CSMFO

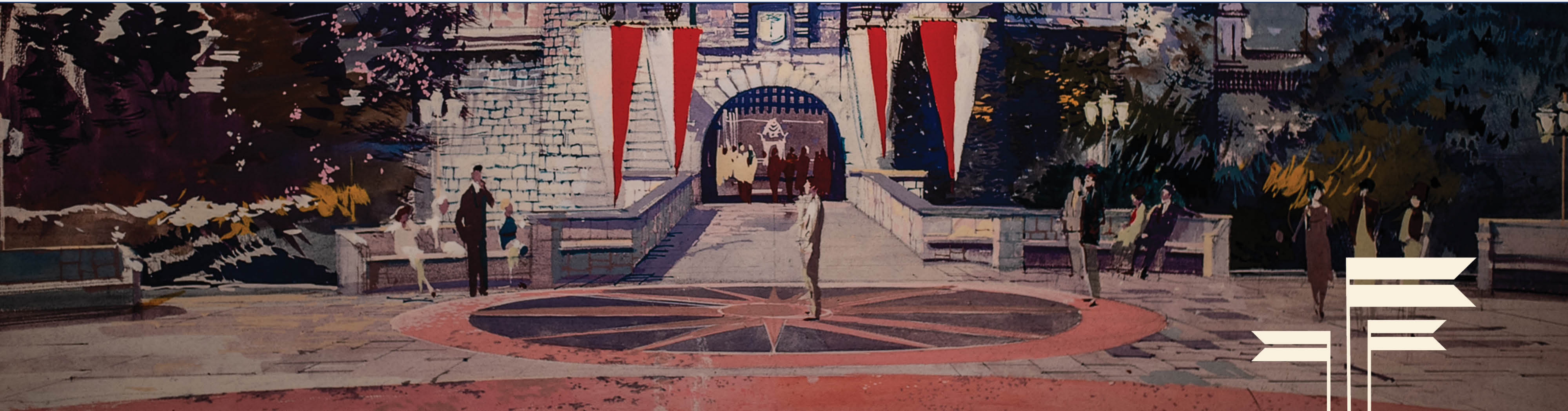
YESTERDAY, TOMORROW AND FINANCE

2020 CSMFO ANNUAL CONFERENCE

JANUARY 28-31, 2020

DISNEYLAND CA

Understanding the LIBOR Transition



Speakers

Peggy Arrivas, Associate Vice President/Systemwide Controller, University of California, Office of the President

Emily Brock, Director, Federal Liaison Center, Government Finance Officers Association

Readie Callahan, LIBOR Transition Office, Head of Communications Strategy, Wells Fargo & Company

Agenda

GFOA DC Update

Overview of LIBOR Transition

Perspectives from an Issuer

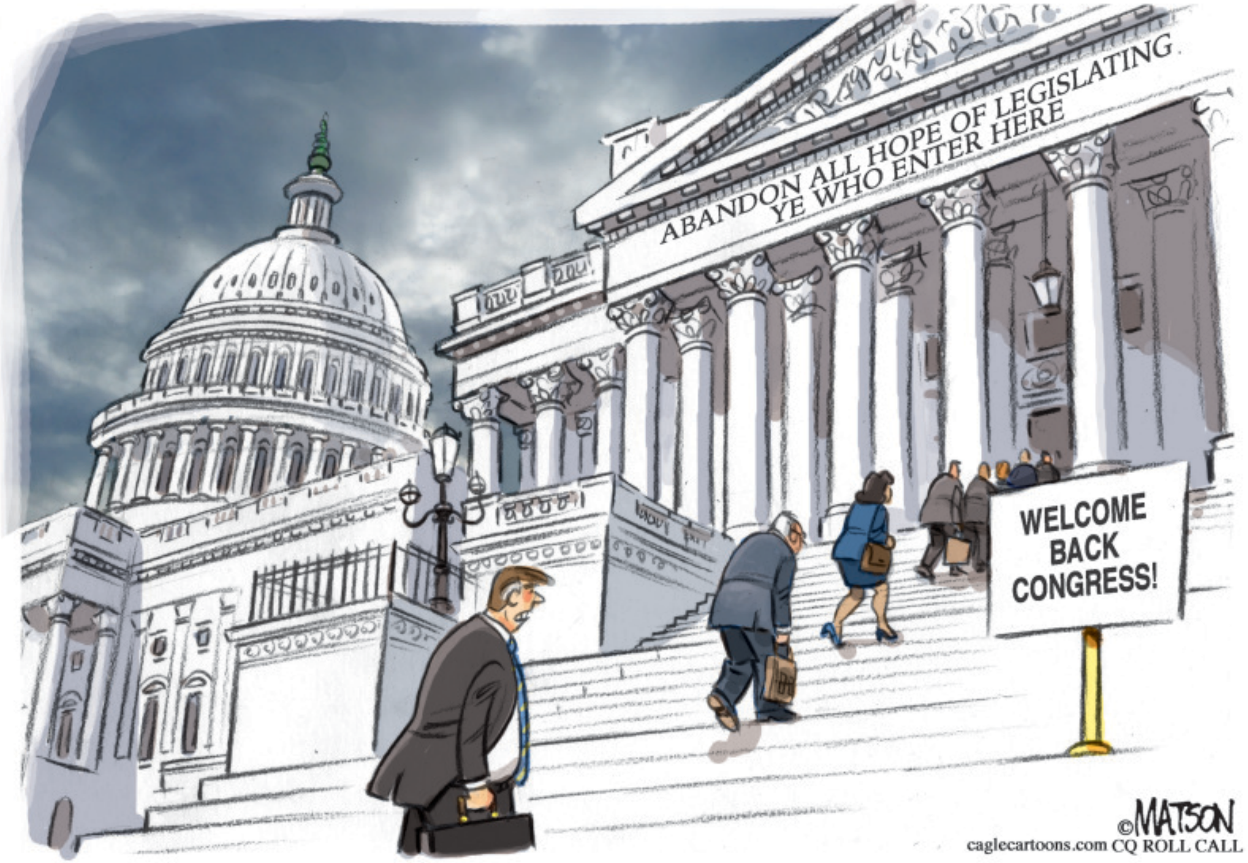
Hot Topic: Contract Language

Q&A

GFOA Legislative and Regulatory Advocacy in Washington, D.C.

YOUR Advocate in Washington D.C.

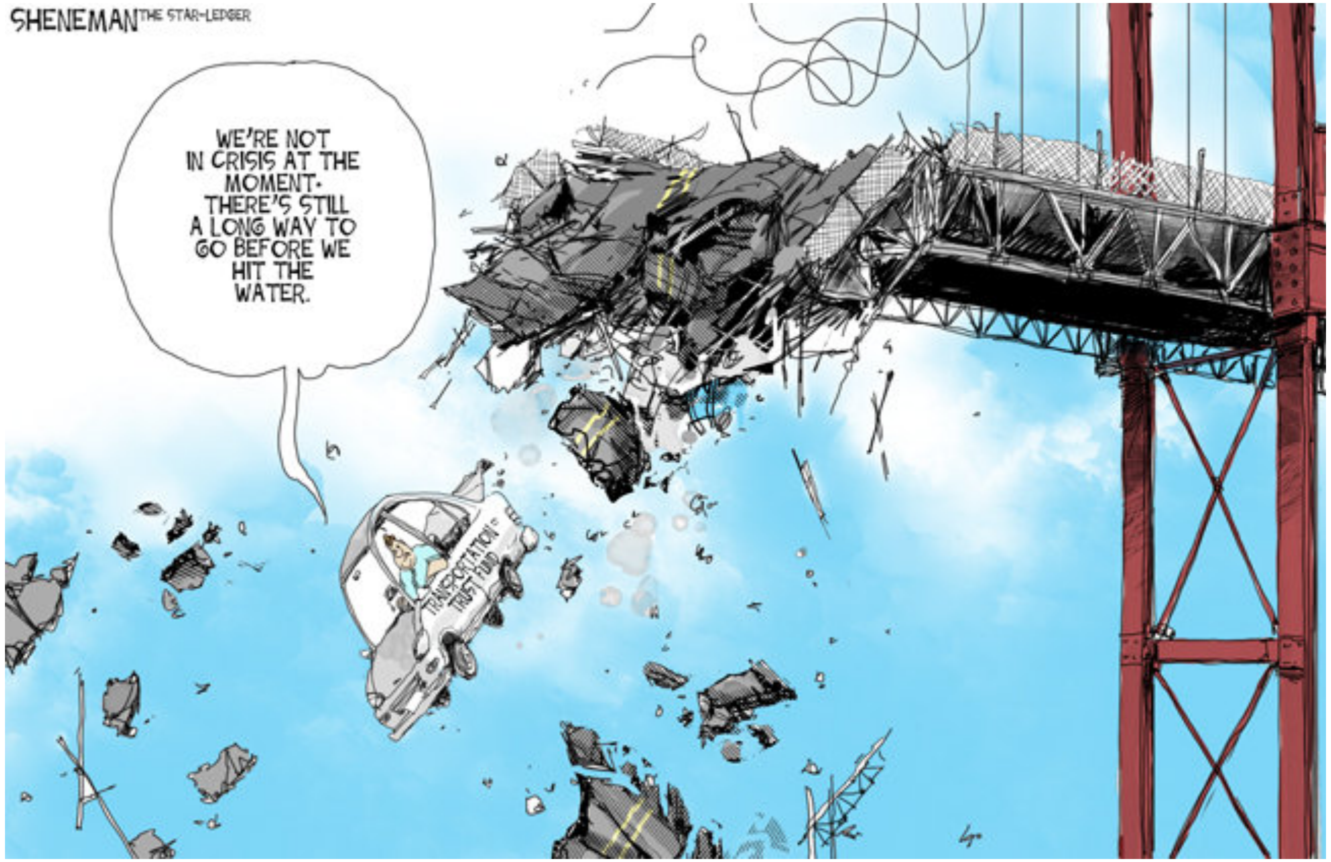
- Congressional Advocacy
  - Tax exempt municipal bonds
  - Infrastructure
  - Deductibility of state & local taxes
  - Remote sales tax
  - Pensions & benefits
- Executive Advocacy
  - SEC
  - MSRB
- Amicus Briefs to the Supreme Court



Tax Reform 2017 and Effects

- SALT Rollback *Restoring Tax Fairness for States and Localities Act* HR5377
  - Reps. Thompson (CA-5), Chu (CA-27), Panetta (CA-20), Sanchez (CA-38), Cisneros (CA-39), Correa (CA-46), Eshoo (CA-18), Levin (CA-49), Porter (CA-45), Harder (CA-10), Huffman (CA-2), Gomez (CA-34), Lieu (CA-33), Davis (CA-53) and Speier (CA-14)
- Advance Refunding Tax-Exempt Bonds *Investing in Our Communities Act* HR2772
  - Reps. Garamendi (CA-3) and Brownley (CA-26)
- Bank Qualified Legislation *Municipal Bond Market Support Act* HR3967
  - Rep. Brownley (CA-26)
- Remainder of 2020 – Infrastructure? Taxes?

Infrastructure Legislation



- Early 2019, tentative deal struck between President and Democratic Leaders

- No specifics but $2T in funding:
  - Build America Bonds (BABs)
  - Public-Private Partnerships

- But what is happening?
  - Green New Deal
  - Energy
  - Focus on Distressed Communities

Municipal Bond Disclosure and the SEC

- 15c2-12 Amendments and Revised Best Practices
  - GFOA Best Practice, Debt Management Policy
  - GFOA Best Practice, Understanding Your Continuing Disclosure Responsibilities
  - GFOA Best Practice, Post Issuance Policies and Procedures
  - GFOA Best Practice, Primary Market Disclosure
- Strong Desire to Address Timing of Financial Disclosures
  - Submission Calculator on EMMA Proposal

Overview of LIBOR Transition

LIBOR is huge…and it's going away

- LIBOR underpins more than **$400 trillion** of financial products including retail mortgages, private student loans, corporate loans, derivatives and other financial products

- However, **LIBOR is no longer derived from a widely traded market** and panel banks are reluctant to submit estimates of activity in which they do not engage

The USD LIBOR Footprint
~$200 trillion in exposures

OTC **$145T**
- Swaps, options
- Forwards, cross-currency

Exchange **$45T**
- Options
- Forwards

Loans **$5T**
- Syndicated, CRE
- Residential, Consumer

Bonds **$4T**
- FRNs
- Securitizations

The ARRC Mandate

In 2014, the Federal Reserve Board convened the Alternative Reference Rates Committee to explore alternatives for replacing USD LIBOR

The ARRC was convened to address the following:

Objectives
1 Identify best practices for alternative reference rates
2 Identify best practices for contract robustness to ensure contracts are resilient to the possible cessation of USD LIBOR
3 Develop an adoption plan that identifies factors that would either facilitate or impede the adoption of alternative reference rates
4 Create an implementation plan with metrics of success and a timeline

In March 2018, the ARRC was reconstituted to: [1]

- Include a **broader** representation of the financial market and establish **working groups** to address regulatory, legal, tax and accounting issues
- Ensure successful implementation of the paced transition plan
- Coordinate planning across cash/derivatives products

ARRC Members	
Banks/Dealers	**10**
Exchanges	**3**
Industry Associations	**9**
GSE/SSA	**4**
Asset Managers/Insurance	**5**
Official Sector (ex officio)	**11**

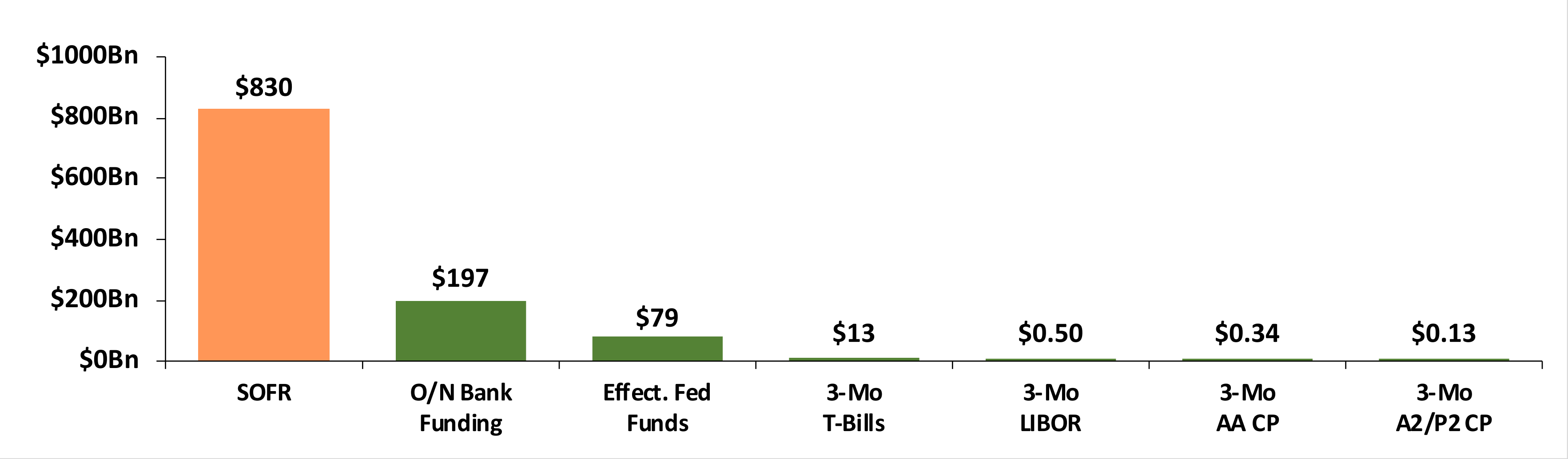
Ex Officio Members	
CFPB	**CFTC**
FDIC	**SEC**
FRB New York	**FHFA**
U.S. Treasury	**OCC**
Fed Reserve	**OFR**
HUD	

[1] Source: https://www.newyorkfed.org/arrc/index.html; [2] Source: *IBOR Global Benchmark Transition Report*, June 2018.

Goodbye LIBOR, Hello SOFR

- The ARRC identified the Secured Overnight Financing Rate (SOFR) as its preferred alternative for USD LIBOR
  - **Secured**: Based on trades in the triparty, cleared bilateral, and certain other U.S. Treasury repo markets
  - **Overnight**: The repo rates used are overnight and reflect borrowing for one business day
  - **Financing Rate**: Represents secured funding costs for financial institutions pledging U.S. Treasuries

Average Daily Volumes in U.S. Money Markets ($bn)[1]



1) Average volumes over 2017H1, with the exception of 3-month T-bills, which are preliminary estimates from available FINRA Trade Reporting and Compliance Engine (TRACE) data over August and September 2017. 3-month volumes are based on all transactions with remaining maturities between 80 and 100 calendar days or 41-80 business days. SOFR average from inception to 2/1/19.

USD LIBOR vs. SOFR

	USD LIBOR	SOFR
Definition	**Unsecured** wholesale interbank lending rate	**Secured** overnight repo rate
Maturity/Term	Various tenors, all forward-looking	Currently only overnight (in arrears)
Bank Credit Premium	Yes	No
Methodology	**Subjective** trimmed mean of panel bank submission rates based on Waterfall Methodology	**Objective** volume-weighted median for various US Treasury repo datasets
Administrator	ICE Benchmark Administration	Federal Reserve Bank of New York
Underlying Daily Transaction Volume	~$500 million	More than $1 Trillion

Sources: ICE Benchmark Administration at https://www.theice.com/iba/libor and Federal Reserve Bank of New York at https://apps.newyorkfed.org/markets/autorates/SOFR

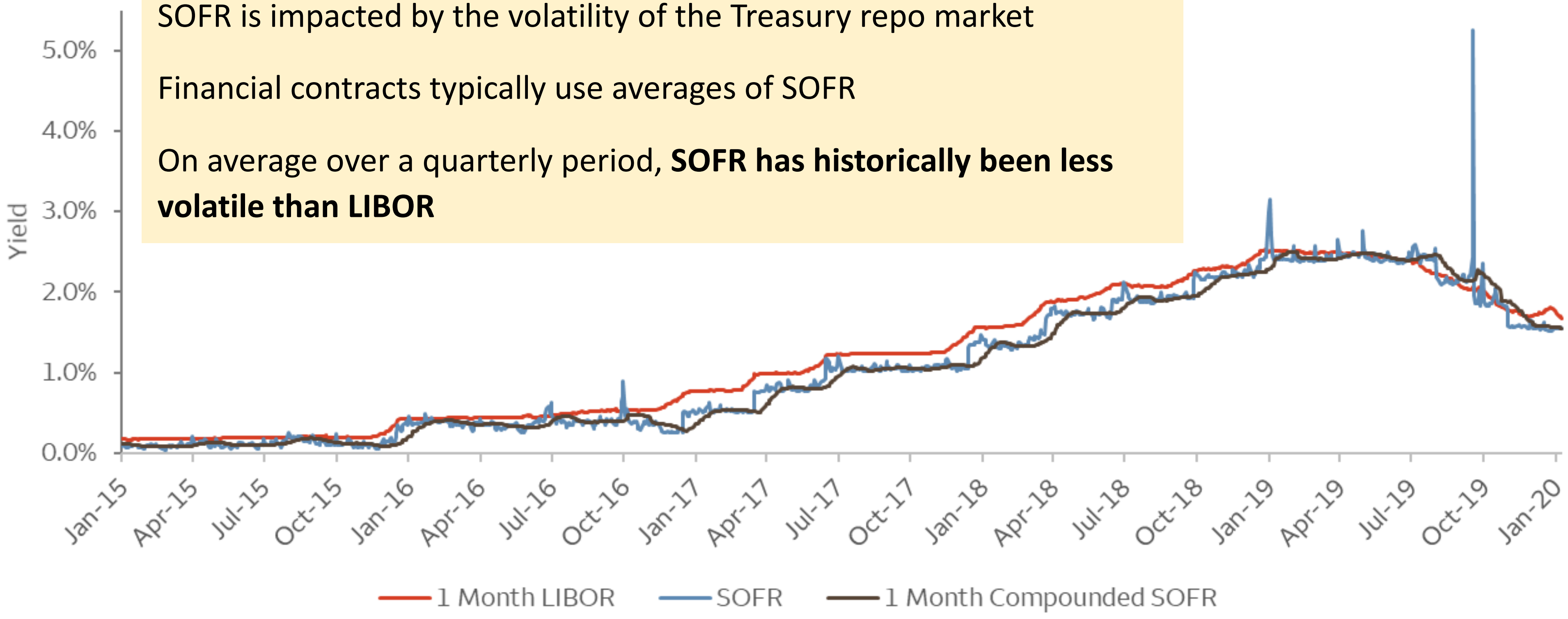
SOFR Rate History

Historical Rates

SOFR is impacted by the volatility of the Treasury repo market

Financial contracts typically use averages of SOFR

On average over a quarterly period, **SOFR has historically been less volatile than LIBOR**



1) CME Group.
Sources: Federal Reserve Bank of New York; Financial Industry Regulatory Authority; DTCC Solutions LLC, an affiliate of the Depository Trust & Clearing Corporation; and the Board of Governors of the Federal Reserve System

SOFR Market Adoption

- The Federal Reserve Bank of New York began publishing SOFR April 3, 2018
- SOFR futures and swap markets were launched in 2018
  - SOFR futures volumes have exceeded expectations; in aggregate, more than **$1.9 trillion** outstanding
  - SOFR swaps have also experienced dramatic growth with **$458 billion** notional outstanding
  - Options on SOFR futures began trading January 6, 2020
- Over $330B in SOFR-linked Floating Rate Notes have been issued from 49 issuers

- **Since the inception of SOFR in April 2018, total notional has reached more than $15 trillion in the market**

Perspectives from an Issuer

University of California LIBOR Swaps (FYE 2018)

Hedge	Notional ($ millions)	Effective Date	Maturity	Fixed Rate	Floating Rate
GRB 2013 Series L	$400	2013	2023	1.892%	70% of 1-Month LIBOR
GRB 2013 Series L	$100	2013	2023	1.9057%	70% of 1-Month LIBOR
GRB 2013 Series L	$100	2013	2023	1.898%	70% of 1-Month LIBOR

*Weighted average spread

Approaches to LIBOR Transition

Follow ISDA Protocol

- ISDA previously outlined a plan to introduce a protocol, which can be widely adopted by the market, to provide better fallback language within swap documents

Wait and See

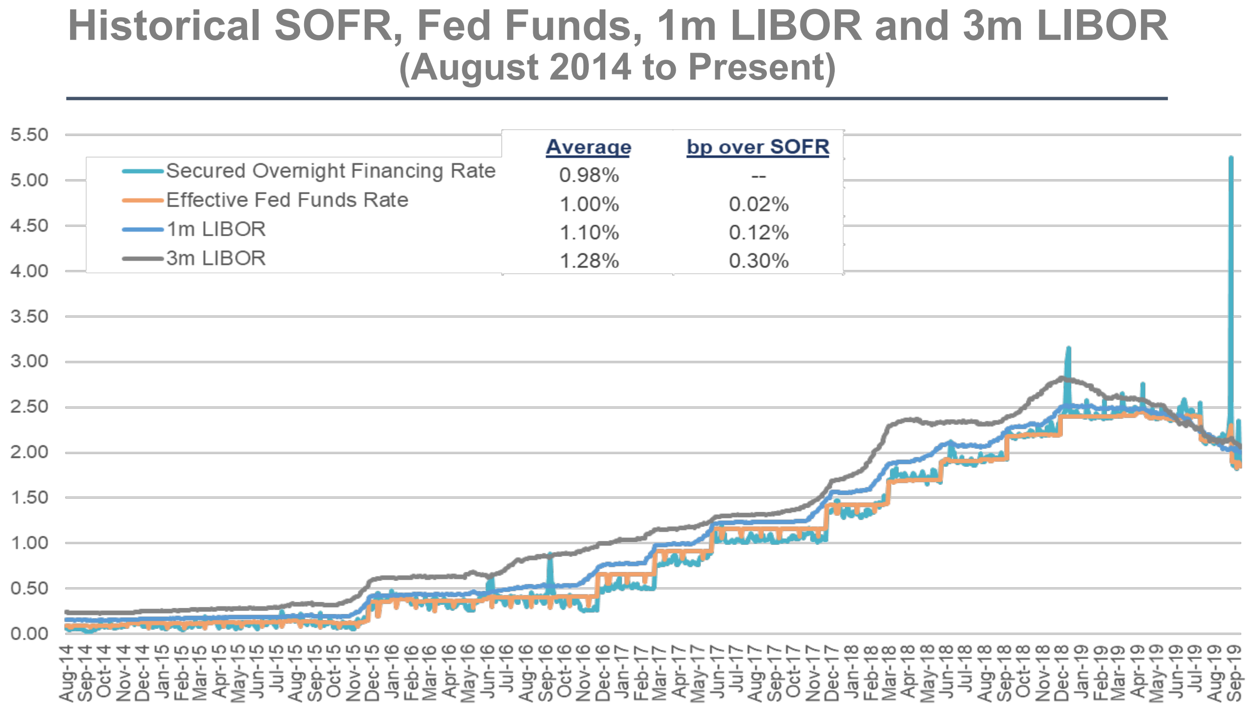
- SOFR swaps are beginning to trade, but predominantly with terms of 18 months or less
- Once the SOFR swap market grows in liquidity and robustness, it is expected that a SOFR/LIBOR basis swap market will commence allowing clients to begin to convert LIBOR exposures to SOFR
- To the extent there are two-way flows in this market, issuers may see reasonable pricing

Proactive Restructuring

- Take a more proactive approach to LIBOR overhaul with an immediate restructuring of LIBOR exposure to the Federal Funds Rate
- Protect from potential permanent negative basis exposure if SOFR is replaced without an appropriate adjustment from LIBOR to SOFR
- Economics of proactive restructuring would allow the swap to be converted without an economic impact to the University

Federal Funds vs. SOFR

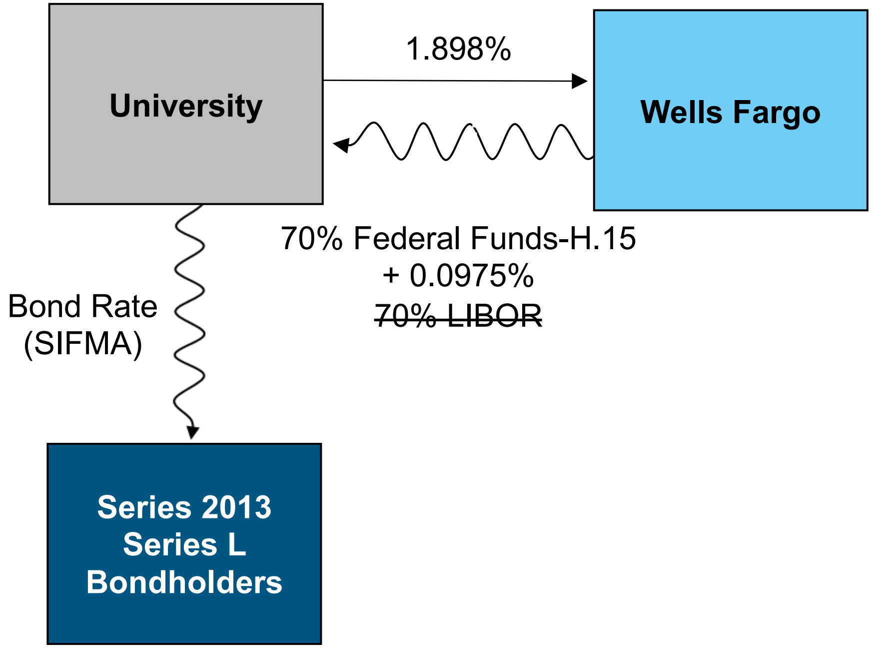
- Fed Funds and SOFR typically track one another very closely as both are secured short-term rates
- The SOFR swap market is still in the early stages of development, and the most active SOFR swaps trading are for tenors of four years or less
- Fed Funds and 3m LIBOR have been highly correlated with 67% 3m LIBOR generally resetting 19 basis points higher than 67% Fed Funds based on historical averages



Case Study: Series L Swap Conversion

In March 2019, UC converted the GRB 2013 Series AL swaps from LIBOR to Fed Funds as a risk-reduction measure and to gain certainty on the swap index and economics beyond the LIBOR sunset date.

Restructured Swap Cash Flow Diagram



2013 Series L Swap Details[1]

Notional:	$100 million
Effective Date	October 1, 2013
Final Maturity[2]	October 1, 2023
Fixed Rate	1.898%
Floating Rate	70% of Federal Funds Rate + 0.0975%
Fair Value[3]	($3.0 million)

[1] In total, UC converted three swaps with a total notional amount of $600 million
[2] Simultaneous with the swap conversion, the University entered into forward starting swaps with a final maturity of 2048
[3] as of FYE 2019

Additional Considerations

- Accounting Treatment
  - GASB published an Exposure Draft on the Replacement of Interbank Offered Rates in September 2019. Comments were due in November*

- Tax Event
  - Execution of a hedge identification certificate was required for the 2013 GRB Series L Bonds to continue to be integrated with the swaps for yield purposes

*https://www.gasb.org/jsp/GASB/Document_C/DocumentPage?cid=1176173506340&acceptedDisclaimer=true

Hot Topic: Contract Language (aka Fallbacks)

Increasing Contractual Robustness

What is LIBOR Fallback Language?

- The contractual language that specifies the rate that will be used if LIBOR is unavailable
- Fallback language was originally intended to address the temporary unavailability of LIBOR instead of a permanent cessation
- As a result, fallback language in many contracts may not produce a commercially reasonable result

Development of More Robust Fallback Language

- ISDA is planning to publish new fallback language for derivatives in Q1 2020
- In 2019, the ARRC published model LIBOR fallback language for:
    - Floating Rate Notes, Syndicated Loans, Bilateral Business Loans, Securitizations and residential Adjustable Rate Mortgages
- The intention of the fallback language is to:
    - Ensure contracts continue to function as closely as possible to what was initially intended by the parties
    - Minimize any potential transfer of value between the parties when the fallback takes effect

Components of Fallback Language

Fallback language contains three primary components:

Trigger events

Define the circumstances under which references to LIBOR in a contract will be replaced with an alternative reference rate

Replacement benchmark

Identify the rate, or waterfall of rates, that would replace LIBOR following a trigger event

Spread adjustment

An adjustment added to the replacement rate to **address differences** between LIBOR and SOFR

Q&A