

**Credit Sensitivity Group Workshop 3**  
**Meeting Minutes**  
**August 12, 2020**

**Workshop Attendees**

Antje Berndt (Australian National University)  
Alastair Borthwick (Bank of America)  
Ashish Kumbhat (Bank of America)  
Andrei Magasiner (Bank of America)  
Sharon Hamilton (BBVA)  
Chris Marshall (BBVA)  
Jeff Kuzbel (Capital One)  
Michael Soccio (Citizens Financial Group)  
Ana Volpi (Citizens Financial Group)  
Stasie Kostova (Comerica)  
Riley Saunders (Fifth Third Bank)  
Hilary Gevondyan (First Republic Bank)  
Mike Selfridge (First Republic Bank)  
Mark Brell (Frost Bank)  
Mike Abarca (Huntington Bank)  
Derek Meyer (Huntington Bank)  
Chris Cole (Independent Community Bankers of America)  
Tony Bulic (KeyBank)  
Jay Luzar (KeyBank)

Doug Sheline (M&T Bank)  
Scott Warman (M&T Bank)  
Matt Engstrom (MUFG)  
Taro Matsuura (MUFG)  
Kieran Fallon (PNC Financial Services Group)  
Randall King (PNC Financial Services Group)  
Gagan Singh (PNC Financial Services Group)  
Tom Speir (Regions Financial Corporation)  
Tyler Zinder (Regions Financial Corporation)  
Peter Quinlan (Signature Bank)  
Scott Shay (Signature Bank)  
John Finley (South State Bank)  
Darrell Duffie (Stanford University)  
Tom Baxter (Sullivan & Cromwell)  
Rodgin Cohen (Sullivan & Cromwell)  
Cori Krebs (US Bank)  
Joe Tessmer (US Bank)  
Brian Grabenstein (Wells Fargo)

**Ex-Officio Attendees**

Joe Carapiet (Board of Governors of the Federal Reserve System)  
Jeff Huther (Board of Governors of the Federal Reserve System)  
Darren Gersh (Board of Governors of the Federal Reserve System)  
Evan Winerman (Board of Governors of the Federal Reserve System)  
Sayee Srinivasan (Commodity Futures Trading Commission)  
Irina Leonova (Federal Deposit Insurance Corporation)  
Alex LePore (Federal Deposit Insurance Corporation)  
Pablo Azar (Federal Reserve Bank of New York)  
Alyssa Cambron (Federal Reserve Bank of New York)  
Ray Check (Federal Reserve Bank of New York)  
Marco Cipriani (Federal Reserve Bank of New York)  
Cam Fuller (Federal Reserve Bank of New York)  
Melanie Huryn (Federal Reserve Bank of New York)

Eric LeSueur (Federal Reserve Bank of New York)  
Jamie Pfeifer (Federal Reserve Bank of New York)  
Will Riordan (Federal Reserve Bank of New York)  
Monica Scheid (Federal Reserve Bank of New York)  
Nate Wuerffel (Federal Reserve Bank of New York)  
Jay Gallagher (Office of the Comptroller of the Currency)  
Christopher McBride (Office of the Comptroller of the Currency)  
Chloe Cabot (U.S. Department of the Treasury)  
Peter Phelan (U.S. Department of the Treasury)  
Viktoria Baklanova (U.S. Securities and Exchange Commission)  
Michelle Danis (U.S. Securities and Exchange Commission)  
Jason Leung (U.S. Securities and Exchange Commission)  
Kay Smith (U.S. Securities and Exchange Commission)

- Federal Reserve Bank of New York (FRBNY) staff, in their role providing secretariat services to the Credit Sensitivity Group (CSG) workshops, opened the meeting by reviewing the purpose and approach of the CSG workshops as well as summarizing the [second workshop](#). The purpose of the third workshop was to discuss conceptual design and robustness considerations for a potential credit sensitive supplement to SOFR.
  
- To provide background, FRBNY staff then reviewed practical considerations for designing robust reference rates, based on the FRBNY's experience as a reference rate administrator. FRBNY staff reviewed the International Organization of Securities Commissions' (IOSCO) *Principles for Financial Benchmarks*, including governance, quality of the benchmark, quality of methodology, and accountability. In considering the design of its reference rates, FRBNY staff highlighted the importance of clearly defining the underlying interest—the types of transactions and activity the benchmark is intended to represent—and, consequently, the types of transactions and activity that should be included. They also noted the

potential for financial markets to evolve, and the importance of assessing whether the underlying interest and transaction base will remain robust to future changes in market structure. In determining transactions to be included and excluded, the rationale should be clear and purposeful. FRBNY staff discussed the impact of including or excluding certain data on the ultimate benchmark value, the underlying volumes, the volatility of the reference rates and volumes, and the representativeness of the sample. They also emphasized importance of defining a calculation methodology that is understandable, replicable, and resistant to manipulation. FRBNY staff also noted efforts to define a contingency methodology in the event the data from the primary source are incomplete or missing, and to test it against the primary methodology to ensure consistent results. FRBNY staff also described the importance of establishing governance, oversight, and accountability mechanisms. FRBNY staff then discussed specific examples from the FRBNY's experience addressing market evolution, inclusion and exclusion criteria, and contingency data and methodologies. Participants noted that a benchmark administrator can be either a public or private sector entity according to the IOSCO *Principles for Financial Benchmarks*.

- The workshop proceeded to a series of illustrative reviews of different data sources that could be relevant to a potential credit sensitive spread. Staff from the Board of Governors of the Federal Reserve System (Federal Reserve Board), Professor Antje Berndt from Australian National University, and representatives from Comerica and US Bank presented.
  - Federal Reserve Board staff presented on unsecured term transaction data, specifically summary information from the FR 2420 Report of Selected Money Market Rates, based on confidential transaction-level data, and data on commercial paper (CP) cleared through the Depository Trust & Clearing Corporation (DTCC). With regards to the FR 2420 data, Federal Reserve Board staff highlighted a variety of filtering parameters that would need to be determined if the data were to be used as an input to a potential spread benchmark. The presenter highlighted that the range of daily 3-month certificate of deposit (CD) and time deposit rates observed was typically around 2.5 percent over the two years prior to recent policy rate declines in response to the COVID-19 pandemic, and that there is considerable heterogeneity in rates paid even for individual banks. It was noted that median daily 3-month CD and time deposit aggregate issuance volumes were approximately \$1 billion over the first half of 2020 (with lower volumes at other maturity points), and less than \$0.4 billion after excluding banks with less than \$100 billion in assets and trade sizes less than \$10 million. Regarding the DTCC CP data, Federal Reserve Board staff reviewed activity for all bank issuers with transactions greater than \$10 million, noting that a typical trading day for 3-month CP in 2020 has had less than \$1 billion in volume and no more than seven bank issuers.
  - Professor Berndt presented on Trade Reporting and Compliance Engine (TRACE) corporate bond data. Professor Berndt explained the data filters applied to her analysis of the data set, and provided an example of how applying filters—including time to maturity, trade size, issuer type, and transaction type—reduced the number of eligible transactions. She also provided an overview of monthly transaction volumes and monthly dispersion of credit spreads by time to maturity, noting that monthly transaction volumes for bank issuers are a minority of overall volumes and that the dispersion of credit spreads (as measured by an interquartile spread) is generally much tighter for banks compared to the overall corporate bond market. Participants discussed the correlation of an across-the-curve funding spread with a 3-month LIBOR-SOFR spread. It was noted that, at times, short-term credit spreads have behaved differently from long-term credit spreads.
  - A representative of Comerica Bank presented on money market funds as a source of credit spread information. The presenter suggested that the difference between yields on prime money market funds and government money market funds reflects an aggregate short-term corporate credit spread across a variety of short-term corporate debt markets that may be a useful concept

in considering the design of a potential spread benchmark. The presenter noted that institutional investors currently transact daily on the basis of money market fund prices. Staff from the U.S. Securities and Exchange Commission (SEC) raised several questions about the approach, including that pricing of money market fund assets may not necessarily reflect active market quotations and transactions in the absence of secondary market trading; prime money market funds are not necessarily fully invested in non-government credit assets; and a potential reduction in prime money market fund assets may have implications for the robustness of a potential spread based on money market fund data.

- A representative of US Bank presented on the use of pricing services as a source of data for money market instruments and corporate bonds. Pricing services are used by financial institutions for a variety of business needs, including to value their balance sheets. The presentation noted that there are a number of approaches for managing the price evaluation process, which include a blend of models or algorithms and human evaluators. While IOSCO principles state that a benchmark does not need to be constructed solely from transaction data and can be determined predominantly or exclusively on bids and offers, one participant noted that the use of pricing services on electronic trading venues does not guarantee their suitability for use in reference rates. Participants discussed that further analysis would be required if pricing services were to be considered as a potential data source.
- FRBNY staff led an overview of different design considerations relevant to current and potential rates. FRBNY staff began by reviewing how current and potential rates map to different data sources. The presenter then provided an overview of some design considerations for a robust benchmark, which include determining eligible transactions, data inputs, data filters or trims, tenor(s), calculation methodology, frequency of calculation, and observation period for the calculation. FRBNY staff also provided an illustrative comparison of current and potential rates, highlighting different decisions made around the design considerations previously mentioned.
- The workshop then proceeded to a facilitated discussion led by staff from the Office of the Comptroller of the Currency on design characteristics for a robust credit sensitive supplement to SOFR, and how the reviewed data sources relate to expressed preferences for a credit sensitive spread.
- Many participants re-iterated views that a supplement to SOFR should be credit sensitive, dynamic, based on unsecured funding, and reflect marginal funding costs. Participants also discussed a variety of considerations on the precise scope of the types of transactions to include, the range of issuers to include, and an appropriate frequency and observation period for calculations.
  - A few participants expressed interest in further studying some proposed design approaches and existing benchmarks. There was some discussion that funding costs may vary by the size of the bank and the regulatory oversight they are subject to, as banks have access to different funding sources. Several participants re-iterated a preference that a credit sensitive spread reflect the funding costs of a broad set of banks, which they felt could help increase the data available for a spread and consequently its robustness.
  - There was discussion that tension exists between the objectives of representativeness and robustness—in particular, that increasing the amount of eligible transactions might improve the robustness of the spread, but also might lead it to be less representative of the funding costs for a specific market segment. Many banks were in favor of using a broader data set that would aggregate bank funding costs across different transaction types. Several banks also noted that longer observation periods could be used to improve the robustness of a spread.
  - A question was raised regarding banks' use of capital and liquidity buffers in times of stress, asking whether banks draw down their buffers rather than rely on their marginal funding source.

Some participants indicated that it was important to maintain buffers even during stressed scenarios.

- A couple of banks noted that, for them, the lack of a credit sensitive spread was particularly important for revolving lines of credit. One participant noted concerns about the potential incentive for commercial customers to draw on SOFR-linked lines of credit during times of stress. Another noted a distinction in the funds transfer pricing mismatch risks for revolving lines of credit and that commercial and industrial loans and commercial real estate loans could be match funded.
- FRBNY staff concluded the meeting by noting that a fourth workshop would be held with borrowers. Following the session with the borrowers, observations from the workshops with banks and borrowers would be summarized for the official sector.

FEDERAL RESERVE BANK *of* NEW YORK

*August 12, 2020*

# Credit Sensitivity Workshop 3

*The views here are of the presenter and do not necessarily represent those of the Federal Reserve Bank of New York or Federal Reserve System.*

# Introductions

## Participants

- Bank of America Corporation
- BBVA
- Capital One
- Citizens Financial Group
- Comerica
- Fifth Third Bank
- First Republic Bank
- Frost Bank
- Huntington Bank
- Key Bank
- M&T Bank
- MUFG
- PNC Financial Services Group
- Regions Financial
- Signature Bank
- South State Bank
- US Bank
- Wells Fargo
- Independent Community Bankers of America
- Antje Berndt
- Darrell Duffie
- Sullivan & Cromwell

## Official Sector Representatives

- Federal Reserve Bank of New York
- Board of Governors of the Federal Reserve System
- U.S. Department of the Treasury
- Office of the Comptroller of the Currency
- Federal Deposit Insurance Corporation
- U.S. Securities and Exchange Commission
- Commodity Futures Trading Commission

## Purpose and Approach to CSG Workshops

- Following in person discussions, the official sector laid out a plan
- Official sector would initially convene a series of working sessions among banks of all sizes and borrowers of different types, with the goal of understanding the lending needs of these banks and their borrowers and how a robust credit sensitive rate/spread could be developed to address them.
- Workshops hosted by FRBNY. Secretariat will prepare minutes and summary outcomes of the discussions. This information will be made publically available on the FRBNY website.
- Workshops will cover:
  - Laying the Groundwork: What is the nature of the problem?
  - Reviewing the Data: What data could be used?
  - Constructing Robust Reference Rates: What are the design considerations?
- Next Steps
  - At this stage, the goal is not to recommend a credit sensitive spread.
  - Next steps will include summarizing the observations from workshops with banks and borrowers for the official sector.

## Overview of the Day

- 9:00 – 9:15 am: Welcome and Introductions
- 9:15 – 9:45 am: Background, Practical Considerations for Designing Robust Reference Rates
- 9:45 – 11:00 am: Illustrative Reviews of Data Sources Relevant to a Potential Credit Sensitive Spread
- 11:00 – 11:30 am: Overview of Design Approaches for Current and Potential Rates
- 11:30 – 11:45 am: Break
- 11:45 am – 12:30 pm: Facilitated Discussion
- 12:30 – 1:00 pm: Wrap Up and Next Steps



## Ground Rules for the Day

- Participants are free to use and discuss the information received during the workshop sessions, but statements made by participants during workshop sessions may not be attributed to the participant or his or her firm.
- While a participant may share his or her own view on these topics, participants should not make statements purporting to describe the views of the CSG as a whole.
- Participants should not disclose any confidential or commercially sensitive information in workshop sessions.
- The public minutes for each workshop session will include a list of attendees and firms represented and all presentation materials used in the session.
- Opinions expressed or statements made by official sector staff during workshop sessions are solely those of the individual and do not necessarily reflect the views of their agency.

## Antitrust Guidelines

- These workshops are being hosted by the official sector and are intended to serve a public purpose and to be pro-competitive. However, participants must be mindful of their obligation to observe applicable antitrust laws.
- By participating, all participants are agreeing to observe the antitrust guidelines that have been provided in advance of this workshop.
- Those guidelines are intended to assist participants to ensure their conduct is consistent with law, but each participant is individually responsible for his or her own conduct.
- Participants should police themselves, and should raise questions about and report suspected violations of the Antitrust Guidelines to an FRBNY attorney or an attorney for their respective firms. Anonymous reporting is also available using the FRBNY's Integrity Hotline: (877) 52-FRBNY.

## Summary of Workshop 2 Outcomes

- The [questionnaire] responses indicated a preference for the [credit sensitive] supplement to measure a **commercial lender's marginal cost of funds** rather than an average cost of funds, but **did not provide a clear consensus on the type of institution, type of funding, or tenor of funding it should reflect**. Following the summary, a number of workshop participants noted that measuring marginal (as opposed to average) cost of funds was important as marginal rates are more relevant to the costs of funding new lending activity.
- Treasury staff noted that **in order for any potential credit sensitive supplement to SOFR to meet the IOSCO principles, it would need to be representative, proportional, robust, and fit for purpose**.
- FRBNY staff led a review of financial transaction types and data sources that could be relevant to measuring bank funding costs. Staff noted that there is **variation in the available characteristics of the underlying transactions**. There is also **variation in the collection of transactional data, data access and availability**, and associated current or potential calculated rates.
- Panelists and participants discussed a **variety of data sources that could be relevant** to constructing a credit sensitive supplement, though **different opinions were expressed concerning the type of transactions or the type of borrowers that a credit sensitive spread should reflect**. Some participants indicated that it should reflect the funding costs of a broad set of banks and that it should include banks' short- and long-term wholesale borrowing.
- Several participants also noted the importance that a potential spread reflect the **economic conditions** it seeks to measure.
- Participants discussed the use of **observable transactions versus actionable pricing quotes** in a potential credit sensitive spread. Observable transactions were seen as more robust, but [one] participant suggested that actionable pricing quotes be considered.
- There was a discussion about the **risk of a credit sensitive supplement being used for broader purposes** for which it was not designed or sufficiently robust, including in derivatives markets.

## **Workshop 3 Purpose**

The goal of Workshop 3 is to :

- Elaborate on the type of funding costs a potential credit spread should measure
- Discuss important attributes of a potential credit spread to address issues described in Workshop 1
- Better understand conceptual design considerations for a potential credit sensitive supplement to SOFR

# **Practical Considerations for Designing Robust Reference Rates**

# **IOSCO Principles for Financial Benchmarks**

## **Governance**

- Responsibility of the Administrator
- Oversight of Third Parties
- Conflicts of Interest
- Control Framework
- Internal Oversight

## **Quality of Methodology**

- Content of the Methodology
- Changes to the Methodology
- Transition
- Submitter Code of Conduct
- Internal Controls Over Data Collection

## **Quality of Benchmark**

- Design
- Data Sufficiency
- Hierarchy of Data Inputs
- Transparency of Benchmark Determinations
- Periodic Review

## **Accountability**

- Complaints
- Audits
- Audit Trail
- Cooperation with Regulatory Authorities

## FRBNY Approach

- As a **public sector reference rate administrator**, the FRBNY may have different objectives than private market providers.
- The FRBNY produces a number of reference rates that provide insight into the dynamics of money markets, which is useful for **evaluating the effectiveness of monetary policy implementation**.
- Reference rates also play several important roles in financial markets that support **efficient market functioning**:
  - Facilitate trading in standardized contracts, which can lower transaction costs and improve market liquidity.
  - Reduce information asymmetries by providing a transparent, independent pricing source.
  - Limit participants' incentives to misreport pricing for settling a contract.

## Development Considerations\*

- Define **underlying interest** and identify which market segment(s) should be captured
  - Consider potential for **market evolution**
  - Decide on transaction **inclusion criteria**; assess impact on, rate, volume, volatility, etc.
- Negotiate regulatory reporting and/or contractual agreement(s) for **data collection**, including necessary controls on 3<sup>rd</sup> party providers
  - Complete (no missing fields), accurate, and sufficient data
- Determine a robust **calculation methodology** (including a **contingency data methodology**)
- Develop **technology** for raw data intake, calculation, publication, and final data storage



## Development Considerations, Continued\*

- Decide **publication/distribution method** (where/how) and develop necessary infrastructure
- Document **procedures** for benchmark production and conduct necessary **training**
- Establish processes for data **revisions** as well as methodology or data collection **changes**
- Stand up an **oversight committee**
- Put in place other **governance and accountability measures**
- Choose an appropriate **name**
- Define **terms of use**, address any legal considerations
- Seek and respond to **public comment**; make any necessary adjustments

## Development Considerations, FRBNY Examples

- **Market evolution**
  - OBFR and Selected Deposits
  - Definition of repo reference rate segments
- **Inclusion criteria**
  - “Specials” trim
  - Affiliated entities
- **Contingency data source and methodology**
  - Primary dealer repo borrowing activity survey
    - For more information on the methodology, see *Presentation about the New York Fed's first use of this data contingency on June 3, 2019*
- **Revisions**
- **Oversight committee**

## Oversight Committee

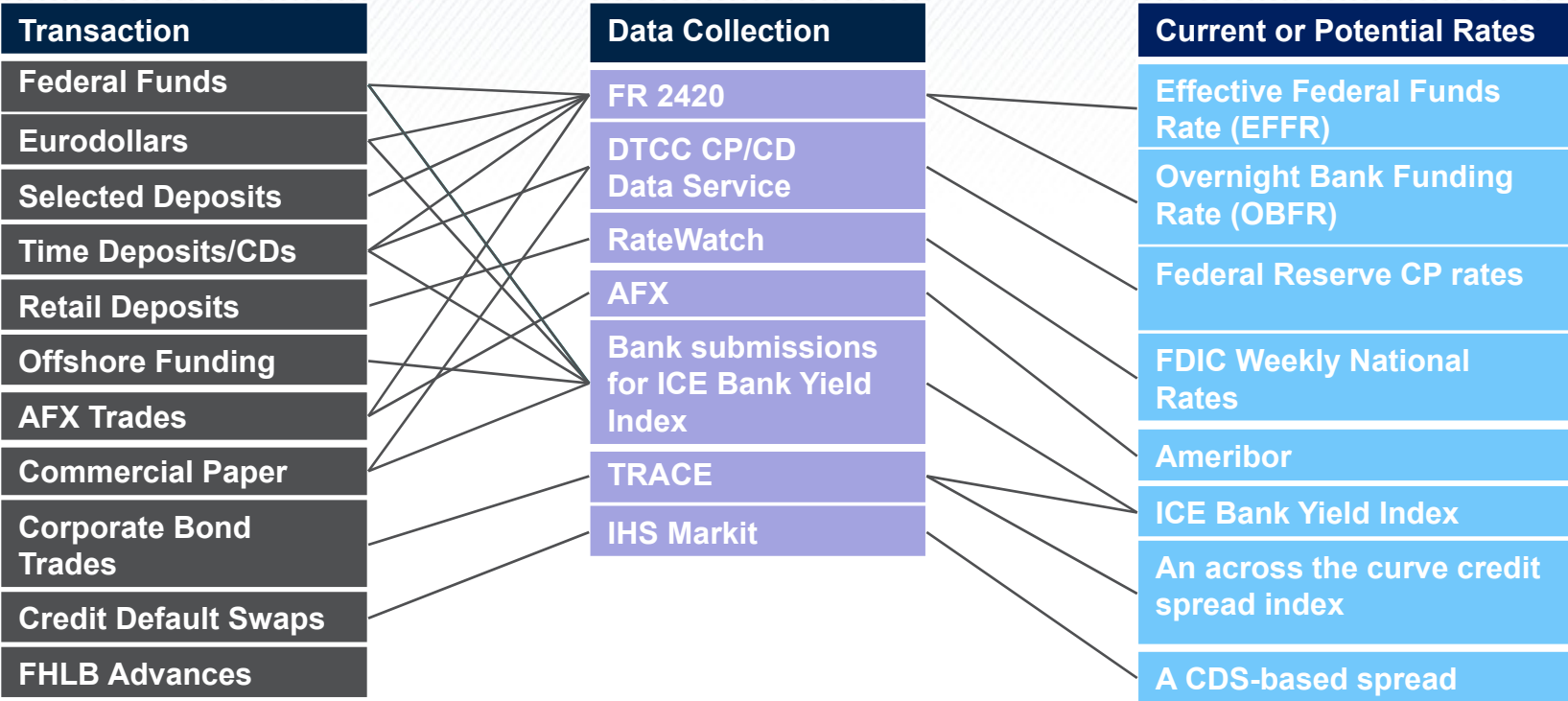
- An internal Oversight Committee periodically reviews and provides challenge on the rate production process.
- The Committee consists of members from across the New York Fed organizational structure who are not involved in the daily production of the reference rates. Included are the New York Fed's Chief Risk Officer and other senior staff from various control areas of the New York Fed.
- Among the Committee's responsibilities are periodic reviews of the rate production process, including quarterly reports of any use of non-standard procedures in the production of the rates, an annual review of the robustness of the rate calculation methodologies, in addition to reviewing policies regarding complaints received, audit findings, and conflicts of interest.

# Illustrative Data Reviews

# Overview of Design Approaches

# Linkages between Data Sources

- There are a variety of relationships between transactions, data collections, and current and potential rates:



Note: diagram is shown for illustrative purposes and is not meant to be comprehensive. Lines represent existing or potential linkages between sources. There are not clean linkages in all cases.

## **IOSCO Principles: Benchmark Design**

“The design of the Benchmark should seek to achieve, and result in an accurate and reliable representation of the economic realities of the Interest it seeks to measure, and eliminate factors that might result in a distortion of the price, rate, index or value of the Benchmark.”

## **Some (non-exclusive) Design Considerations**

- **Eligible transactions**
- **Data inputs**
  - Primary and supplementary sources
  - Use of transactional and non-transactional data
- **Data filters / trims**
- **Tenor(s)**
  - Choice of tenor for rate production
  - Bucketing of input data
- **Calculation methodology, e.g.:**
  - Central tendency in a distribution
    - Simple average
    - Volume-weighted average
    - Volume-weighted median
  - Curve fitting
  - Constructed index
- **Frequency of calculation**
- **Observation period**



## Illustrative Comparison of Current and Potential Rates

|   | Data Inputs   | Eligible Transactions   | Data Filters / Trims  | Tenor of Rate(s)   | Calculation Method   | Frequency | Obs. period                  |
|---|---|---|---|--------------------|--|-----------|------------------------------|
| <b>Effective Federal Funds Rate (EFFR)</b>  | FR 2420 data collection   | Federal Funds   |   | Overnight          | Volume-weighted median   | Daily     | One day                      |
| <b>Ameribor</b>   | American Financial Exchange (AFX) data  | AFX transactions  |   | Overnight          | Volume-weighted average  | Daily     | One day                      |
| <b>ICE Bank Yield Index (ICE BYI)</b><br><i>[potential rate]</i>                          | Primary transaction data submissions from banks; TRACE                          | Primary wholesale funding transactions; secondary corporate bond trades | Restricted to set of large, internationally active banks      | 1M, 3M, 6M         | Weighted regression construction   | Daily     | Rolling five day (generally) |
| <b>Across-the-curve credit spread index (AXI)</b><br><i>[potential index]</i>             | TRACE; short-term funding market data   | Primary wholesale funding transactions; secondary corporate bond trades | Wholesale unsecured debt funding of BHCs and commercial banks | n/a                | Index of weighted average credit spreads   |           |                              |
| <b>11<sup>th</sup> District Cost of Funds Index (COFI)</b><br><i>[to be discontinued]</i> | Data from COFI reporting members  |   |   | n/a                | Ratio of monthly interest expenses to total funds, with time adjustment factors                        | Monthly   | One month                    |
| <b>Australia Bank Bill Swap Rate (BBSW)</b>   | Required reporting to rate administrator (ASX) via approved trade venues (ATVs) | Bank Bills, Negotiable CDs  | Restricted to "Prime Bank" eligible securities                | 1M,2M,3M, 4M,5M,6M | Waterfall: (1) Volume-Weighted Average Price; (2) National Best Bid / Offer; (3) Fall Back Methodology | Daily     | One day                      |

Note: the above table lists a few design attributes for selected rates, solely for illustrative purposes. It is not meant to be a comprehensive inventory of design attributes or potential credit sensitive supplements to SOFR.

# Facilitated Discussion

## Key Questions

- What data inputs and constructions reflect the type of funding costs a potential credit spread should measure?
  - Types of transactions
  - Index vs. spread
  
- What are important attributes to address issues described in Workshop 1?
  - Tenor
  - Frequency
  - Observation period
  - Other
  
- Based on today's conversations do you have any additional thoughts on how the reviewed data sources relate to expressed preferences for a credit sensitive spread?

## Wrap Up & Next Steps

- Themes from today's session
- Next steps

# Unsecured Term Transaction Data

Board of Governors of the Federal Reserve System

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# Potential Sources

## **Federal Reserve CDs and Time Deposits (FR2420)**

~180 reporting banks

Overnight data are assessed to ensure statistical quality. More work would be needed to use term transactions in a calculated rate/spread.

## **DTCC CPs**

Cleared transactions

Not limited to banks

Not limited to unsecured CP / CD issuance

# Filtering Questions

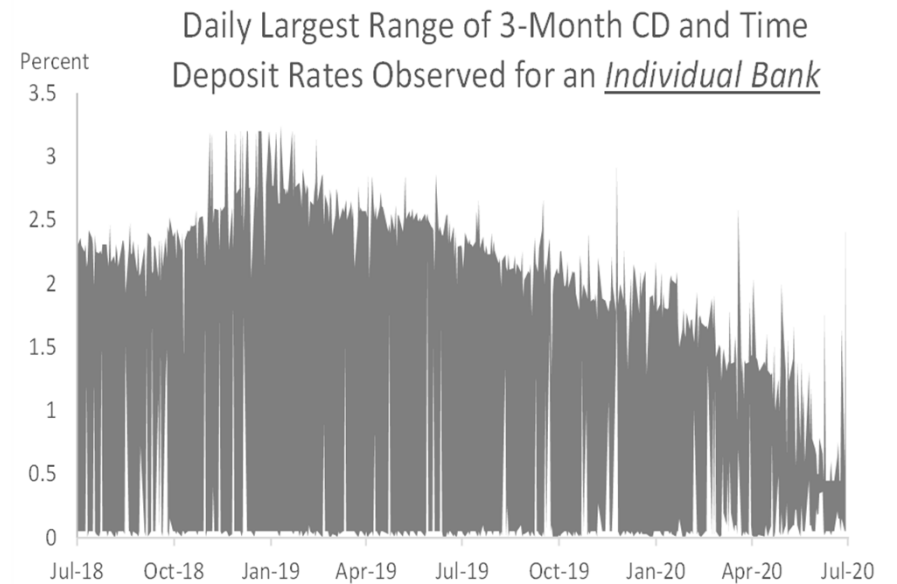
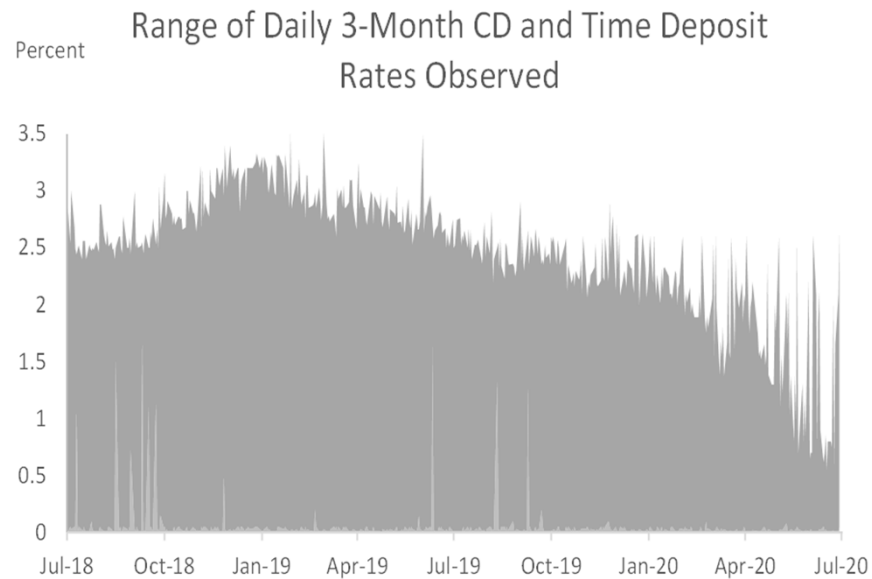
## **Borrowers**

- Federal Reserve data of CD and time deposit borrowing (> 6 days). Excluded: banks < \$5 billion in assets and banks with between \$5 billion and \$18 billion in assets that also have low fed funds transaction volumes. Other exclusions:
  - Related entity
  - Derivative-linked
  - Collateralized
  - Trade size < \$1 m
- DTCC data require decisions on inclusions/exclusions (e.g. finance companies, foreign GSEs).
- *Questions*: Use all banks, large banks, current LIBOR panel banks, or alternative criteria? Who determines and what criteria would applied for inclusion?

## **Transaction Choices**

- Include concessionary rates? Secondary market transactions? Non-negotiable?
  - Examples include relationship lending, FCB lending, small size, multi-leg transactions
  - Exclude FRNs, step ups, embedded options and open trades?
  - Exclude negative yields and maturities?
- More generally, what rate and volume criteria to apply?

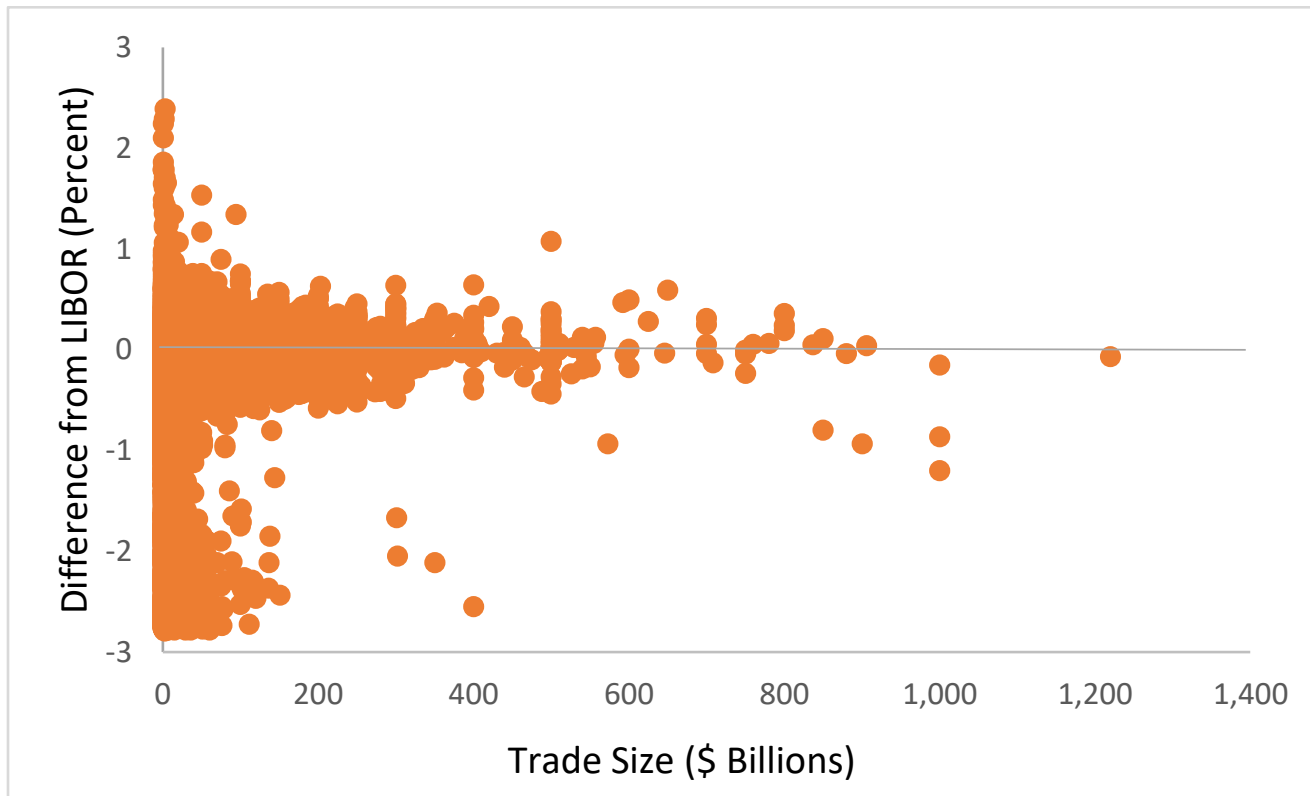
# Issuance Rate Range Very Wide



*The difference between the top of the dark area and the top of the light area is the range of rates on each day.*

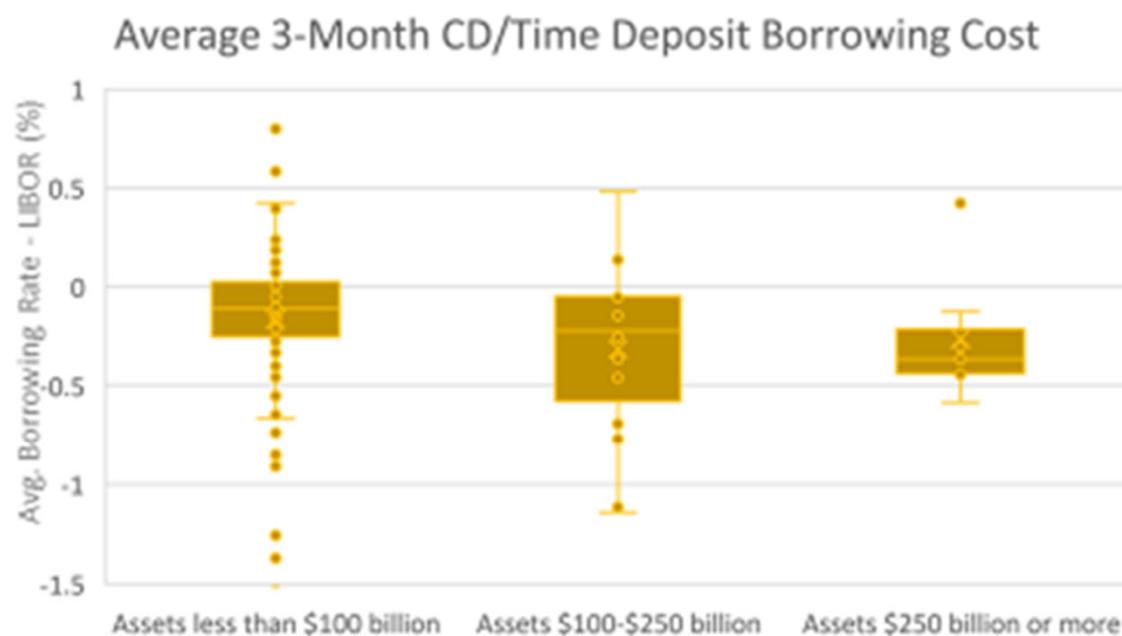


# Many Small Trades are at Low Rates



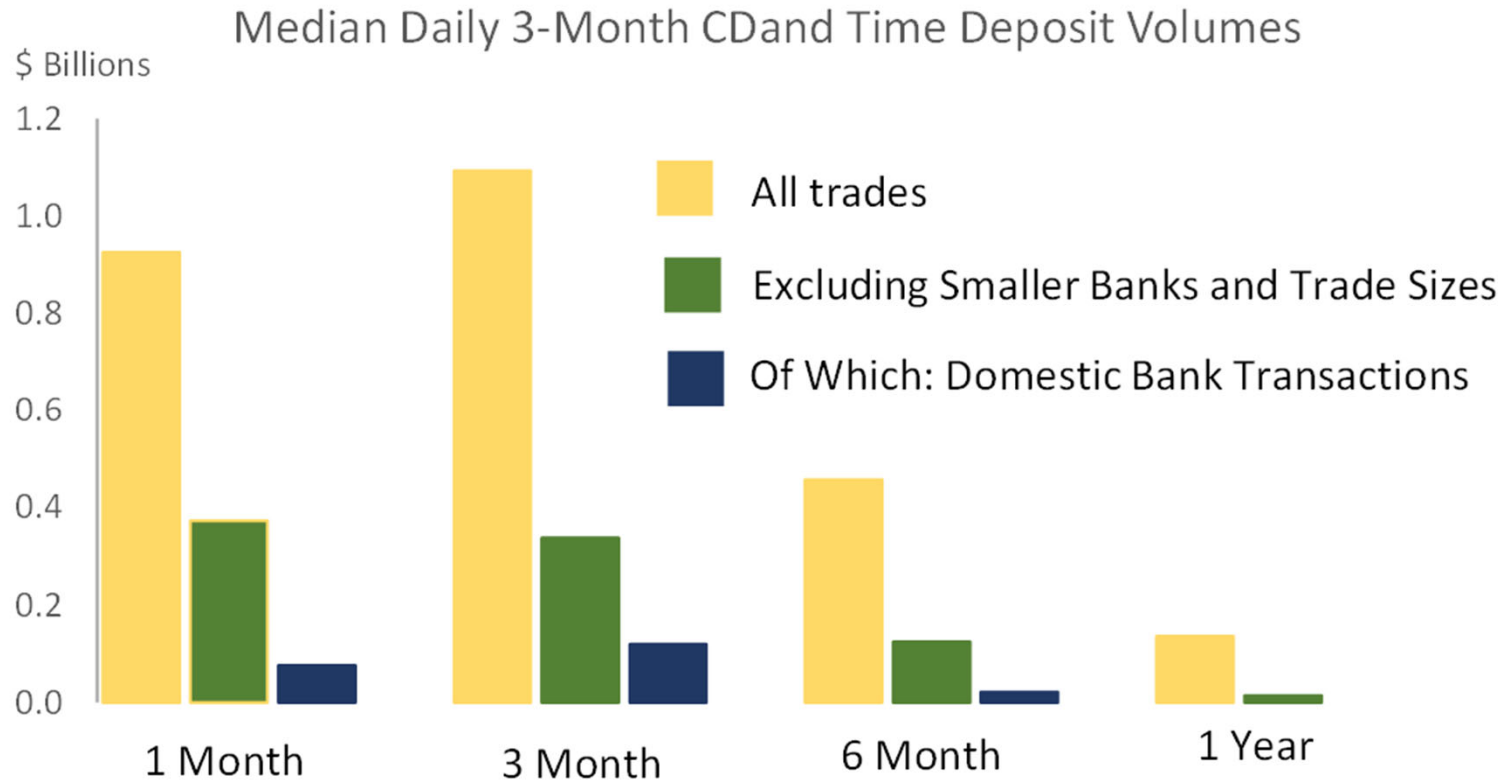
*Each dot represents a trade in the 3-month maturity bucket.*

## Considerable Heterogeneity in Rates Paid by Different Banks, with Greater Variability for Smaller Banks



Using the full sample, more than 80 percent of the variation in a volume weighted-average rate was explained by daily movements in the composition of banks trading over the first half of 2020

# Issuance Volumes are Quite Low



## DTCC Data

- Combination of DNs and accruals
- Not all fields filled in / applicable
- Multiple uses of cleared transactions
- Inconsistent naming conventions
- Identifying financial issuance not clear-cut

# Already Noted: CP Issuance is also Low

- Trading Activity is generally low at maturities of 1-month or longer, but was particularly low in March.
- For example, a typical trading day for 3-month CP in 2020 has seen less than \$1 billion in volume across 7 banks. For about half of the days, the Herfindahl index was highly concentrated.
- In March 2020, a typical trading day saw about \$200 million in volume across 3 banks.
- This is across all banks in our sample, and there is considerable heterogeneity in the rates each bank trades at.

## Summary Statistics for 3-Month CP Trading Activity

|            | Trades | Banks | Volume          | Herfindahl Index |
|------------|--------|-------|-----------------|------------------|
| 2020H1     |        |       |                 |                  |
| average    | 23     | 7     | \$1,009,412,110 | 0.30             |
| median     | 21     | 7     | \$872,982,500   | 0.24             |
| March 2020 |        |       |                 |                  |
| average    | 10     | 3     | \$434,803,235   | 0.60             |
| median     | 5      | 3     | \$214,000,000   | 0.52             |

This analysis/summary relies on information provided by The Depository Trust & Clearing Corporation and/or its affiliates.

Source: DTCC CPCD data.

# Considerations

- Limited term volume
- A case can be made for excluding small trades and focusing on large banks
- Size exclusions (and other filtering) create very small daily samples
- Filtering must be weighed against increased risk of idiosyncratic volatility

# Across-the-Curve Credit Spread Indices

## Underlying Transaction Data

### Preliminary

|              |                |            |
|--------------|----------------|------------|
| Antje Berndt | Darrell Duffie | Yichao Zhu |
| ANU          | Stanford       | ANU        |

Credit Sensitivity Group Meeting  
Federal Reserve Bank of New York

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## Trade Reporting and Compliance Engine (TRACE) data

- ▶ All OTC secondary market trades in TRACE-eligible corporate bonds must be reported to FINRA as soon as practicable, and within 15 minutes of execution
- ▶ TRACE-eligible bonds include US dollar-denominated debt securities issued by a US or foreign private issuer (if a “restricted security,” sold pursuant to Rule 144A)
- ▶ FINRA publicly disseminates information about these trades (with capped transaction sizes) immediately upon receipt. Some exceptions apply
- ▶ TRACE represents over 99% of total U.S. corporate bond debt
- ▶ For our illustrations, we use the Enhanced TRACE data (with uncapped transaction sizes) from July 2002 to August 2019
- ▶ We clean the Enhanced TRACE data using standard protocols that remove cancellations, corrections, reversals, and double counting
- ▶ We also remove transactions that fall in the tails of the price or yield distributions



## Monthly transaction volumes by issuer type

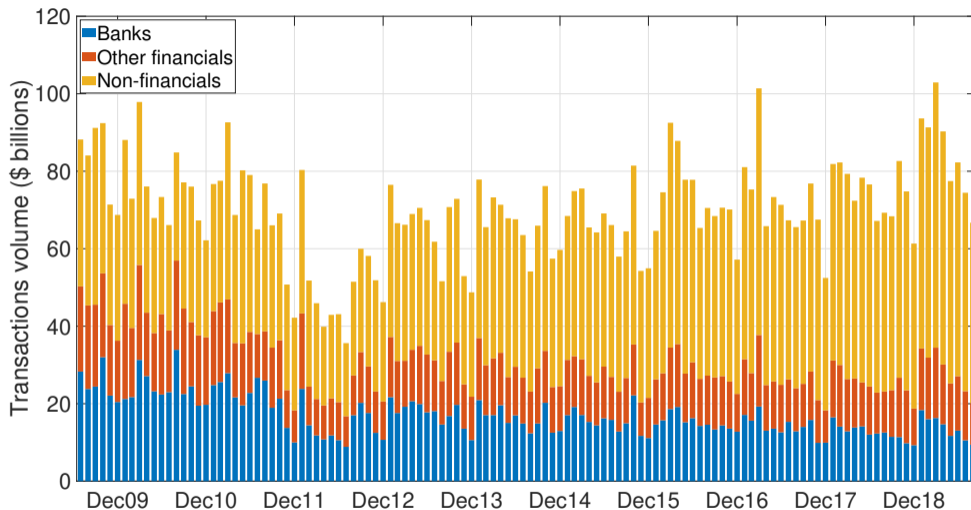


Figure: Transaction volumes by month for BHCs and commercial banks (Banks), other financials and non-financials. Underlying data: TRACE, uncapped transaction sizes above \$250,000.

## Data filters

- ▶ We use the Mergent Fixed Income Securities Database (FISD) to collect information on issuer and issue attributes
- ▶ FISD is a comprehensive database of publicly offered U.S. bonds. It can be merged with TRACE using 8-digit bond cusip
- ▶ We focus on US dollar-denominated senior unsecured corporate debentures, MTNs and medium-term zeros issued by US-domiciled corporations
- ▶ In imposing additional filters, we aim to strike a balance between creating a homogeneous set of bonds and retaining as many observations as possible
- ▶ In particular, we remove instruments that are private placement, Rule 144A, convertible, exchangeable, perpetual, unit deal, defaulted, putable, Yankee, or Canadian

## Data construction: The 2018 snapshot

|  | Issuers | Issues | Transactions |          |
|--|---------|--------|--------------|----------|
|  |         |        | Trades       | Avg size |
| Senior unsecured CDEB, CMTN and CMTZ<br>with prc, yld and volume data in TRACE   | 1.5K    | 8.3K   | 8.8M         | \$0.4M   |
| excl if time to maturity < 1yr or > 5yrs   | 1.1K    | 3.3K   | 4.1M         | \$0.3M   |
| excl if trade size $\leq$ \$250K   | 1.0K    | 2.9K   | 0.5M         | \$2.0M   |
| excl if private placemt, Rule 144A, convertible,<br>exchangeable, perpetual, unit deal,<br>defaulted, putable, Yankee, or Canadian | 1.0K    | 2.9K   | 0.4M         | \$2.0M   |
| excl if floating-rate debt or spread > 20%   | 1.0K    | 2.9K   | 0.4M         | \$2.0M   |
| Financials only  | 300     | 900    | 150K         | \$2.0M   |
| BHCs and commercial banks only (39 RSSD)   | 57      | 255    | 70K          | \$2.0M   |

## Monthly transaction volumes by time to maturity

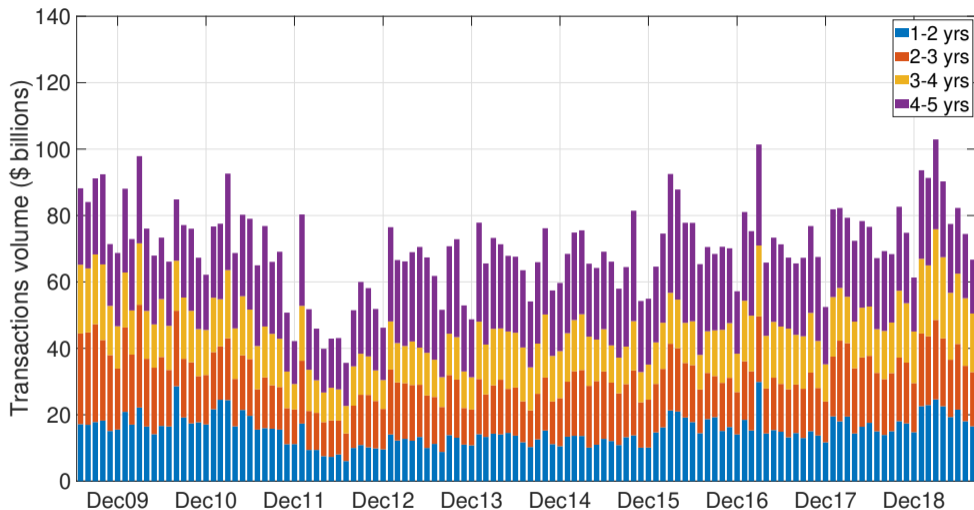


Figure: Transaction volumes by month in each of four maturity ranges. Underlying data: TRACE, uncapped transaction sizes above \$250,000.

## Monthly transaction volumes by time to maturity (Banks only)

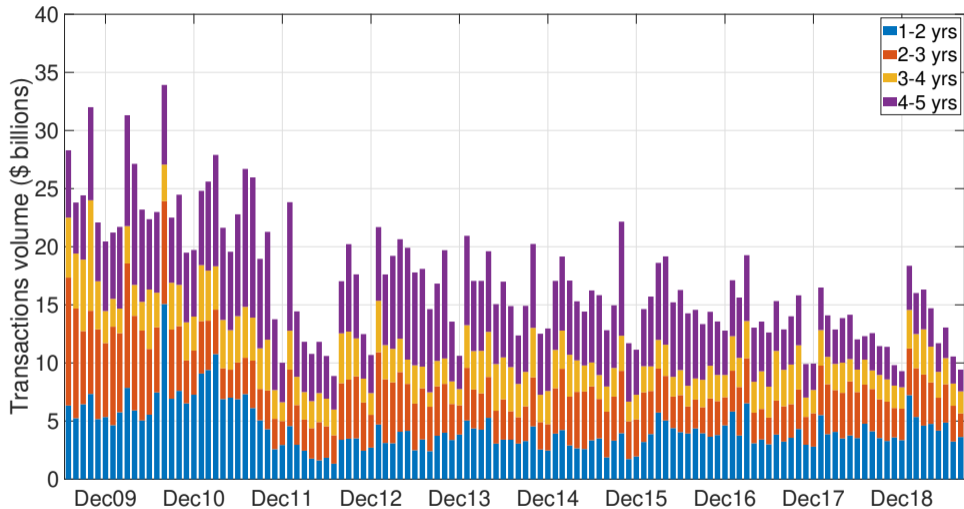


Figure: Transaction volumes by month in each of four maturity ranges. Underlying data: TRACE, uncapped transaction sizes above \$250,000.

# Monthly dispersion of credit spreads by time to maturity

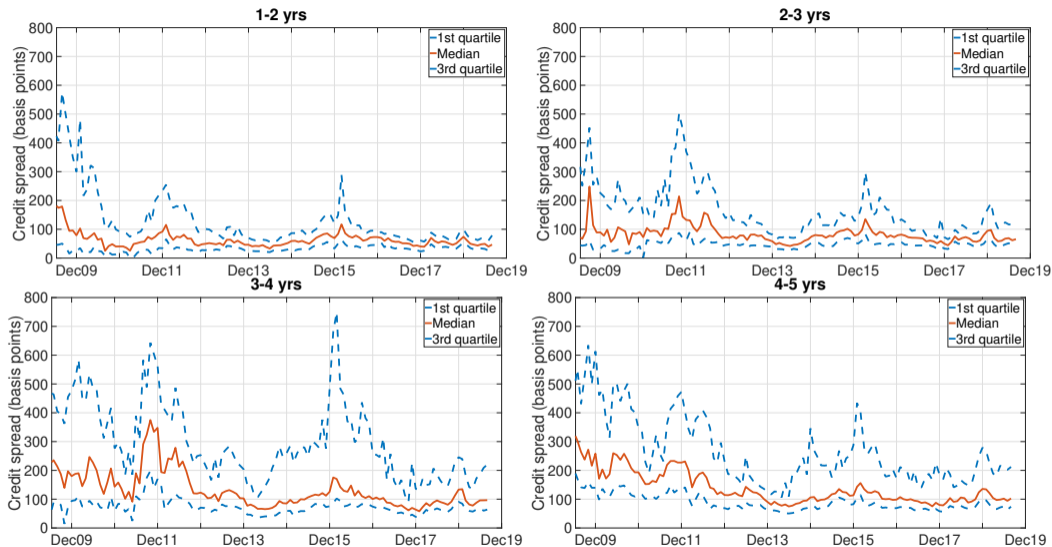


Figure: Interquartile range of credit spreads. Data: TRACE, uncapped transaction sizes above \$250K.

# Monthly dispersion of credit spreads by time to maturity (Banks only)

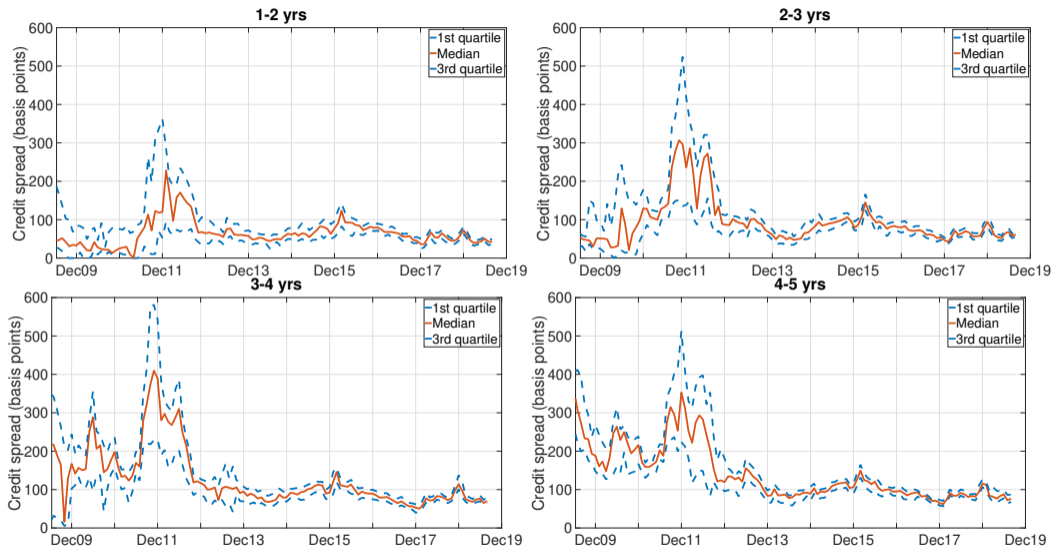


Figure: Interquartile range of credit spreads. Data: TRACE, uncapped transaction sizes above \$250K.

# Money Market Funds as a Source of Credit Spread Information

Comerica Bank

\*The views expressed in this presentation are solely those of the authors and do not necessarily represent those of the sponsors or any other participants in the Credit Sensitivity Group workshops for which it was prepared.



# Why are Money Market Funds Relevant To Bank Funding

- Deposits are a core component of a bank's funding strategy. The level and importance of bank deposits has increased after the Financial Crisis
- However, depositors have close alternatives to bank deposits such as money market funds, either through investment sweep products or direct investments
- Like non-term bank deposits, money market funds generally offer daily liquidity and transaction ease. Some funds, such as government money market funds, also offer stable principal (\$1 NAV) and investments backed by the U.S. government, similar to the FDIC protection on bank deposits below the FDIC limits
- Money market funds are a competing alternative to bank deposits
  - Government Money Market funds are a particularly close alternative to fully FDIC insured bank deposits

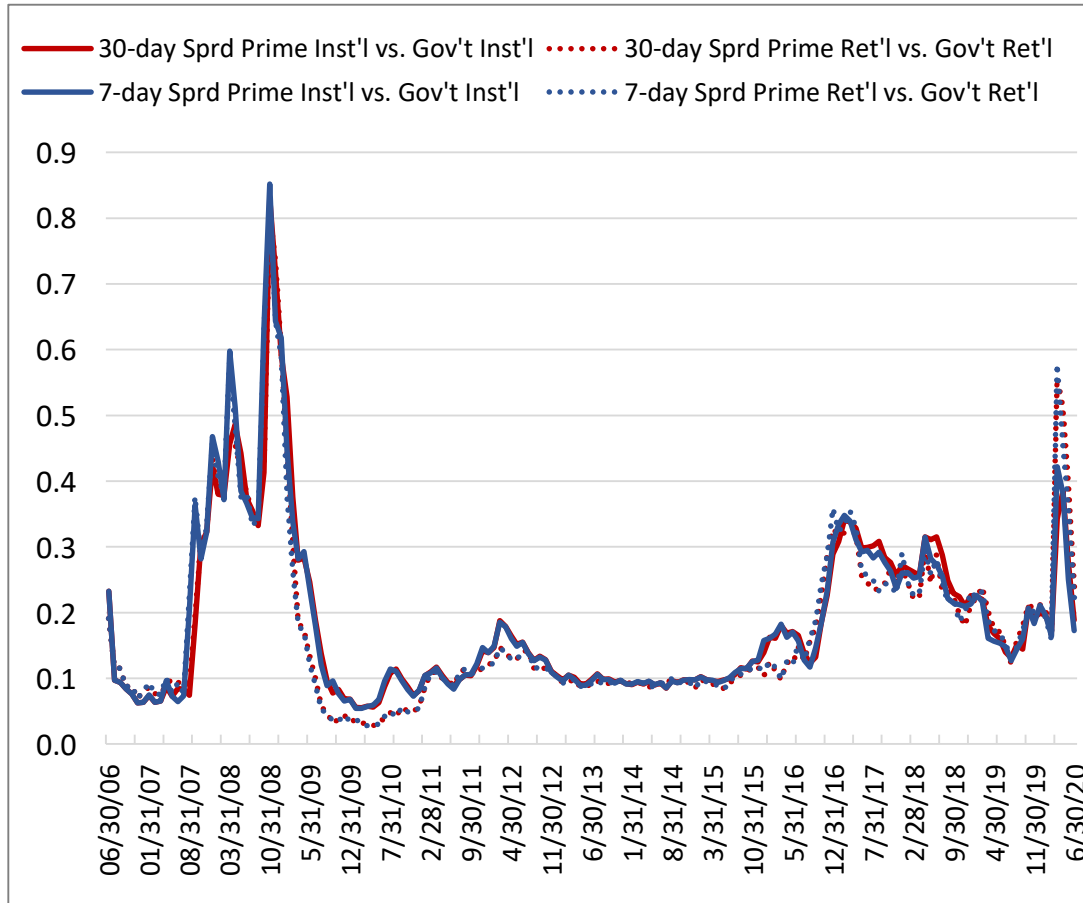
# How Can Money Market Funds Be Used to Derive a Credit Spread Relevant to Banks

- To supplement deposits, banks also obtain wholesale funding through a variety of financial instruments that they sell to institutional investors. For short term debt instruments, such investors include Prime Money Market Funds (PMM)\*
- In contrast, Government Money Market Funds (GMM)\* invest in risk-free securities
- Therefore, the difference between the PMM yield and the GMM yield reflects an aggregate short term corporate credit spread across a variety of short term corporate debt markets where PMM acquire their investments and which banks and other corporate issuers access for funding
  - This credit spread is relevant to banks due to the role they play in these short term corporate debt markets as issuers, as well as the way banks manage their overall funding strategy between deposits and wholesale funding
- Available sources for money market fund data include Crane Data and iMoneyNet

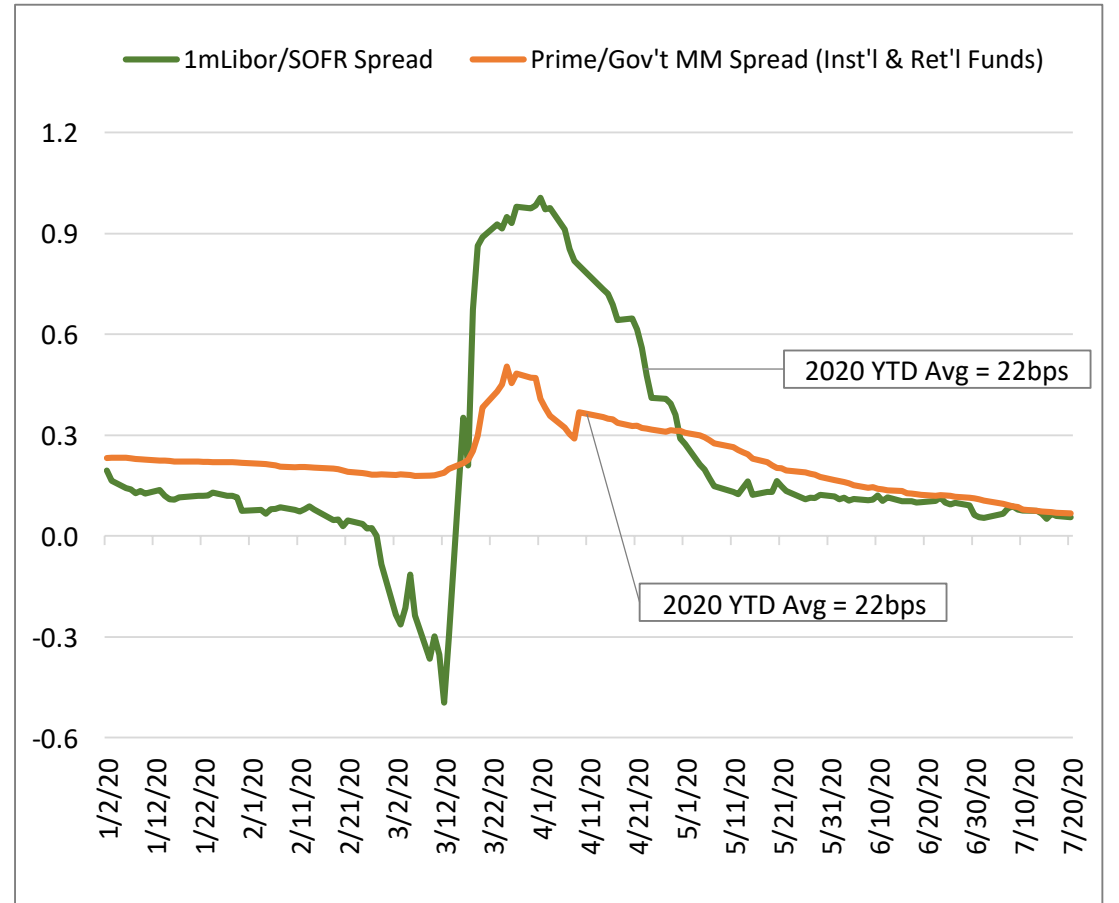
*\*GMM invest at least 99.5% of the fund's total assets in cash, U.S. government securities and/or fully collateralized repos  
PMM invest in any eligible U.S. dollar-denominated money market instruments as defined by applicable SEC regulations, including all listed types above as well as commercial paper, certificates of deposit, corporate notes, and other private instruments from domestic and foreign issuers, as well as repurchase and reverse repurchase agreements*

# Prime vs Government MM Funds Historical Spread

## Monthly Data Covering 2006-2020 (%)



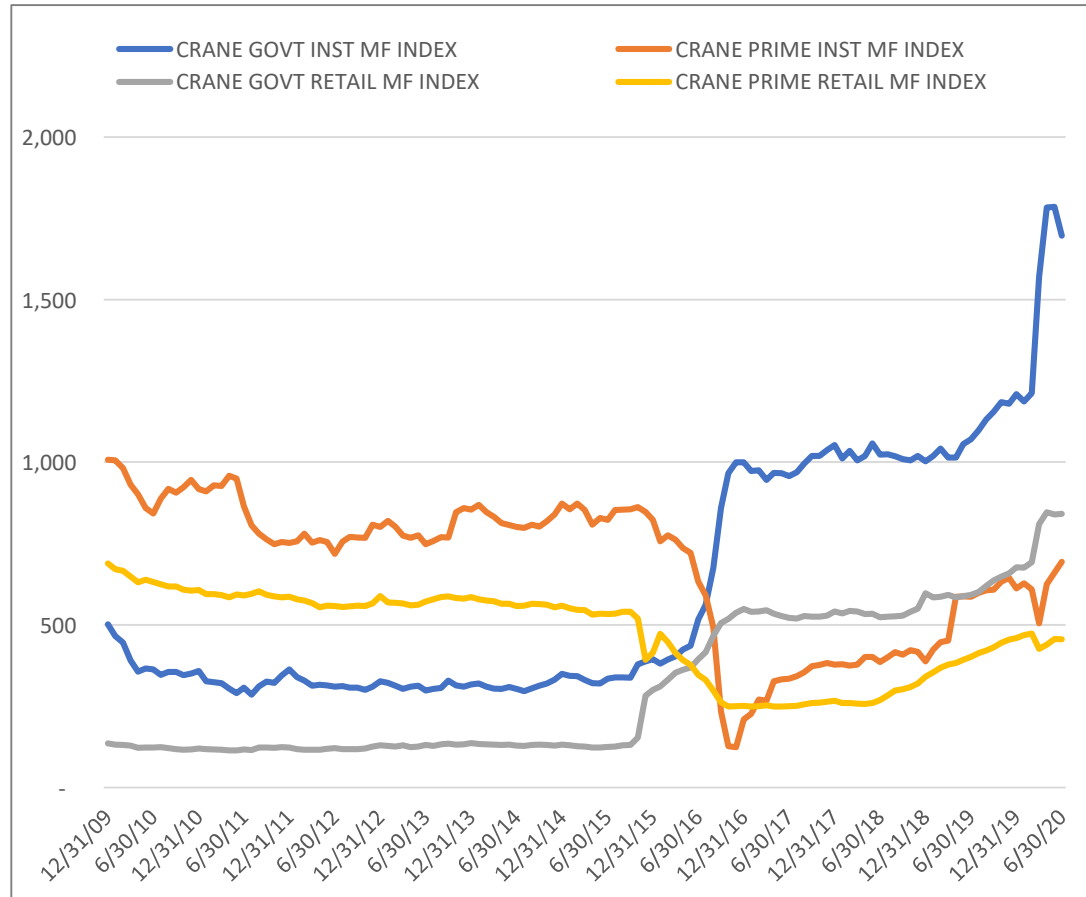
## Daily Data Covering 2020 YTD (%)



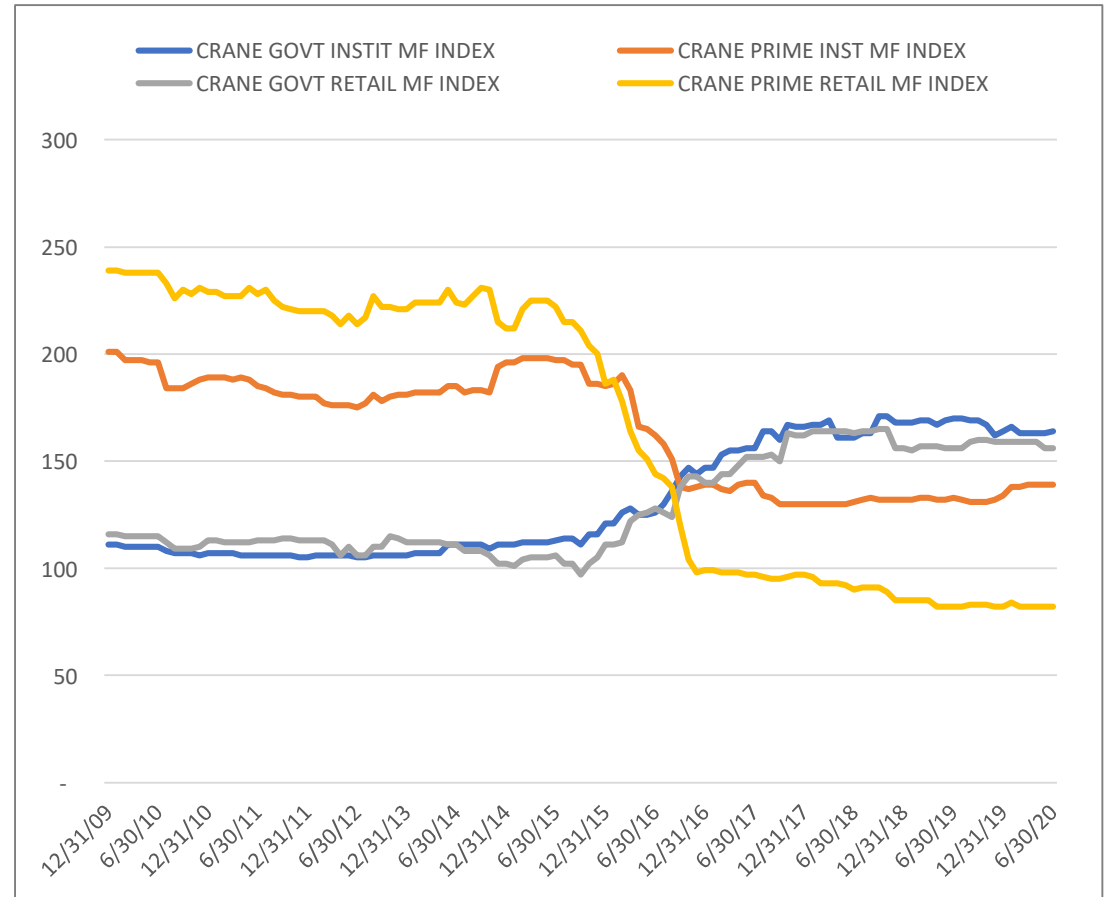
Source: Crane Data

# Money Market Funds Industry Post Financial Crisis

## AUM (\$ Billions)



## Number of Funds



Source: Crane Data

# Using Money Market Funds to derive a credit spread has several advantages and disadvantages

- Some of the advantages of using money market funds:
  - Large and liquid market complex representing trillions of dollars in investments and a large number of funds, therefore hard to manipulate
  - Daily price discovery even in stressed markets
  - Well known by market participants and bank customers (particularly commercial borrowers)
  - Can provide an aggregate measure of a credit spread across a large number of underlying markets for short term corporate debt, therefore not overly dependent on any one market
- Some of the disadvantages of using money market funds:
  - A variety of money market funds (institutional vs. retail, different investment styles and levels of AUM, etc.) yielding no single aggregation approach
  - Possible impact of floating vs stable NAVs, liquidity fees and gates on reported yields
- This can be used as a stand alone approach to credit spread derivation or as a supplemental data input into a more complex methodology

# Pricing Services Overview

US Bank and Bank of America

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# Pricing Services – Data availability for money market instruments and corporate bonds

- Pricing services are used extensively by financial institutions to support fair value measurement requirements across asset classes
  - Subject to substantial oversight and robust internal control framework across institutions
- Various pricing services available for money market instruments and corporate bonds
  - Including Bloomberg BVAL, ICE Data Services, IHS Markit, and Refinitiv
- Broad coverage for U.S. money market instruments and corporate bonds
  - Services include both intraday and end of day pricing
- Data sources include combination of primary and secondary market transactions, as well as indicative pricing quotes from market participants
  - Secondary trade execution data from FINRA Trade Reporting and Compliance Engine (“TRACE”) generally serves as a key input across providers
  - Other data sources into new issue market, dealer runs, contributor submissions, and comparable security prices

# Pricing Services – Evaluation Methodology

- Priority given to most relevant data
  - Pricing generally incorporates a hierarchy of input data types, with data deemed more relevant or reliable receiving a larger weighting
  - Trade execution data generally carries the most weight
  - Hierarchy determined via pricing service proprietary methodology
    - Various approaches that incorporate type of observations (executable vs. indicative), depth of liquidity, consistency of quotes, availability of peer data
- Variety of practices for managing evaluation process
  - Blend of models/algorithms and human evaluators
- Liquid issuers generally priced relative to an issuer specific curve
  - Less liquid issuers priced relative to peer curve
- Varying practices to evaluate outlier pricing data



# Pricing Services – Considerations for a Credit Sensitive Index

- Pricing services already used broadly across the financial industry
- Provides broad pricing coverage to supplement trade execution data
  - Allows for daily pricing across vast majority of securities relevant for a credit sensitive index
- Inclusion of dealers runs and contributor inputs into price evaluation process
- Human oversight/intervention vs. modeled approach
- Broad coverage and consistent pricing vs. accuracy of pricing by individual issuer

## Availability of actionable quotes and what “actionable” means in practice

- Various electronic trading venues available for money market instruments and corporate bonds
- Combination of third party vendors and dealer specific platforms
- Limited availability of “live” prices, with most venues offering indicative prices that are subject to final agreement
- Dealers providing prices on platforms subject to regulatory oversight to ensure quotes are fair and reasonable
  - Various additional regulatory and data quality requirements
- Substantial volume of quotes available