

WEBINAR SERIES

The ACLI logo features three slanted parallel lines to the left of the letters 'ACLI' in a bold, sans-serif font.

# The End of LIBOR

Presented by



October 2, 2020 | 1:00 PM EDT

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## Milliman FRM

Actuarial and Financial Management	Capital Markets	Trade Operations
Portfolio Management	Technology	Quantitative Development
Legal, Compliance, and Quality Management	Distribution	Marketing

# IBOR Benchmark Reform

Milliman FRM

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2 OCTOBER 2020

 Milliman

# Minimizing financial risk, maximizing financial security

Milliman is the global leader in financial risk management. Our risk management strategies have been tested for more than 20 years and through two market crises.

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# Overview

- The USD LIBOR transition remains on pace based on the ARRC's best practice guidance and UK FCA communications about LIBOR discontinuation.
- ISDA has pushed back some key dates and now expects to publish the ISDA Supplement and Protocol in October 2020, and these updates are expected to become effective as of January 2021.
- CCPs discounting and PAI transition will impact cleared swaps and will occur in a “big bang” manner on a single date on October 16, 2020. However, election deadlines to opt out of basis swaps are Sept 4 (LCH) and Oct 2 (CME).
- Financial institutions likely to be impacted by the transition should expedite reviews of their asset and liability exposures to IBORs, identify economic and legal implications, and implement changes to systems at the earliest.
- The impact of the IBOR transition will continue to change as the landscape evolves in coming months after the CCP “big bang” transition and the ISDA Supplement and Protocol adoption.

# Exposures Faced by Market Participants

Assets	Liabilities
<b>Derivatives</b> <ul style="list-style-type: none"><li>▪ Basis Swap and Value Transfer</li><li>▪ LIBOR Fallback Provisions</li><li>▪ Collateral Interest Calculations</li><li>▪ Discount Rate Methodology</li></ul>	<b>Risk Neutral Valuation of Liabilities</b> <ul style="list-style-type: none"><li>• Solvency II</li><li>• GAAP LDTI</li><li>• IFRS 17</li></ul>
<b>Investment Portfolio</b> <ul style="list-style-type: none"><li>▪ Money Market Instruments</li><li>▪ Bank Loans and CLOs</li><li>▪ FRNs</li><li>▪ Other Securitized Products</li></ul>	<b>Policyholder Contracts and Product Updates</b> <b>Regulatory Capital and Models</b> <b>ALM Impact + Volatility and Risk Adjustments</b>
<b>Model and Infrastructure Updates</b>	

# Upcoming Key Events

Event	Expected Date
ISDA Supplement and Protocol	October 2019
LCH and CME Election Deadlines	September 4 - October 2, 2019
CCP Discounting Switch to SOFR (" Big Bang")	October 16, 2019
ISDA Supplement and Protocol Effective	January 2021
End of LIBOR	December 2021 (expected)



# ISDA Supplement and Protocol

- ISDA expects to publish a supplement to the 2006 ISDA Definitions plus a related protocol that will provide robust fallbacks for derivatives contracts to handle the cessation of IBOR.
- The effective date is expected to be the second half of January 2021, and all derivatives referencing the 2006 ISDA Definitions will automatically include the updated fallbacks for covered IBORs thereafter.
- The major central counterparties (CCPs) also plan to apply the updated fallbacks to all cleared derivatives from the effective date.
- The changes will apply to legacy derivatives too if both counterparties have adhered to the protocol or have agreed similar bilateral amendments.
- The new language is expected to include pre-cessation and permanent cessation triggers, and the pre-cessation trigger provisions may become effective if IBOR is no longer deemed to be “representative”
- It’s possible that regulators could make an announcement before the end of this year on the future of LIBOR after 2021 and the FCA has suggested as much.
- If there is an announcement on post-2021 dates for the cessation and/or non-representativeness of LIBOR, then the spread adjustments set out under the fallback methodology would be calculated and frozen from that point based on a process set out in the rulebook implemented by Bloomberg in its role as calculation agent for the fallbacks.

# 'Big Bang' – October 16, 2020

- The CCP switch in discounting will only impact cleared trades, and not affect bilateral (uncleared) trades.
- Bilateral (uncleared) trades will remain discounted at the rate referenced in parties' ISDA / CSA.

Process Step	Purpose
Date of switch	<b>October 16, 2020</b>
Single step switch	CCPs will effect a switch from the use of EFFR for PAI and discounting to the use of SOFR on a single date.
Value compensation via cash payments	Cash compensation will be given to account for the resulting gains/losses from the discounting change.
Risk compensation via basis swaps	Offsetting EFFR/SOFR basis swaps to maintain the original discounting risk exposure with option to sell/opt out of the basis swaps using an auction process.

# Approaches to Liquidate Basis Swaps

Approach	Benefits	Considerations
Participate in CCP Auction	<ul style="list-style-type: none"> <li>Offsetting risk benefits</li> <li>Defined max loss limit</li> </ul>	<ul style="list-style-type: none"> <li>Volatility in auction process</li> <li>Risk of auction failure</li> </ul>
Accept Basis Swaps	<ul style="list-style-type: none"> <li>Certainty of execution levels</li> </ul>	<ul style="list-style-type: none"> <li>Market and timing risk</li> <li>DUP Limitations</li> </ul>
Re-coupon Swap Portfolio	<ul style="list-style-type: none"> <li>Decrease cash and/or basis swap compensation</li> </ul>	<ul style="list-style-type: none"> <li>Potential Tax and Accounting implications</li> </ul>

Note: Bilateral offsetting swaps may be an alternative but may not comply with DUP and “risk reduction” requirements

# CME and LCH Basis Swap Auction Update (as of 24 Sep)

- LCH has announced the Discounting Auction Indicative Portfolio Results as of September 18th ...

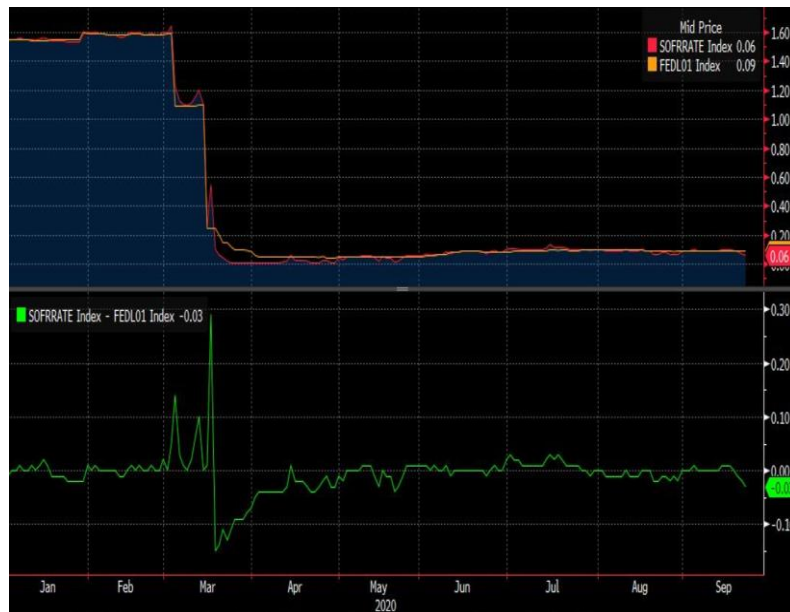
Maturity	Notional	Coupon
2y	\$15,175,000,000	winning bidder pays SOFR, receives Fed Funds
5y	\$8,242,500,000	winning bidder pays SOFR, receives Fed Funds
10y	\$1,607,500,000	winning bidder pays SOFR, receives Fed Funds
15y	\$714,000,000	winning bidder pays SOFR, receives Fed Funds
20y	\$14,500,000	winning bidder pays SOFR, receives Fed Funds
30y	\$511,500,000	winning bidder pays Fed Funds, receives SOFR

- Net demand for ~\$500mm 30 yr SOFR/FF spreads vs supply across the other five buckets
- LCH will publish a further interim update on October 1st and the final portfolio on October 15th
- The CME is not disclosing “indicative portfolio” results but instead has taken the following steps ...
  - Established a maximum loss limit to give clients transparency to the highest cost they could incur
  - Direction of portfolio is masked to maintain confidentiality regarding “net” client risk positions
  - CME is requesting a Part 43 “Real Time Reporting” Delay to mask the winning price and direction
- If the auction fails, counterparties can source and assess liquidity without the Street being aware of positioning and determine the best route to liquidate positions

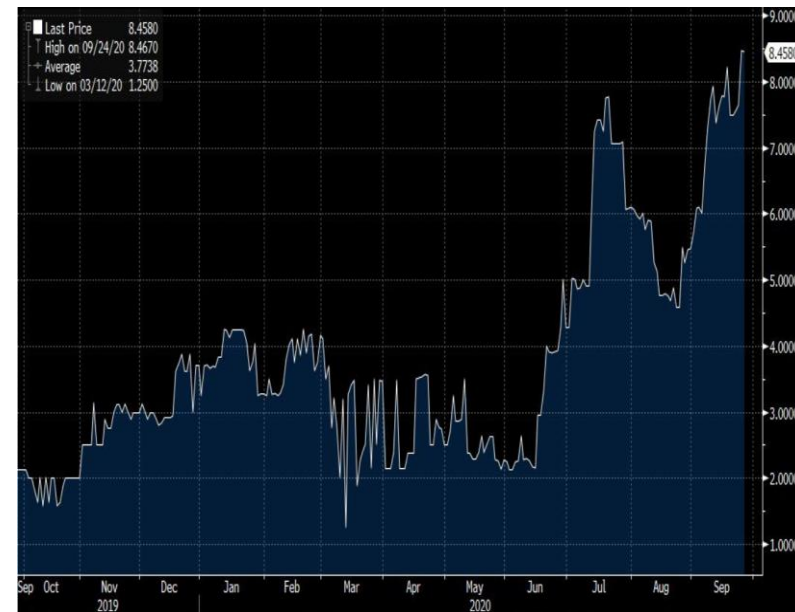
# Challenges in Transitioning from LIBOR to SOFR

- The lack of a fully developed SOFR term structure along with episodic bouts of volatility are amongst the challenges that still need to be overcome.
- The 30y SOFR/FF basis has widened in recent weeks, and the FF/LIBOR basis has been volatile.
- The volatility is likely to increase further as we approach the transition date and flows pick up, especially since SOFR markets are still developing and liquidity is lower for SOFR/FF basis and SOFR swaps.

## SOFR vs Fed Funds



## 30yr SOFR/FF Basis Swap



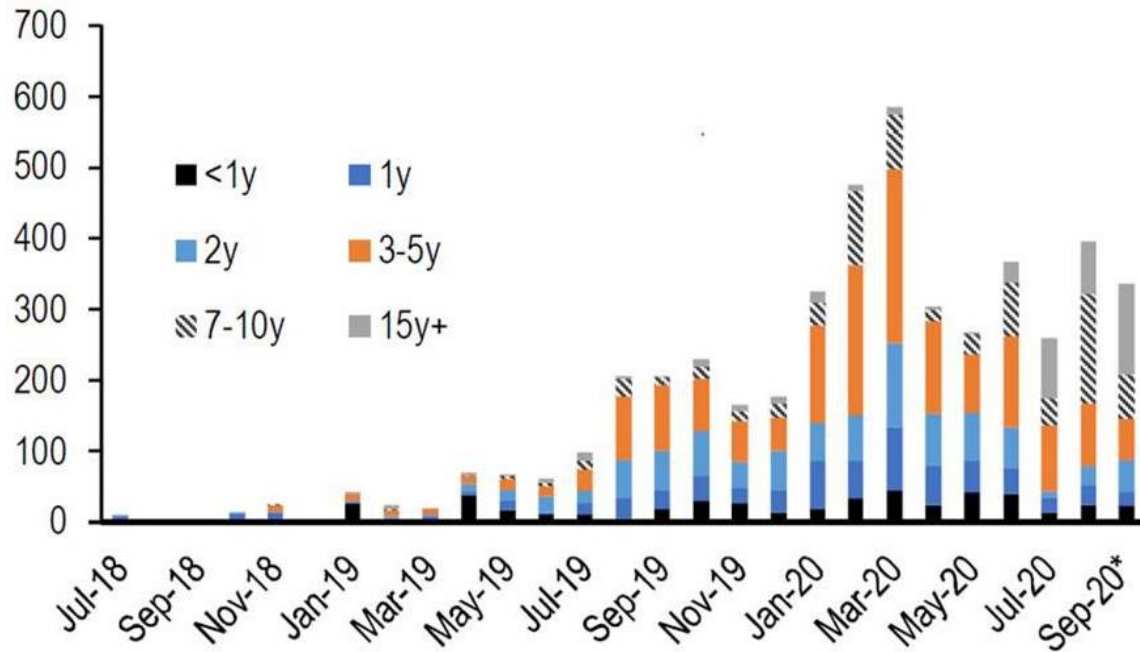
# SOFR Trading Volumes and Adoption Rates

- Per ISDA SwapsInfo, the SOFR traded notional totaled \$661.9 billion, including \$318.0 billion of basis swaps, and trade count totaled 3,501, including 1,173 basis swaps, YTD ending September 18, 2020.
- Per the ISDA-Clarus RFR Adoption Indicator as of August 2020 :
  - The RFR Adoption Indicator moved to 6.4% in August compared to 6.8% the prior month.
  - RFR-linked IRD (Interest Rate Derivatives) DV01 totaled \$1.4 billion which is 4.6% of Total IRD DV01 of \$21.8 billion
  - RFR-linked IRD traded notional accounted for 8.9% of total IRD traded notional in August

	Week Ending September 18, 2020		YTD Ending September 18, 2020	
	Notional (US\$ billions)	Trade Count	Notional (US\$ billions)	Trade Count
<b>USD LIBOR</b>	1,532.0	11,088	80,982.1	520,917
SOFR	10.5	130	343.8	2,328
Basis Swaps: SOFR	12.6	95	318.0	1,173
RFRs by Tenor				
SOFR	32.1	225	661.9	3,501
Up to 1 year	19.4	34	432.6	715
Over 1 year and up to 5 years	8.1	104	178.7	1,736
Over 5 years	4.6	87	50.6	1,050

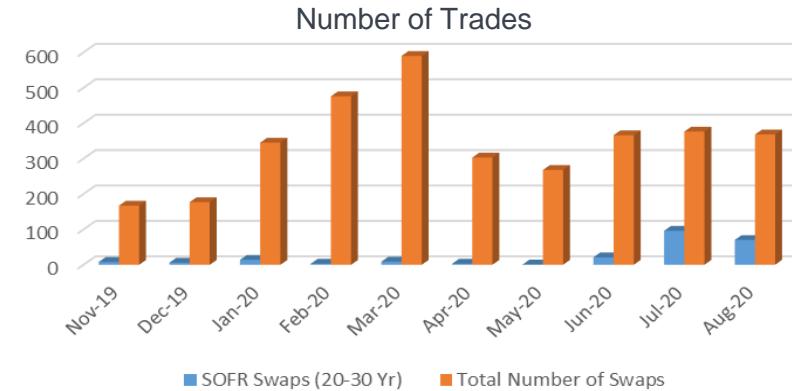
# SOFR Trading Volumes and Adoption Rates (Contd.)

Monthly notional traded in SOFR OTC derivatives by original maturity (LHS; count) and breakdown of trade type (inset; %)

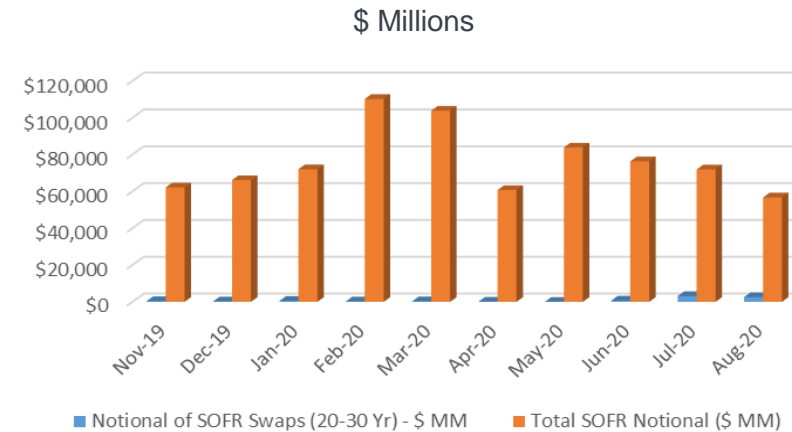


Source: JP Morgan, Bloomberg SDR

## Long-dated SOFR Swaps vs Total Market



## Long-dated SOFR Swaps vs Total Market



Source: Citi, Bloomberg SDR

# Next Steps for Market Participants

- Evaluate LIBOR exposure including economic, tax and legal implications as well as system readiness
- For Cleared Interest Rate Swaps, decide whether to opt out of basis swaps by election deadline Sept 4 (LCH) and Oct 2 (CME)
- In the event that the CCP basis swap auction is not executed successfully, it will become necessary to assess market conditions and strategically determine timing and route to liquidate basis swap positions
- For uncleared bilateral derivatives, review impact of LIBOR cessation based on ISDA/CSA language
- In the case of swaptions, ISDA has encouraged market participants to amend USD swaptions expiring after October 16th, 2020 to be bring them in-scope for ISDA Supplement 64 and to specify SOFR as the “Agreed Discount Rate”
- While there was initially a recommendation that market participants exchange compensation for the difference in the value of swaptions between EFR discounting and SOFR discounting, it appears that most market participants have not chosen to go down this route.