Alternative Reference Rates Committee (ARRC)

Minutes for the October 22, 2019 Meeting

1. The ARRC Chair welcomed Federal Reserve Board of Governors Vice Chair for Supervision Randal Quarles and Federal Reserve Bank of New York President John Williams. Vice Chair Quarles congratulated the ARRC on its achievements to date, underscored the Federal Reserve's ongoing support for the ARRC's work, and stressed that market participants should continue to work to ensure an effective, timely transition away from LIBOR.

   President Williams noted that the existence of LIBOR is not guaranteed beyond end-2021 and that ARRC members must do everything possible to prepare for a future without LIBOR and to ensure that the financial industry is focused on preparing for that risk. President Williams urged those market participants that are lagging behind in transitioning away from LIBOR to accelerate their efforts. President Williams added that SOFR is important to the transition and that while efforts to develop a forward-looking term rate are ongoing, in most cases an average of SOFR is a suitable alternative to a term rate.

2. Representatives from the U.S. Treasury Department provided an overview of their recently released regulatory relief proposal that aims to reduce the potential adverse tax consequences that could arise when financial contracts are amended to replace IBORs with alternative reference rates such as SOFR. The Chair of the ARRC's Accounting/Tax working group noted that Treasury's proposal was very useful to the transition and that the working group plans to submit a detailed response. The Treasury representatives encouraged the ARRC, member firms, and other market participants to provide feedback during the public comment period, which ends on November 25, 2019.

3. Federal Reserve staff delivered a presentation (Attachment 1) showing that while SOFR futures volumes have grown significantly since inception, current market depth and trading volumes significantly lag fed funds futures and do not yet appear sufficient to create a robust IOSCO-compliant SOFR term rate. The ARRC Chair noted that members should focus on bringing more trading volumes into SOFR derivatives and cash markets in order to make the development of a futures-derived term rate more viable. The co-Chair of the ARRC's Term Rate working group and ARRC members discussed other metrics and markets that the ARRC could consider in order to determine a sufficient level of liquidity in SOFR futures to develop a term rate. Federal Reserve staff noted their presentation reflected a preliminary analysis for members to consider and that the Committee would have the opportunity to develop its own criteria for judging the level of SOFR futures liquidity that would be adequate for creating a robust IOSCO-compliant SOFR term rate.

4. ARRC members discussed ways that the Committee could enlist outside resources to amplify its outreach and communications efforts to more effectively reach a wider audience impacted by the LIBOR transition. Members highlighted the need to ensure that market participants and the general public have an accurate understanding of the ARRC's work on promoting and coordinating the transition to SOFR and away from LIBOR.

5. The ARRC approved recommended fallback contract language for closed-end, residential adjustable-rate mortgages (ARMs), which was subsequently released. The recommended language for use in new ARM contracts incorporates feedback received during an extended public consultation period as well as input from the ARRC's Consumer Products working group, which is made up of a wide range of market participants, including consumer advocacy groups.

6. The ARRC's antitrust counsel updated the Committee about its outreach to the Antitrust Division of the Department of Justice to express support for the International Swaps and Derivatives Association (ISDA) with respect to the its Business Review Letter (BRL) request.

   The co-Chairs of the ARRC's Legal working group noted that ARRC working-group members were coalescing around a consensus approach in continuing to explore potential legislative relief for certain legacy USD LIBOR-linked products. The co-Chairs also provided an overview of the legislative process if the Committee decides to move forward with pursing a potential legislative approach. Finally, an ARRC member highlighted the approaches that a subgroup of ARRC members will take to analyze the potential impact on markets that could result from a permanent cessation of LIBOR in the absence of a legislative solution. The ARRC Chair noted that depending on the progress made in these efforts in the ensuing weeks, the Committee may consider convening a telephonic ARRC meeting to decide whether it is appropriate to begin engaging externally on potential legislative relief.

7. The ARRC Chair closed the meeting by reiterating that the opening remarks by Vice Chairman Quarles and President Williams indicated that the Committee has the full support of the official sector and must remain focused on pushing the transition forward.

Attendance at the October 22, 2019 Meeting

ARRC Members

American Bankers Association	Hu Benton
AXA	Julien Zusslin
Bank of America	Alex van Voorhees*
Bank of America	Greg Todd
Bank of America	Sonali Theisen
BlackRock	Jack Hattem*
Citigroup	Dina Faenson
Citigroup	Jeannine Hyman
CME Group	Agha Mirza
CME Group	Fred Sturm*
CRE Finance Council	Lisa Pendergast
CRE Finance Council	Raj Aidasani
Deutsche Bank	Vishal Mahadkar
Fannie Mae	Bob Ives
Fannie Mae	Thomas Gargan
Fannie Mae	Wells Engledow*
Federal Home Loan Bank	Kyle Lynch
Federal Home Loan Bank	Phil Scott
Freddie Mac	Ameez Nanjee
GE Capital	Michael Taets
Goldman Sachs	Brian Friedman
Goldman Sachs	Gigi Chavez de Arnavat*
Goldman Sachs	Guillaume Helie
Goldman Sachs	Jason Granet
Goldman Sachs	Richard Chambers *
Government Finance Officers Association	Emily Brock
Government Finance Officers Association	Pat McCoy
HSBC	Blair Selber
HSBC	Shirley Hapangama
Independent Community Bankers of America	Chris Cole*
Independent Community Bankers of America	James Kendrick*
Intercontinental Exchange	Harvey Flax
International Swaps and Derivatives Association	Ann Battle
JP Morgan Chase & Co.	Alice Wang
JP Morgan Chase & Co.	David Beck
JP Morgan Chase & Co.	Emilio Jimenez
JP Morgan Chase & Co.	Katie Morgan*
JP Morgan Chase & Co.	Keith Stephan*
JP Morgan Chase & Co.	Matthew Cherwin
JP Morgan Chase & Co.	Perry Elbadrawi*
JP Morgan Chase & Co.	Terry Belton
LCH	Phil Whitehurst*
Loan Syndications and Trading Association	Meredith Coffey

Loan Syndications and Trading Association	Tess Virmani*
MetLife	Alex Strickler*
MetLife	Jason Manske
MetLife	Kevin Budd*
Morgan Stanley	Maria Douvas-Orme
Morgan Stanley	Matt Ochs
Morgan Stanley	Paige Mandy
Morgan Stanley	Tom Wipf
National Association of Corporate Treasurers	Tom Deas
Pacific Investment Management Company	Courtney Garcia*
Pacific Investment Management Company	Scott Goodman*
Pacific Investment Management Company	Tracey Jordal
Prudential Financial	Chris McAlister
Prudential Financial	Gary Horbacz
Securities Industry and Financial Markets Association	Chris Killian
Securities Industry and Financial Markets Association	Rob Toomey *
Structured Finance Association	Sairah Burki*
TD Bank	Greg Moore
TD Bank	Priya Misra*
Wells Fargo	Alexis Pederson
Wells Fargo	Brian Grabenstein
Wells Fargo	Susan Hughes
World Bank Group	Don Sinclair*

Ex-Officio ARRC Members

Commodity Futures Trading Commission	Joshua Sterling*
Commodity Futures Trading Commission	Sayee Srinivasan*
Consumer Financial Protection Bureau	Abhishek Agarwal
Federal Deposit Insurance Corporation	Irina Leonova
Federal Housing Finance Agency	Dan Coates
Federal Reserve Bank of New York	Adhiraj Dutt
Federal Reserve Bank of New York	Betsy Bourassa
Federal Reserve Bank of New York	Caren Cox
Federal Reserve Bank of New York	Jamie Pfeifer
Federal Reserve Bank of New York	John Williams
Federal Reserve Bank of New York	Justine Hansen
Federal Reserve Bank of New York	Matt Lieber
Federal Reserve Bank of New York	Megan Zirinsky *
Federal Reserve Bank of New York	Nathaniel Wuerffel
Federal Reserve Bank of New York	Ray Check
Federal Reserve Bank of New York	Scott Nagel
Federal Reserve Board of Governors	Chiara Scotti*
Federal Reserve Board of Governors	Darren Gersh*
Federal Reserve Board of Governors	David Bowman
Federal Reserve Board of Governors	Erfan Danesh

Federal Reserve Board of Governors	Erik Heitfield
Federal Reserve Board of Governors	Evan Winerman*
Federal Reserve Board of Governors	Jeff Huther
Federal Reserve Board of Governors	Randal Quarles*
Office of Financial Research	Matt McCormick*
Office of the Comptroller of the Currency	Christopher McBride*
Office of the Comptroller of the Currency	Kevin Walsh*
U.S. Securities and Exchange Commission	Jason Leung
U.S. Securities and Exchange Commission	Michelle Danis*
U.S. Treasury	Brett York*
U.S. Treasury	Chloe Cabot
U.S. Treasury	Peter Phelan

Observers

Bank of Canada	Sheryl King*
BNP Paribas	Simon Winn
Brunswick Group	Alex Masi*
Brunswick Group	Jeanmarie McFadden
Brunswick Group	Kaylan Normandeau*
Brunswick Group	Mathilde Milch
Brunswick Group	Mustafa Riffat
Cadwalader	Jonathan Hoff
Cadwalader	Lary Stromfeld
Deloitte	Alexey Surkov
Ernst & Young	John Boyle
Morgan Lewis	Jon Roellke*
Oliver Wyman	Adam Schneider
U.S. Department of Housing and Urban Development	Carol Vilsack*
U.S. Department of Housing and Urban Development	Jose Fernandez
U.S. Department of Housing and Urban Development	Richard Perrelli*

*Indicates participation by telephone

ATTACHMENT 1

Futures Market Trading Volume and SOFR Term Rates

Danesh, Heitfield, and Park

Research and Statistics Division, Federal Reserve Board

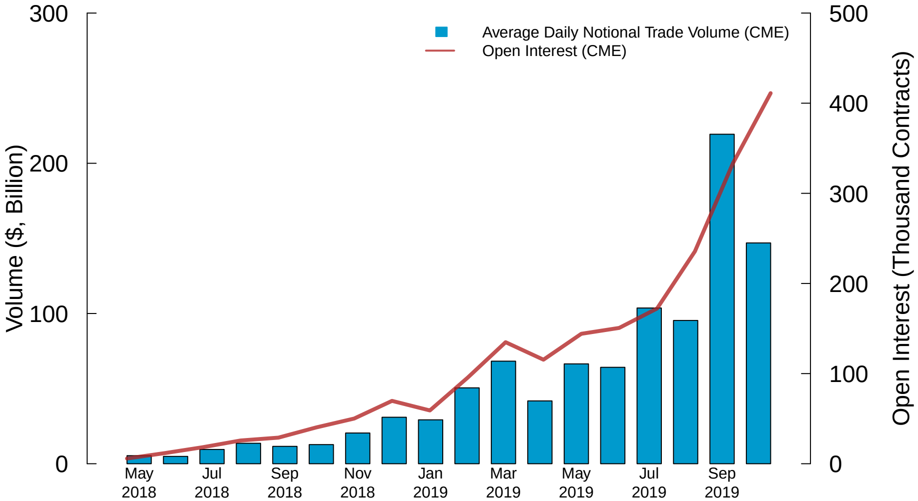
October 22, 2019

Disclaimer: The views expressed in this presentation are solely those of the authors and do not necessarily represent those of the Federal Reserve, the Alternative Reference Rates Committee or its members or ex officio members.

Forward-looking term rates

- Term rates derived from SOFR derivatives can provide well-behaved benchmark rates.
  - ARRC Second Report
  - Heitfield and Park
  - Salem, Younger, and St. John
- But the robustness of such rates depends on the depth of underlying derivatives markets.
- Limited futures market depth risks SOFR term rates that may be
  - overly volatile or inconsistent with other market term rates
  - sensitive to spurious trades and/or subject to manipulation

SOFR futures volumes have been growing



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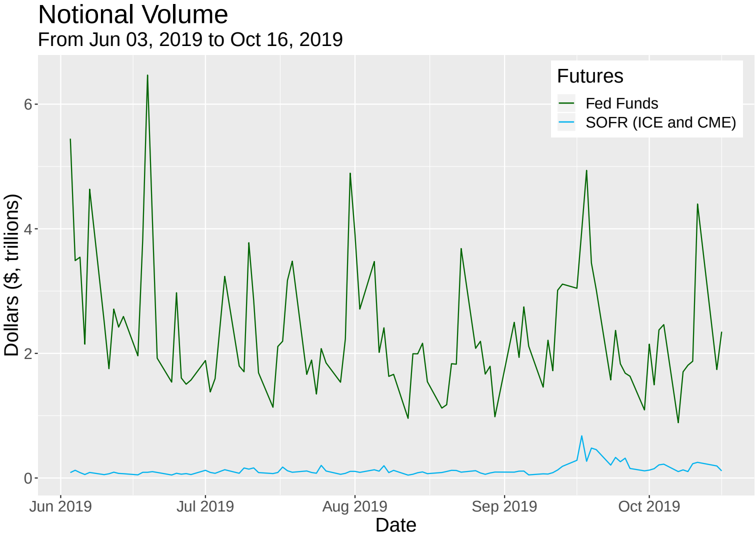
SOFR and FF futures volumes since June



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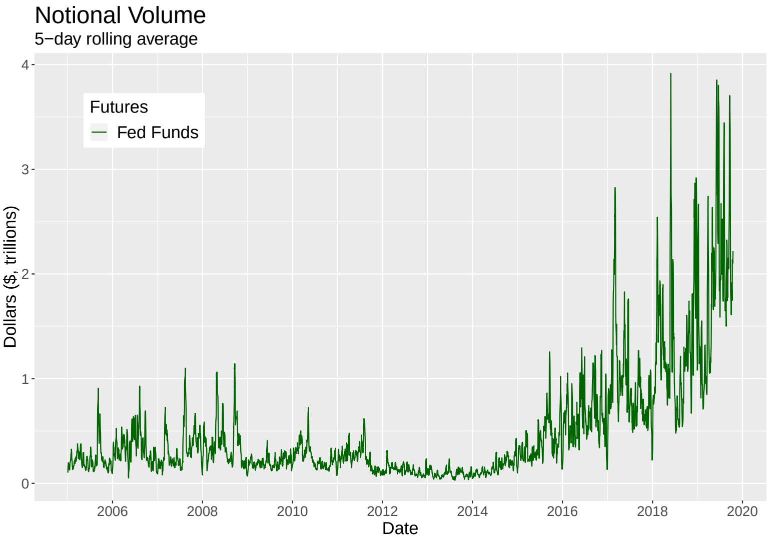
Even FF futures volumes have been lower in the past



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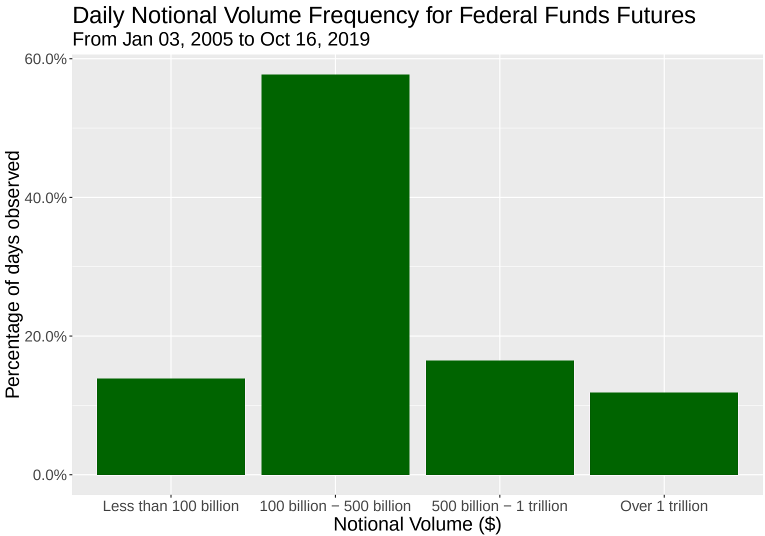
Distribution of FF futures daily volume since 2005



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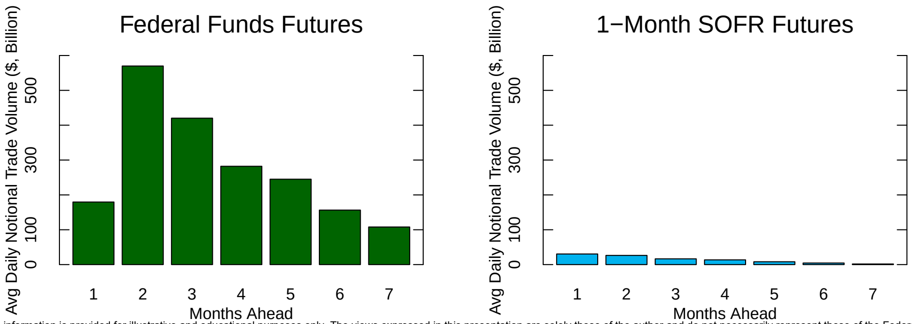
Volume is concentrated in near-term contracts

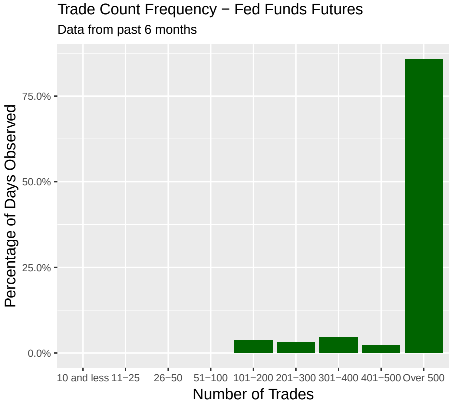
- The derivation of 1-month term rate relies on 1-month futures contracts maturing within two months and the first 3-month contract.
- The derivation of 6-month term rate depends on 1-month contracts maturing in less than seven months and the first three 3-month contracts.

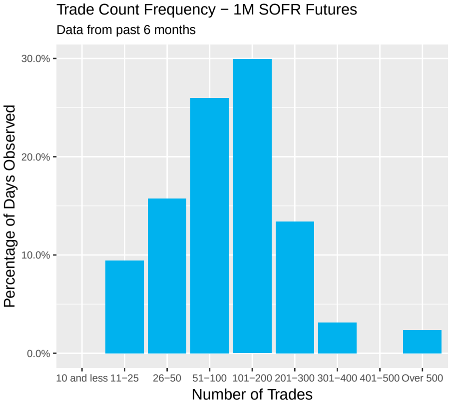
Average Daily Notional Volume by Contract Month



For some contracts, few or no trades may be observed

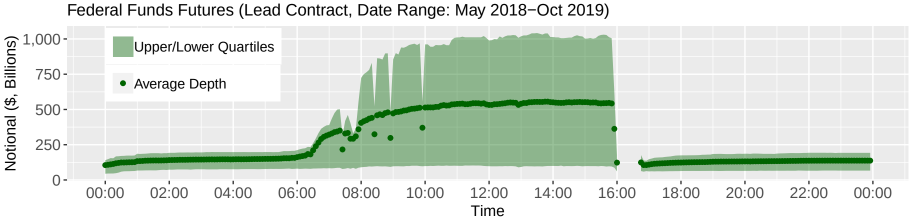
Trades/Day for 3-Month-Ahead Contract

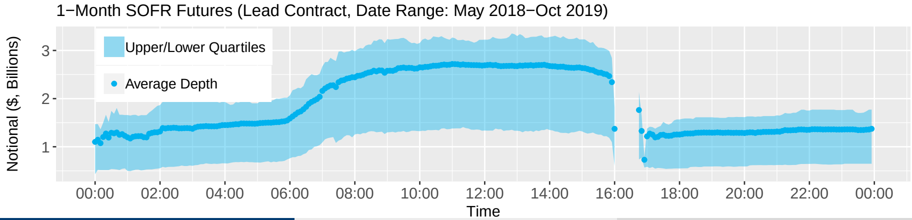




Limit Order Book Depth

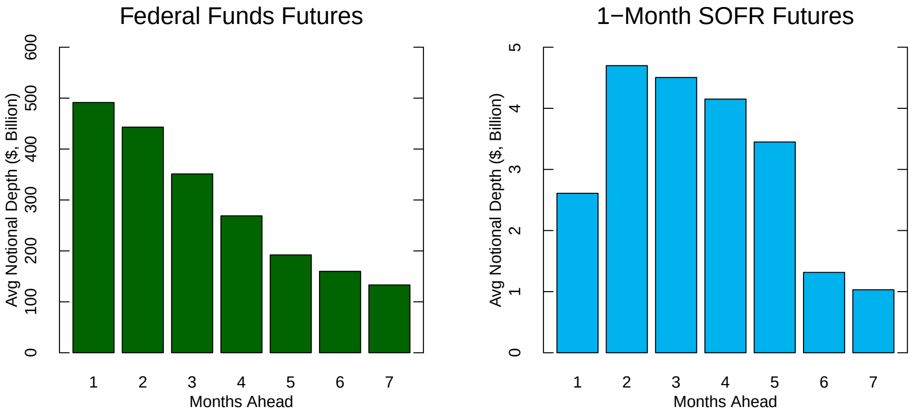
- The available depth is orders of magnitude larger for Federal Funds futures compared to SOFR futures.





Limit Order Book Depth

- Liquidity is not evenly distributed among different expiries.



Date Range: May 2018 - Oct 2019

Price Impact

- Kyle's λ is a standard measure of price impact.
- λ is calculated from the regression:

$$\text{Return}_t = \lambda \times \text{Aggregate Trade}_t + \epsilon_t$$

where

$$\begin{aligned} \text{Aggregate Trade}_t &= \sum_{i=1}^{M} Sign(\text{Trade}_i) \times |\text{Trade Volume}_i| \\ \text{Return}_t &= Log(\text{Close Price}_{5-min,t}) - Log(\text{Close Price}_{5-min,t-1}). \end{aligned}$$

Price Impact

Price Impact (Basis Points / $1 Billion Notional)				
	Mean	Med	25th Pctl	75th Pctl
FF Futures (Jan 2006-Pres)	0.111	0.028	0.008	0.081
FF Futures (May 2018-Pres)	0.016	0.010	0.004	0.021
1M SOFR Futures (May 2018-Pres)	0.271	0.095	0.017	0.253
3M SOFR Futures (May 2018-Pres)	4.784	1.687	0.369	6.107

- Currently, SOFR futures are a lot more susceptible to large trades than Federal Funds futures.
- The price impact for the federal funds futures was much larger during the zero-lower-bound period.

Conclusions

- We should exercise caution in moving to futures-implied term rates until daily SOFR futures volumes and liquidity build further.
- Trading volumes in short-term rate futures may not remain at their currently relatively high levels.
    - During the 2010-15 zero-lower-bound period FF futures volumes were much lower than they are today.

Conclusions

- With regard to benchmark robustness, the IOSCO principles embed a sense of proportionality – the more widely a reference rate is used, the more robust it needs to be.
  - Increasing use of existing SOFR rates should support SOFR futures and OIS volumes, making term rates more robust.
  - Limiting use of term rates to specific areas (i.e., fallbacks and certain loan contracts as suggested by the ARRC and the FSB) should help to allow the term rate to be produced more quickly. Wider use of term rates would require a commensurately more robust rate and would postpone the time at which the necessary market depth could be achieved.
- IOSCO compliance involves meeting governance, benchmark quality, methodological quality, and accountability principles, in addition to being based on an adequate transactional base.