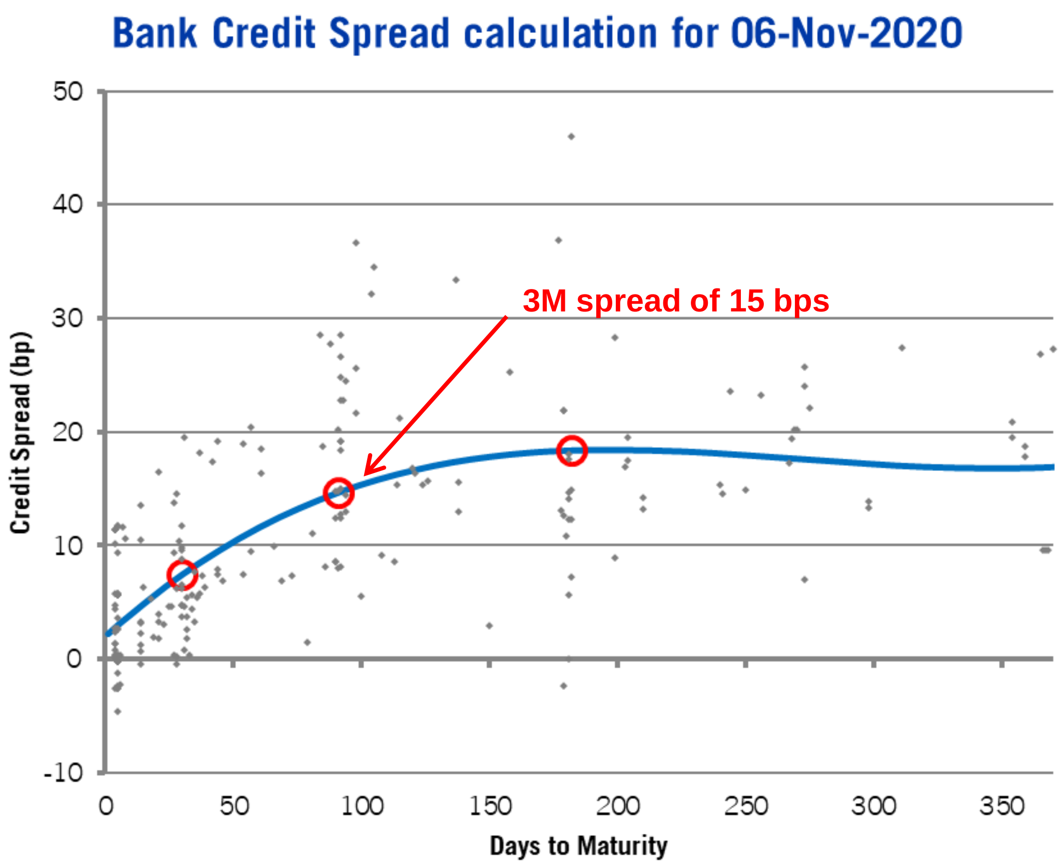
Bank Yield Index – Spread based supplement to SOFR

The Bank Yield Index can also be calculated as a spread to SOFR rates (SOFR+)

- Collate the transactions over a rolling collection window, as in the methodology.
- Determine a Transaction Credit Spread for each transaction by subtracting the contemporaneous risk free market rate (e.g. Term SOFR[1] for the same day) from the unsecured bank debt yields observed (i.e. determine the credit spread).
- Create a fitted credit spread curve to the data points. (Blue line on chart)
- Determine Bank Yield Credit Spreads from the fitted yield curve. (Red circles on the chart)
- Add the Credit Spreads to the current term risk free rate (e.g. Term SOFR today) to determine the Bank Yield Index.
- ***This realized spread to risk free rates can also be added to compounded and in arrears SOFR calculations***.



[1] Indicative implied forward-looking SOFR term rates produced by IBA for testing purposes

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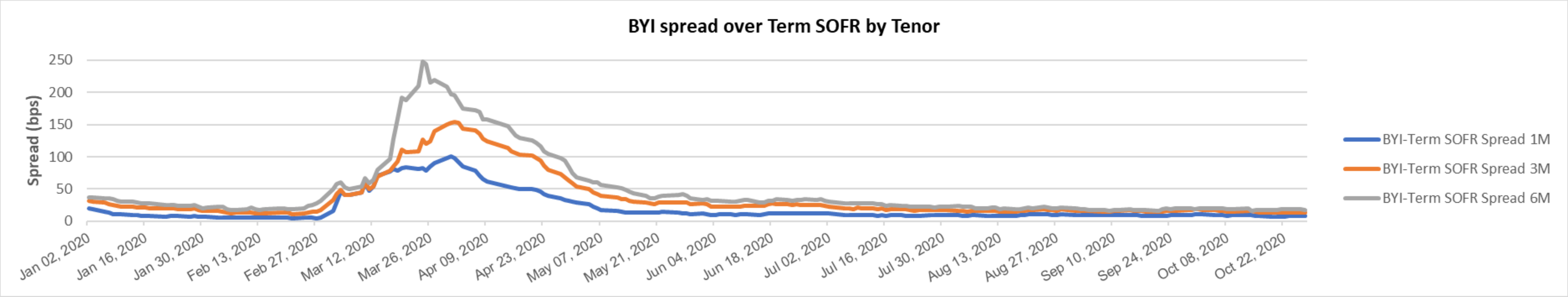
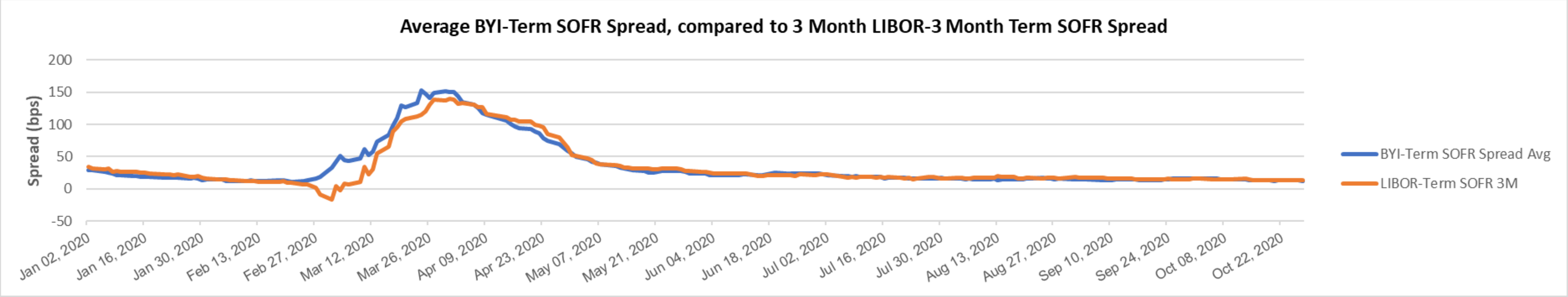
Bank Yield Index spreads to Term SOFR[1] Yields - 2020





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Compliance with all 19 IOSCO Principles

The Index is designed to comply with all 19 of the IOSCO Principles for Financial Benchmarks across the 4 four broad categories

A. Governance

- Sole responsibility for all aspects of the benchmark determination by IBA
- Independent IBA Board
- Dedicated Oversight Committee to be established

B. Quality of the Benchmark

- Open and transparent methodology based on transactions; ***no exercise of expert judgement***
- Pre-publication verification and post-publication surveillance, and
- Operational contingency procedures are in place

IOSCO Principle categories:

A. Governance

B. Quality of the Benchmarks

C. Quality of the Methodologies

D. Accountability

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Compliance with IOSCO Principles (continued)

The Index is designed to comply with all 19 of the IOSCO Principles for Financial Benchmarks across the 4 four broad categories

C. Quality of the Methodology

- Clear criteria for including and excluding unsecured bank transactional data
- Stringent arrangements to safeguard data integrity
- A Code of Conduct to be kept under review by the Oversight Committee, and
- Consultations will be used before any material changes to the methodology

D. Accountability

- Comprehensive control framework, policies and procedures
- Annual schedule of internal and external audits to assess the benchmark
- Open and co-operative liaison with market regulators and central banks

IOSCO Principle categories:

A. Governance

B. Quality of the Benchmarks

C. Quality of the Methodologies

D. Accountability

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Bank Yield Index - Next Steps

1. Engage with stakeholders to seek advice on key aspects of the Bank Yield Index, including:
   - Input data used, including whether Bank Holding Company (BHC) level debt should be used and how to best create a nexus to SOFR rates;
   - Should both yield and spread settings be produced;
   - Should term settings be produced or just one average spread across the money market curve;
   - Time period used to calculate the rates (i.e. is the rolling 5-day window appropriate or should a shorter or longer window be used).
2. Update the Bank Yield Index methodology based upon feedback received from stakeholders.
3. Obtain commitments from banks (LIBOR Panel Banks and non LIBOR Panel banks over time) to provide their funding data to IBA on a daily basis to build the Index.
4. Once steps 1-3 are complete, establish a U.S. domicile from which the Bank Yield Index would be produced on an on-going basis.

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Bank Yield Index - Summary

- The transition to risk free rates from U.S. dollar LIBOR raises potential risks, including:
  - For lenders, a potential divergence between realized marginal funding cost and the yields on overnight rates, and of increased usage in undrawn liquidity facilities; and
  - For borrowers, potential for a less competitive lending market and reduced access to undrawn lending facilities.
- The Bank Yield Index is a forward-looking, credit and liquidity sensitive benchmark developed as a potential replacement for LIBOR for lending activity. It is compliant with the IOSCO Principles and the EU and UK BMR. It has been tested for three years.
- The Index settings (e.g. three months) are calculated using a fitted unsecured bank yield curve built on transaction based input data over a rolling five day window. The transaction based input data currently being used is:
  - Primary money market transactions of $10MM or greater in unsecured bank liabilities; and
  - Secondary market transactions of $5MM or greater in unsecured bank level bonds. (Note – IBA is asking for feedback from stakeholders if bank holding company (BHC) level debt should be used as well)
- The Index settings can be produced on a yield basis or a spread to implied term SOFR rates (SOFR+).
- IBA will launch the Index once it receives sufficient commitments from banks to provide their primary market funding data to IBA on an on-going basis.

Test results are updated daily at https://www.theice.com/iba/Bank-Yield-Index-Test-Rates

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Appendix

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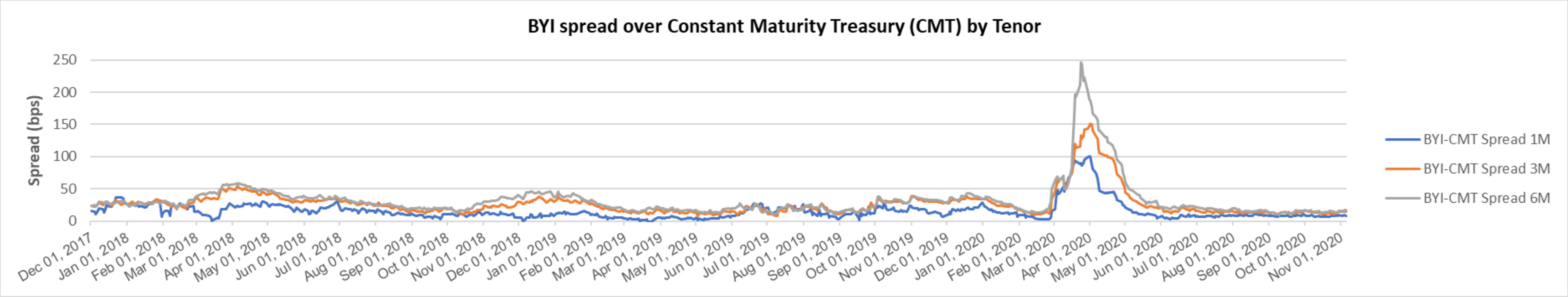
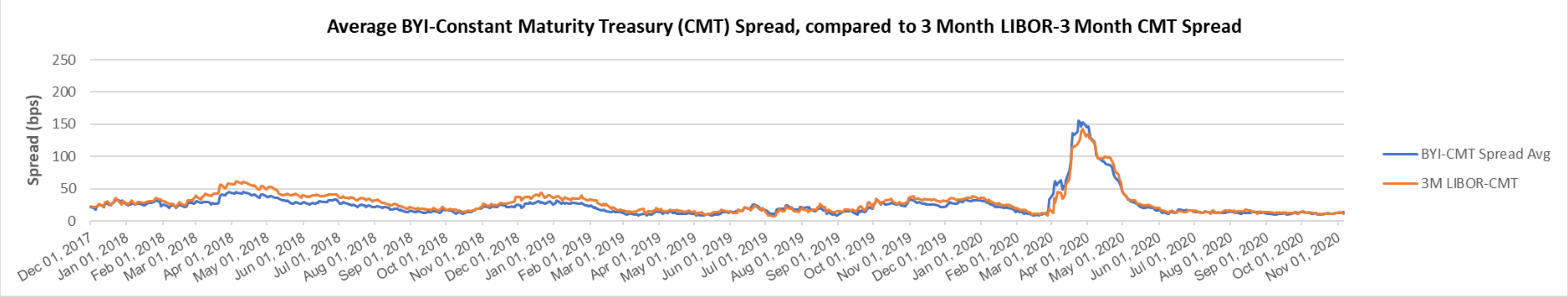
Bank Yield Index spreads to Treasury Yields





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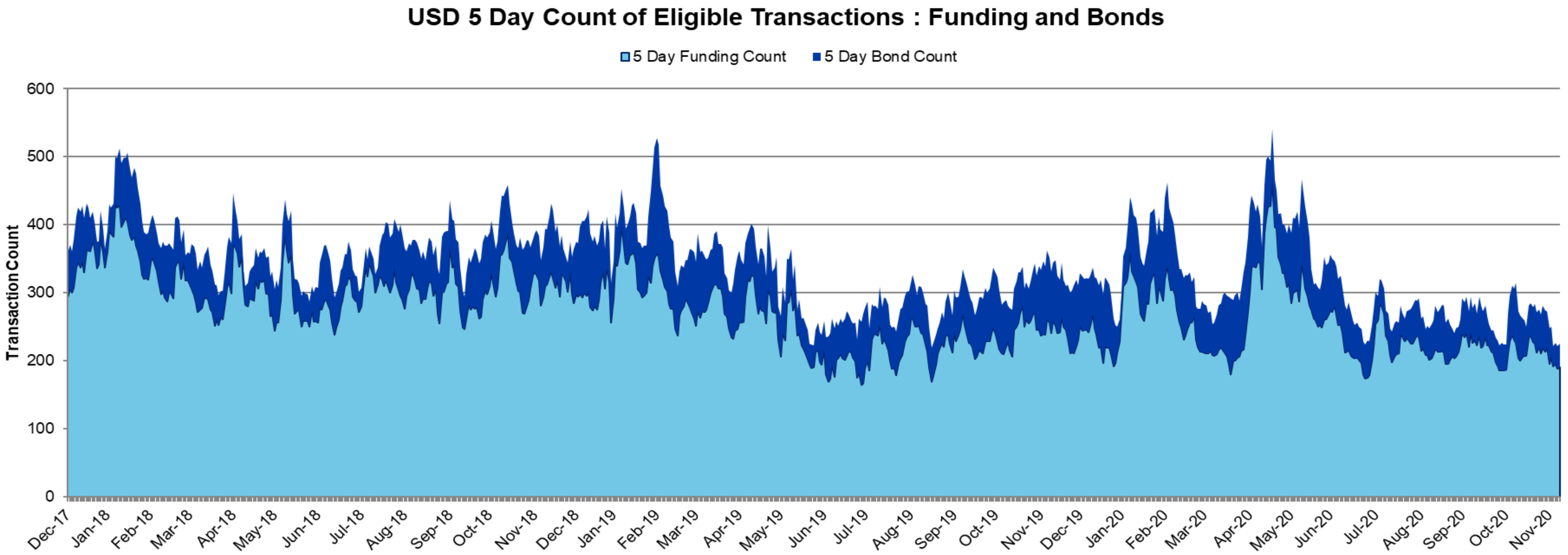
Data set used by IBA to explore a potential supplement to SOFR

Split between funding and bond data



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