

SFBTA 2019 – Mortgage Forum

Benchmark Transitioning: LIBOR, SOFR, AMERIBOR, MORE

New Risks, New OAS, Trading Tools, Credit-Risk Offsets, Resi/CMBS Strategies

John Coleman, Fixed Income Group, R.J. O'Brien



Fixed Income Group A Division of RJ O'Brien

If LIBOR Goes Away, What RATE for ARM Resets? FNMA Supports 1yCMT- Ugh! Really?

CMT/SOFR alone is a perilous choice for a replacement index– Credit Asymmetry to Lender

“We have no plans to discontinue publication of LIBOR”– the Inter Continental Exchange (ICE)

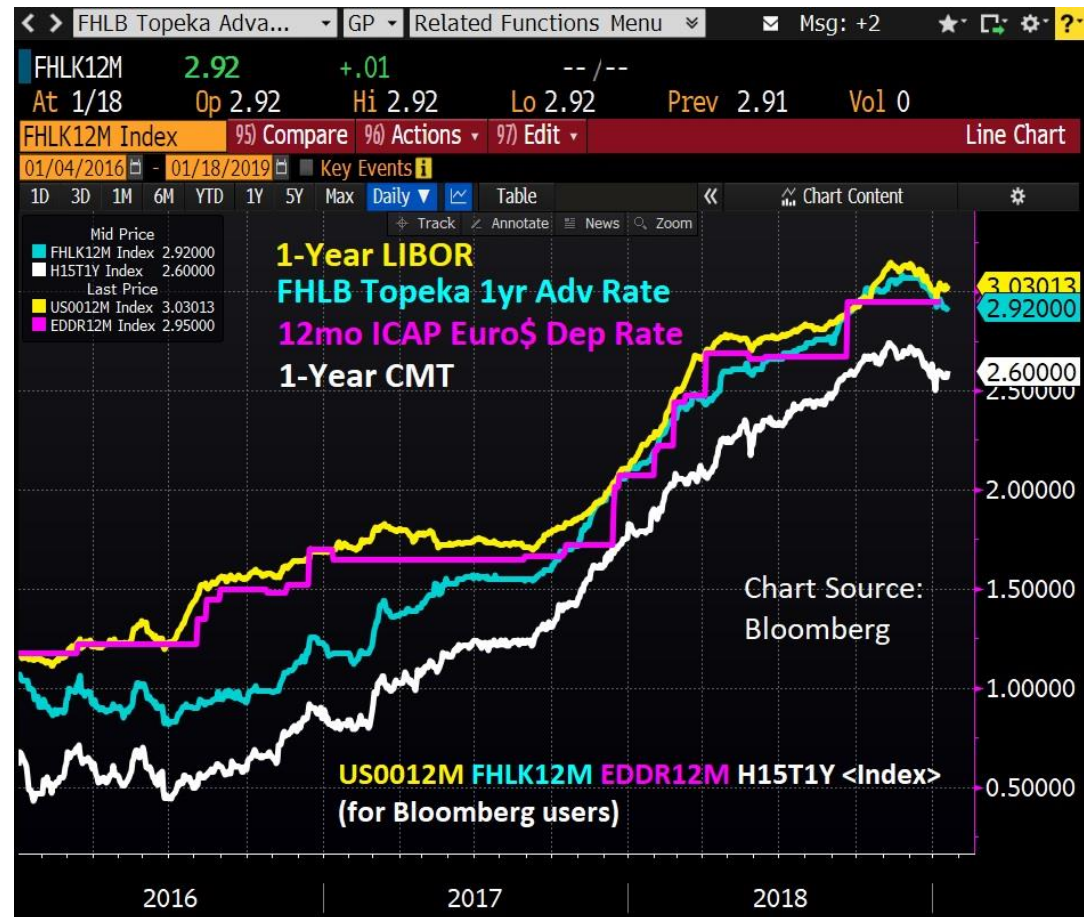
FHLB Topeka 1-year Advance Rates

- A) Makes sense: Federal “HOME LOAN” Bank
- B) Demonstrate improving correlation to LIBOR
- C) A Member ‘s Executable 1yr Cost of Funds

12-Month ICAP Eurodollar Deposit Rates closely track LIBOR (EDDR12M <Index> on Bloomberg)

1yr-Term SOFR is only derive-able from futures today.
Will behave like 1yr CMT

Documentation must be altered to reflect the alternate index waterfall.



ALL Docs Referencing a Benchmark MUST Be INCLUSIVE & w/ Waterfall- See FHLB Floaters

25) Bond Description		20) Issuer Description		Identifiers	
Pages		Issuer Information		ID Number	
1) Bond Info	Name	FEDERAL HOME LOAN BANK		ID Number	AV6686449
2) Addtl Info	Industry	Government Agencies		CUSIP	3130AFFW2
3) Reg/Tax	Security Information		ISIN	US3130AFFW21	
4) Covenants	Mkt Iss	US Domestic		Bond Ratings	
5) Guarantors	Country	US	Currency	Moody's	Aaa
6) Bond Ratings	Rank	Unsecured	Series	S&P	NA
7) Identifiers	Coupon	Type	Floating	Composite	NR
8) Exchanges	Formula	O/N SOFR +6.5000		Issuance & Trading	
9) Inv Parties	Day Cnt	ACT/360	Iss Price	100.00000	
10) Fees, Restrict					
11) Schedules					

**FHLB: If SOFR available, then SOFR
 else, FRBNY designated replacement
 else, OBFR (part Fed Funds, part ED\$)
 else, midpoint of Fed Funds range
 NOT LEGAL ADVICE!!!**

**So, could be (consult your legal team):
 If 1-yr LIBOR avail, then 1-yr LIBOR
 else, 1-yr FHLB advance
 else, 1-yr SOFR + avg economic spread
 equivalent over previous XX years
 else, 1-yr ICAP EDDR
 else, index in use at time**

**Bottom Line: Doc language MUST be max
 flexible and inclusive**

LIBOR- It Ain't What It Used To Be

- Pre-Crisis and Pre-Dodd/Frank, virtually all forms of LIBOR-Based Swaps were Bi-Laterally-risked & Displayed AA Credit Sensitivity
 - Interest Rate = British Bankers' Association Polled Member Banks for RATES
 - Credit Risk = 'Weakest Link' in Inter-Dealer Network. Dealers 'kited' risk amongst themselves creating an Inter-Dealer CREDIT dependency
 - Non-Bank Entities in the Inter-Dealer market ALTERED LIBOR CREDIT RISK
 - Banks voted on the RATE. Banks & Non-Banks overlapped their risk books and credit

→ Pre-Dodd/Frank LIBOR had differentiable RATE and CREDIT Risk (RFR+AA)

The RATE was INTER-BANK. The CREDIT was INTER-DEALER.

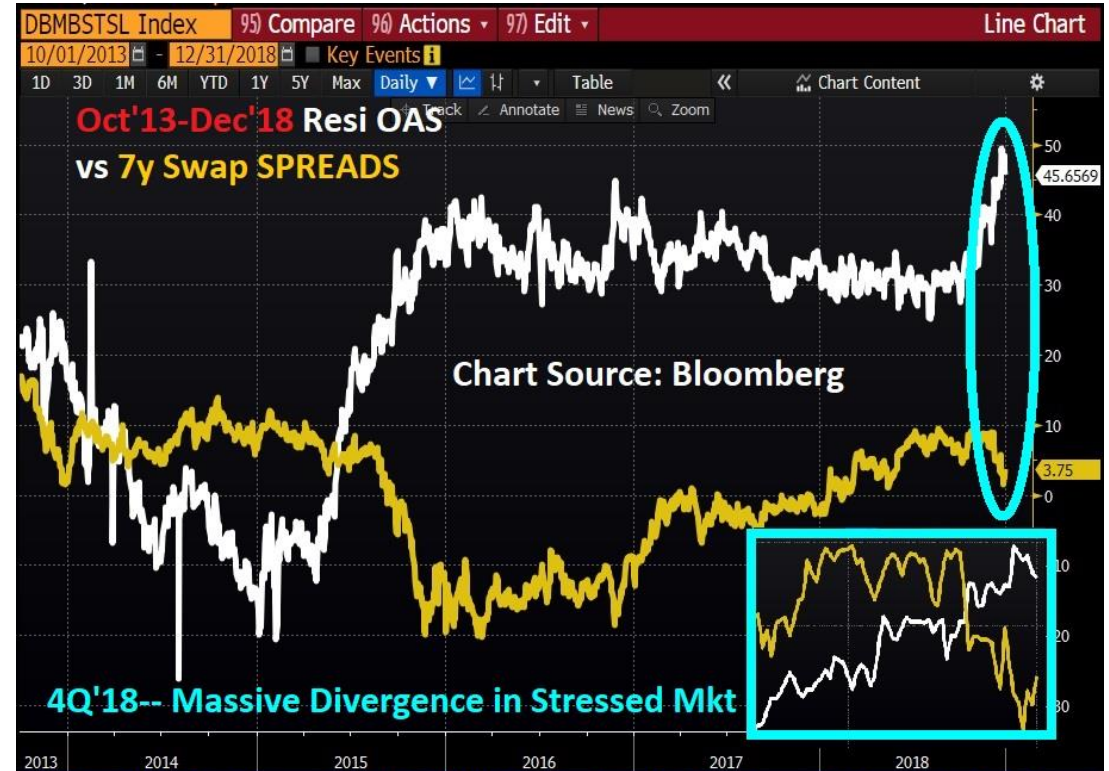
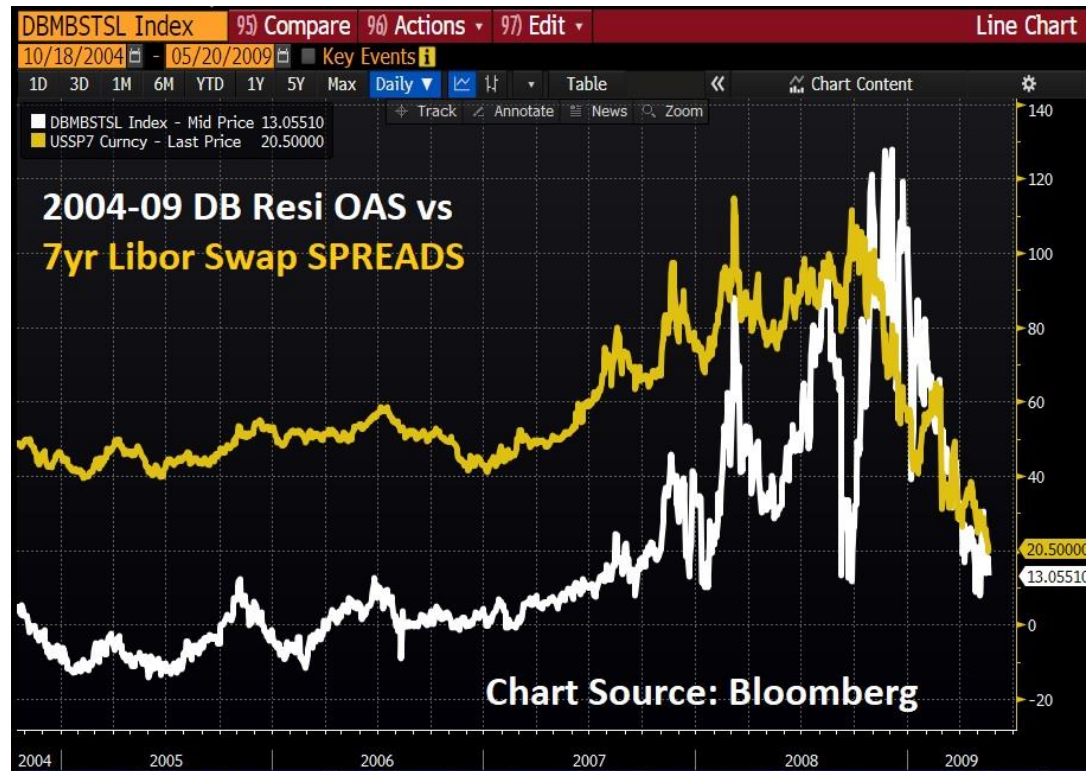
Today, the Rate is Exchange-Polled, The Credit is THE EXCHANGE

Declining % Bilateral => Declining Credit Sensitivity

Dodd/Frank: “If It Can Be Cleared, It MUST Be Cleared” - the Exchange put the ‘CHANGE’ in LIBOR



The Change In the Credit Sensitivity of LIBOR Leads to Greater Resi OAS Vol (QT Influenced Too!)



Agency Resi OAS: Decoupled from Swap Spreads-- Now Tracks CDX_IG *(Consequence of QT?)*



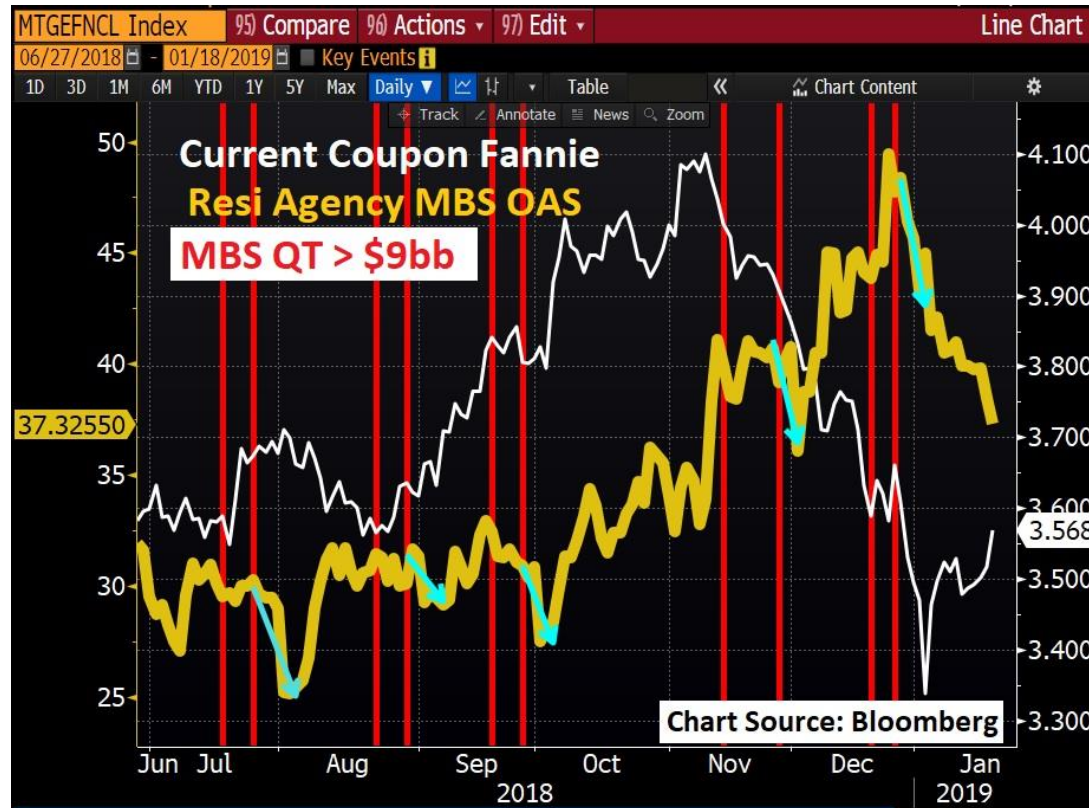
Agency CMBS vs Swaps Remains Consistent

CMBS OAS Vol \approx Swap Vol \approx CDX_IG Vol 4Q2011-1Q2019



Traders: Resi OAS FALLS After MBS QT >\$9bb

2019 Projects Massive \$175bb+ in MBS QT (?)



Projected MBS QT Runoff Will Be BIG in 2019		
MBS QT Dates	MBS QT Quantity	Expected Resi OAS Drop
Feb 13 - Feb 27	\$14.9bb	Feb 28 - Mar 5
Mar 13 - Mar 27	\$17.3bb	Mar 28 - Apr 2
Apr 17 - May 1	\$19.9bb	May 2 - May 7
May 15 - May 29	\$18.1bb	May 30 - June 4
Jun 12 - Jun 26	\$18.0bb	Jun 27 - Jul 2
Jul 10 - Jul 31	\$16.1bb	Aug 1 - Aug 6
Aug 14 - Aug 28	\$16.0bb	Aug 29 - Sep 3
Sep 11 - Sep 25	\$16.0bb	Sep 26 - Oct 1
Oct 5 - Oct 30	\$20.0bb	Oct 31 - Nov 5
Nov 13 - Nov 27	\$19.1bb	Nov 28 - Dec 2

There HAVE To Be Three+ Benchmark Rates

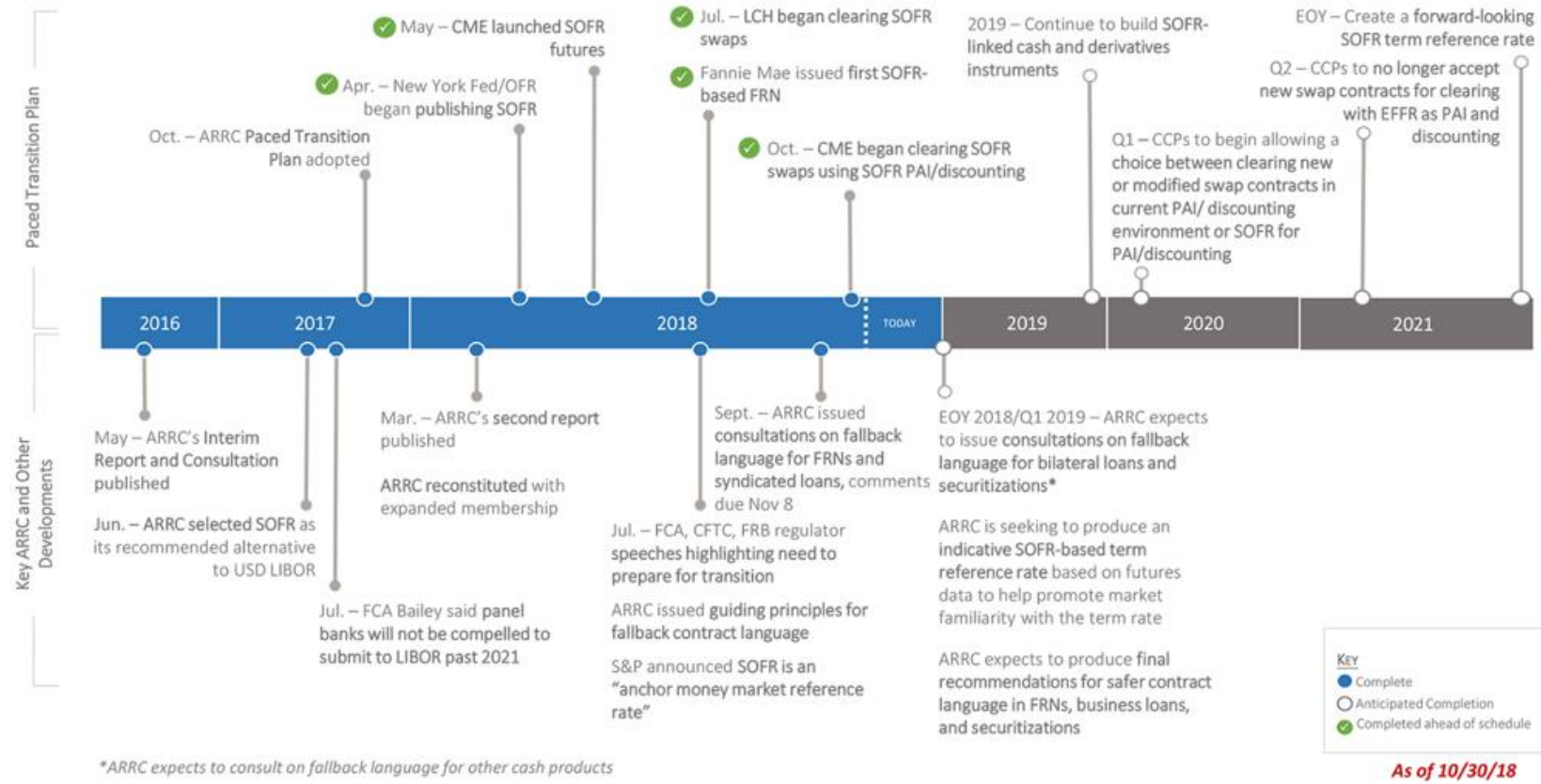
- ALL Must Be Overnight Rates
- ALL Must Be Actionable By The Fed
- ALL Must Have All-To-All Derivatives (Futures) for Hedging

- A Risk Free Rate (Treasury Collateralized) = SOFR (Treas Renamed)
- An Inter-Bank Rate (Bank Credit; NO Collateral) = Ameribor (~LIBID?)
- Lender to Bank Unsecured = ICE Bank Yield Index (~LIBOR?)
- A Collateral-Credit Rate (Collateral CREDIT; NOT Price) = igSOFR(?)

SOFR: Secured Overnight Funding Rate (EOY 2021)

Transition from U.S. Dollar LIBOR – Timeline

The Alternative Reference Rates Committee (ARRC) was originally convened in November 2014. Significant progress has been made to date.



If the ARRC 'Built' SOFR, Meet The Noah(s): John Hull & Alan White c.2012

**HARDCORE RATE DERIVATIVE HISTORIANS-
THIS IS THE FOUNDATION OF SOFR**

Published in Journal Of Investment Management, Vol. 11, No.3, 14-27

LIBOR vs. OIS: The Derivatives Discounting Dilemma*

John Hull and Alan White

March 2012

This Version: April 2013

Ask me about the 'Credit Double-Dip' in Bilateral Swaps

HIGHLIGHTS (for those who can't wait to read the full white paper):

LIBOR is an UNSECURED, continuously revalued, AA Credit Curve

LIBOR thought best for UNCOLLATERALIZED Rates

OIS thought best for COLLATERALIZED Rates

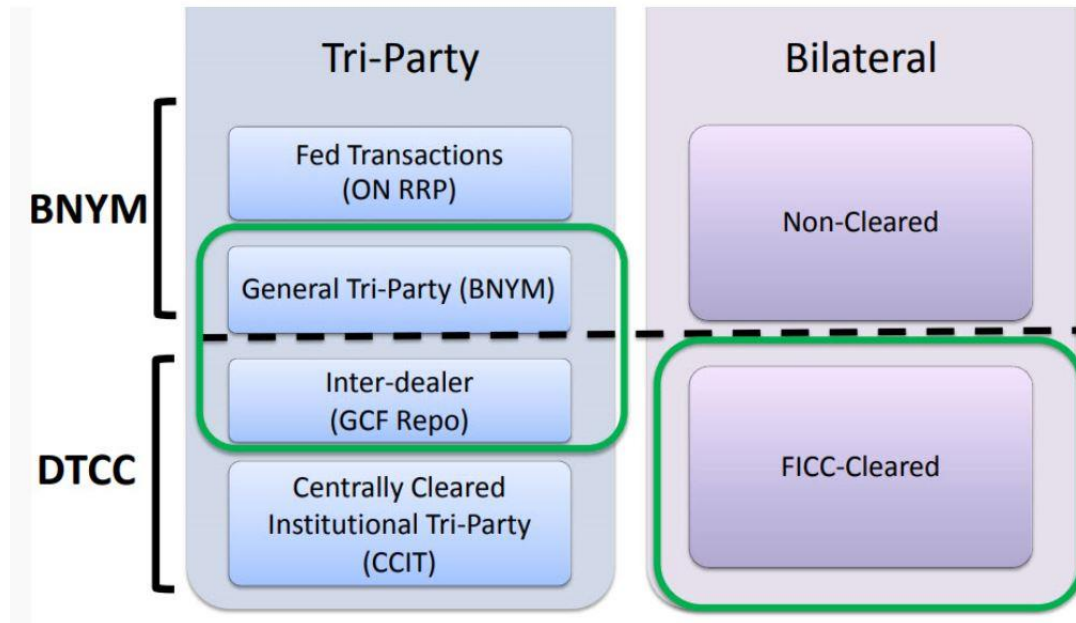
HULL/WHITE: Use OIS for all discounting/valuation because OIS is a 'near-risk-free' rate

Concurrently, Dodd/Frank: "If it can be cleared it must be cleared ..." and thus collateralized.

→ Risk Free Rate must be collateralized and Cash or Treasuries ARE the collateral of the exchanges...

→ **ARRC: "Let's Use Treasury Repo, eh, SOFR!!!"**

SOFR: [Treasury] Secured Overnight Funding Rate– Not New, Just Treas G/C Repo Repackaged



Source: FRBNY

A Hybrid of 3 'G/C' 'O/N' Rates

- Overnight Treasury G/C Rate
- BoNY Triparty Repo
- GCF/DTCC Repo
- FICC-Cleared Bilateral Repo

“All transactions with rates below the 25th volume-weighted percentile rate within this data set will be removed, to reduce the impact of specials ...” FRBNY

SOFR pub time: (approx.): 8:30 a.m. ET based on the PRIOR day's trading activity

Following the Logic on SOFR

- If SOFR is really just Overnight Treasury Repo (general collateral)
- THEN TERM SOFR is just TERM Treasury Repo (general collateral)
- AND...
- PV of Term Repo Cash Flows **MUST, by 'no arbitrage'**, be equal to PV of Equal Term Treasury Security Cash Flows...

Term SOFR is, effectively, a Treasury Security of Equal Maturity

1-week, 1-month, 3-month, 6-month, 9-month 12-month Term SOFR rates are expected to be 'published' based upon FRBNY comments.

No Free Lunch– PV Term SOFR Cash Flow MUST EQUAL PV Term Treasury Cash Flow

- Term SOFR rates will ‘headline’ below Treasury bi-annual coupon rates because of SOFR overnight compounding.
- BUT (excepting haircuts and cost, etc.)...

PV of cost of funds (SOFR) must equal PV of yield of Treasury

- Else:

Buy Treasury, Pledge it as Collateral, Pay SOFR, Receive Treasury Coupon

If anyone can make money doing the above (or taking opposite side), WELL- THAT IS FREE MONEY!

“No-Arbitrage” assures there must be parity at TERM as well as O/N

“Wait- with SOFR We’re Gonna be Trading ***EVERYTHING*** off Spread-To-Treasuries?!?!”

SOFR OAS Vols are going to SUCK for traders/hedgers (esp. Mortgage).

AND, We have NO REAL HISTORY to adapt LIBOR-based OAS models

But, WE HAVE TOOLS: RATE & CREDIT, accessible to all institutions

As mentioned by Hull/White (aka The Noah-s): “Credit Must Be Handled Separately”

To get “Old-School LIBOR” Sensitivity, we NEED a SOFR-RATE Instrument AND a ‘continuously repricing’ AA-type CREDIT Instrument

**This goes for LENDERS too! Used to lend (warehouse, revolver, etc.) at LIBOR+ X?
Now the lending moves to SOFR+ (X.xx)*IG Credit Spread**

SOFR Futures Volume Has Picked Up (Helps when bank dealers are being 'Federally inspired' to act)

ICE SOFR Futures: LARGE \$100 dv'01 per contract (\$12mm 1mo, \$4mm 3mo)

CME SOFR Futures: Eurodollar Equivalent Size \$25 dv'01 /contract (\$3mm 1mo, \$1mm 3mo)

One Month SOFR Jan		Three Month SOFR Dec18 Co	
SRDF9	97.5300	SRLZ8	97.5400
As of Close 30 Jan		As of Close 30 Jan	
SRDF9 Comdty		SRLZ8 Comdty	
One Month SOFR		Three Month SOFR	
7) ICF CEM »		7) ICF CEM »	
Display Quoted Val		Display Quoted Val	
Ticker		Ticker	
21) SRDF9	Jan19	21) SRLZ8	Dec18
22) SRDG9	Feb19	22) SRLH9	Mar19
23) SRDH9	Mar19	23) SRLM9	Jun19
24) SRDJ9	Apr19	24) SRLU9	Sep19
25) SRDK9	May19	25) SRLZ9	Dec19
26) SRDM9	Jun19	26) SRLH0	Mar20
27) SRDN9	Jul19	27) SRLM0	Jun20
28) SRDQ9	Aug19	28) SRLU0	Sep20
29) SRDU9	Sep19	29) SRLZ0	Dec20
		30) SRLH1	Mar21
		31) SRLM1	Jun21
		32) SRLU1	Sep21
		33) SRLZ1	Dec21

1 MONTH SOFR FUT		3 MONTH SOFR FUT M	
SERH9	97.5400	SFRH9	97.5700
As of Close 30 Jan		As of Close 30 Jan	
SERH9 Comdty		SFRH9 Comdty	
1 MONTH SOFR FUT		3 MONTH SOFR FUT	
7) CME CEM »		7) CME CEM »	
Display Quoted Val		Display Quoted Val	
Ticker		Ticker	
21) SERF9	Jan19	21) SFRZ8	Dec18
22) SERG9	Feb19	22) SFRH9	Mar19
23) SERH9	Mar19	23) SFRM9	Jun19
24) SERJ9	Apr19	24) SFRU9	Sep19
25) SERK9	May19	25) SFRZ9	Dec19
26) SERM9	Jun19	26) SFRH0	Mar20
27) SERN9	Jul19	27) SFRM0	Jun20
		28) SFRU0	Sep20

Bloomberg EDSF Calculates 1mo & 3mo SOFR Implied Term Rates and Forward-Starting Rates

3-Month SOFR Future		Export To Excel		Settings		Euro Dollar				
Delayed		01/31/2019		Adjust		Mean Rev.	0.030	Rate Vol.	0.771 %	
	Start Date	Days	Ticker	Last	Rate	6 Mo	1 Yr	2 Yr	3 Yr	5 Yr
10)	02/04/2019	44	SFRZ8	97.5425	y 2.4575	2.451	2.472	2.443	2.406	2.392
11)	03/20/2019	91	SFRH9	97.5700	y 2.4300	2.450	2.469	2.434	2.399	
12)	06/19/2019	91	SFRM9	97.5450	y 2.4550	2.468	2.458	2.415	2.389	
13)	09/18/2019	91	SFRU9	97.5350	y 2.4650	2.458	2.430	2.393	2.377	
14)	12/18/2019	91	SFRZ9	97.5650	y 2.4350	2.417	2.391	2.371	2.365	
15)	03/18/2020	91	SFRH0	97.6150	y 2.3850	2.372	2.357	2.354	2.356	
16)	06/17/2020	91	SFRM0	97.6550	y 2.3450	2.337	2.332	2.345	2.353	
17)	09/16/2020	91	SFRU0	97.6850	y 2.3150	2.314	2.316	2.341	2.353	
18)	12/16/2020	91	SFRZ0	97.7000	y 2.3000	2.299	2.310	2.342	2.356	
19)	03/17/2021	91	SFRH1	97.7150	y 2.2850	2.292	2.311	2.346		
20)	06/16/2021	91	SFRM1	97.7150	y 2.2850	2.294	2.318	2.353		
21)	09/15/2021	91	SFRU1	97.7100	y 2.2900	2.304	2.326	2.361		
22)	12/15/2021	91	SFRZ1	97.6950	y 2.3050	2.314	2.333	2.368		
23)	03/16/2022	91	SFRH2	97.6900	y 2.3100	2.320	2.340			

Use SOFR Futures to Swap FNMA Floater to Fixed. SOFR Futures Are the Rate Hedge Tool

Issuer Information			
Name	FANNIE MAE		
Industry	Government Agencies		
Security Information			
Mkt Iss	Global		
Country	US	Currency	USD
Rank	Unsecured	Series	
Coupon	2.740000	Type	Floating
Formula	O/N SOFR +16.0000		
Day Cnt	ACT/360 NON-...	Iss Price	100.00000
Maturity	01/30/2020		
BULLET			
Iss Sprd			
Calc Type	(21)FLOAT RATE NOTE		
Pricing Date	07/26/2018		
Interest Accrual Date	07/30/2018		
1st Settle Date	07/30/2018		
1st Coupon Date	10/30/2018		

	Start Date	Days	Ticker	Last		Rate
10)	02/06/2019	42	SFRZ8	97.5400	y	2.4600
11)	03/20/2019	91	SFRH9	97.5650	y	2.4350
12)	06/19/2019	91	SFRM9	97.5600	y	2.4400
13)	09/18/2019	91	SFRU9	97.5700	y	2.4300
14)	12/18/2019	91	SFRZ9	97.6050	y	2.3950
15)	03/18/2020	91	SFRH0	97.6600	y	2.3400
16)	06/17/2020	91	SFRM0	97.7000	y	2.3000
17)	09/16/2020	91	SFRU0	97.7300	y	2.2700
18)	12/16/2020	91	SFRZ0	97.7450	y	2.2550

Synthetic SOFR Fixed Bond Yield \approx Actual Fixed Rate Bond

Convexity IS Being MIS-PRICED on MANY Bonds– 2-year SOFR Floaters A Bit Cheap (1-2bps)

Start	End	SOFR Future	Days	Fut Px	Fut Imp Yld	NomDV01	DiscFactor	PV_dv01	PartRt	SOFR Shorts
2/6/2019	3/20/2019	SFRZ8	42	97.54	2.46	\$ 11.67	0.99714	11.63328	0.292056	46.5 SFRZ8
3/20/2019	6/19/2019	SFRH9	91	97.565	2.435	\$ 25.28	0.99104	25.05124	0.622526	100.2 SFRH9
6/19/2019	9/18/2019	SFRM9	91	97.56	2.44	\$ 25.28	0.98496	24.89768	0.61998	99.6 SFRM9
9/18/2019	12/18/2019	SFRU9	91	97.57	2.43	\$ 25.28	0.97895	24.74568	0.61367	99.0 SFRU9
12/18/2019	1/30/2020	SFRZ9	43	97.605	2.395	\$ 11.94	0.97616	11.65966	0.284984	46.6 SFRZ9
									2.433%	
SOFR Floater Spread +16bps									2.593%	
COMPARE TO FNMA Fixed Rate Yield (Fixed bond 9 days shorter to mat)										

DES 4-BLOOMBERG																						
<div style="display: flex; justify-content: space-between;"> < > FNMA 1 5/8 01/21/20 Corp DES Related Functions Menu Message </div>																						
<div style="display: flex; justify-content: space-between;"> FNMA 1 5/8 01/21/20 \$↑99.107 -.001 99.094 / 99.119 2.582 / 2.555 </div>																						
<div style="display: flex; justify-content: space-between;"> As of 01 Feb -- x -- Source BVAL </div>																						
<div style="display: flex; justify-content: space-between;"> FNMA 1 5/8 01/21/20 Corp Settings Page 1/12 Security Description </div>																						
<div style="display: flex; justify-content: space-between;"> 94) Notes 95) Buy 96) </div>																						
<div style="display: flex; justify-content: space-between;"> 25) Bond Description 26) Issuer Description </div>																						
<table border="1" style="width: 100%;"> <tr> <th>Pages</th> <th>Issuer Information</th> <th>Identifiers</th> </tr> <tr> <td>11) Bond Info</td> <td>Name FANNIE MAE</td> <td>ID Number EK6878418</td> </tr> <tr> <td>12) Addtl Info</td> <td>Industry Government Agencies</td> <td>CUSIP 3135G0A78</td> </tr> <tr> <td>13) Reg/Tax</td> <td></td> <td></td> </tr> </table>											Pages	Issuer Information	Identifiers	11) Bond Info	Name FANNIE MAE	ID Number EK6878418	12) Addtl Info	Industry Government Agencies	CUSIP 3135G0A78	13) Reg/Tax		
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13) Reg/Tax																						

The opposite of this trade may be executed to Swap Fannie Fixed Rate to Fannie SOFR Floater

That would be MY choice– I'd rather own a discount-priced Agency (pos Convexity) and Short the SOFR Futures (non-Convex). NET Pos Convexity with Fed in play.

2yr Convexity Adj on Futures \approx -0.6 bps

BUY a SOFR Floater / Offer a Floating Credit Line at a Fixed Spread to SOFR, To a non-Agency– Let alone, a non-SIFI-- Borrower? (Not with MY cash)

- In a CRISIS, SOFR will Follow Treasury Repo toward ZERO%
 - A Hedged Floater will PV all cash flows into immediate margin \$\$\$
 - BUT, where can you sell the floater? Not at or near PAR– new spread levels might be +250– wiping out hedge gains (or, potentially more)
- The BIG problem: Hedging Floating Line at Fixed-Spread
 - LIBOR includes a AA-type credit sensitivity– when credit widens, LIBOR moves wider too.
 - SOFR will move NARROWER (Treasury Credit)

HEDGES ARE SYNTHETIC MATCHED-FUNDING PROXIES. IF YOU CAN'T BORROW AT CONSTANT FIXED-SPREAD OVER SOFR, YOU CANNOT HEDGE WITH SOFR ALONE

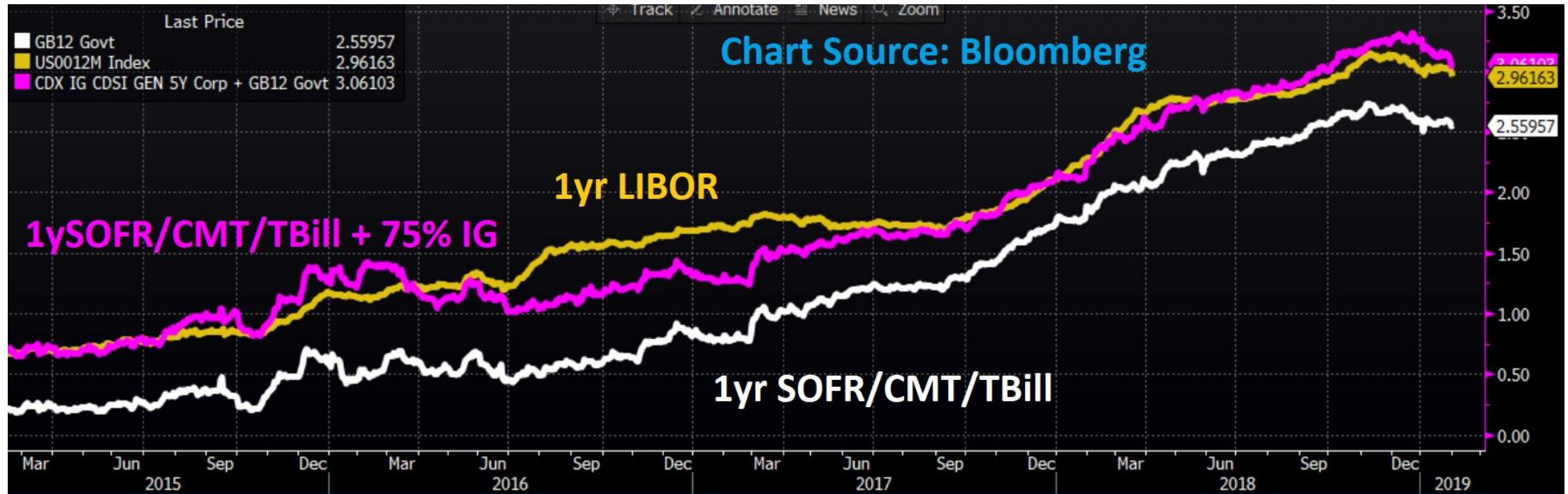
- **Remember the Noah-s: “Credit Must Be Added, Separate from Rate”**

Instead of LIBOR, Think: SOFR + [X.xx*(IG yield)]

- **LIBOR** = Treasury Rate Sensitivity + **AA Credit Sensitivity**
- **SOFR** = Treasury Rate Sensitivity
- **IG Credit** = Variable Investment Grade Credit (typically, AA- to A-)

- **SO, To Make SOFR Behave Like LIBOR:
ADD CREDIT SENSITIVITY USING CREDIT (CDX IG) FUTURES**

IG Futures: ‘The Credit Piece that SOFR lacks’ CDX/Credit Futures are like “OAS in a Box”



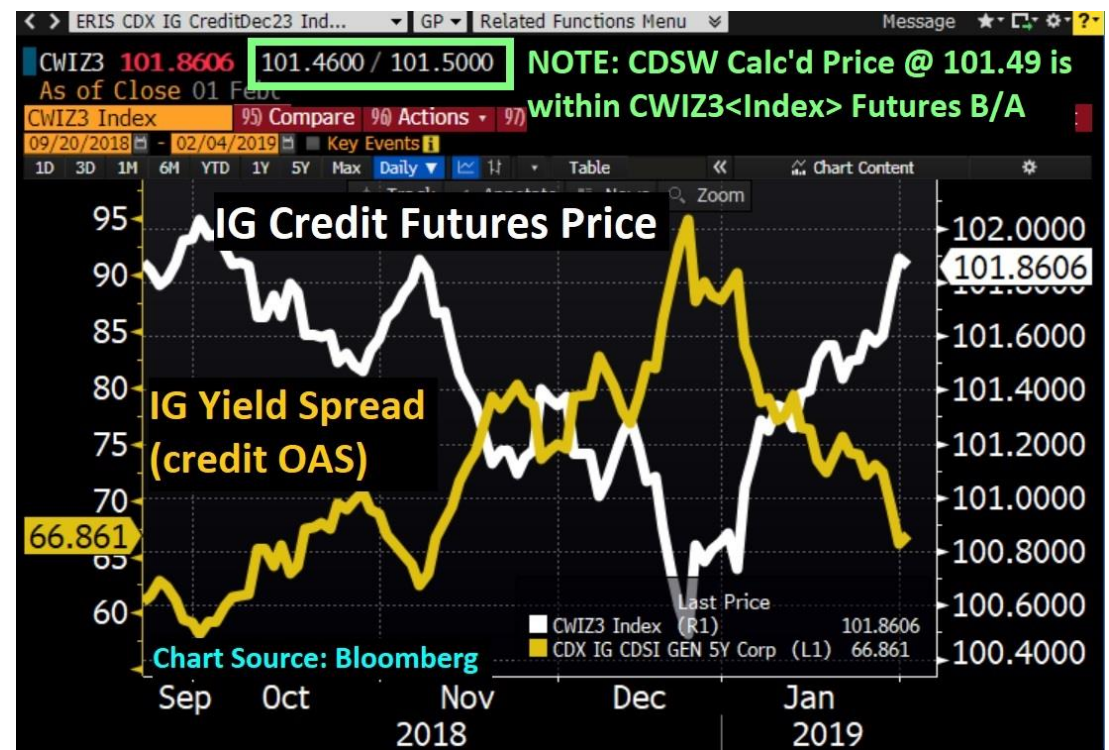
**ICE/Eris CREDIT Futures can be traded through Bloomberg EMSX,
Voice, IB Chat, RJO Front-Ends, 3rd Party Front-Ends (IG & HY)**

Time to Get Familiar with CREDIT FUTURES –

THE Answer to Returning Credit Sensitivity to Hedges & Financing Lines (ICE/Eris Credit CDX Futures)

The IG Credit Future Mirrors (and settles w/ a zero-basis to) CDX_IG

ICE/Eris CREDIT Futures: on BBRG, CWIA<Index>CT<Go> or CWIZ3 <Index>



Tail Hedge on DUS Using SOFR Futures

FN 464321 Mtge CFT Related Functions Menu Message

CFT
Enter all values and hit <GO>

FN 464321 Mtge Scenarios Stratify Actions Settings Yield Table

US CMBS: MULTI FAMILY 6.090(12)108 CUSIP 31381LYS0 Pool Level As of 01/2019

1/2019 CPR VPR CDR SEV 30D 60+ 90+ Bkrp Frcl REO CumLoss 1st Proj 2/25/2019 Day Count ACT/360
 1M 0 0 0 -- 0.0 0.0 0.0 -- -- -- -- Freq Monthly Delay 24 Created 1/1/2010

1) Price-to-Yield Cashflows 30 Table 31) Graph 32) Close Report

Settle	H6M	02/06/2019
Prepay	0 CPY	
Default	0 CDR	
Vary	0	
Price	100.3192	3.7962
Avg Life		0.96
Mod Duration		0.93
Prin Win	Date	3/19-1/20
Proj Bond Loss		0.00
I Spread		125

1) Bond Flow		1) Collateral Flow				
Orig Bal	75,350,000 USD	Your Orig Bal	75,350,000			
Prev Bal	65,412,621	Your Prev Bal	65,412,621			
Accrued 0.0565 for 5 days, Start 02/01/19, Delay 24, WAL 0.961						
Show precise amount Monthly						
Dates	Balance	Sched	Unsched	Interest	Penalty	Ca
Totals		65,412,621	0	2,620,590	0	68,0
1. 03/25/2019	65,266,328	146,293	0	221,821	0	3
2. 04/25/2019	65,152,465	113,863	0	245,039	0	3
3. 05/28/2019	65,026,983	125,482	0	236,721	0	3
4. 06/25/2019	64,911,865	115,118	0	244,140	0	3
5. 07/25/2019	64,785,162	126,703	0	235,846	0	3
6. 08/26/2019	64,668,776	116,386	0	243,232	0	3
7. 09/25/2019	64,551,779	116,997	0	242,795	0	3
8. 10/25/2019	64,423,249	128,530	0	234,538	0	3
9. 11/25/2019	64,304,965	118,284	0	241,874	0	3
10. 12/26/2019	64,175,182	129,783	0	233,641	0	3
11. 01/27/2020	0	64,175,182	0	240,942	0	64,4

GOVT 22:21 6M 2.46 1Y 2.56 2Y 2.50 3Y 2.49 5Y 2.50 7Y 2.58 10Y 2.68 30Y 3.03 Disc 30/360 6M 2.4 1Y 2.48

FN 464321: 109/N-Curve, 125/I-Curve, 136/SOFR

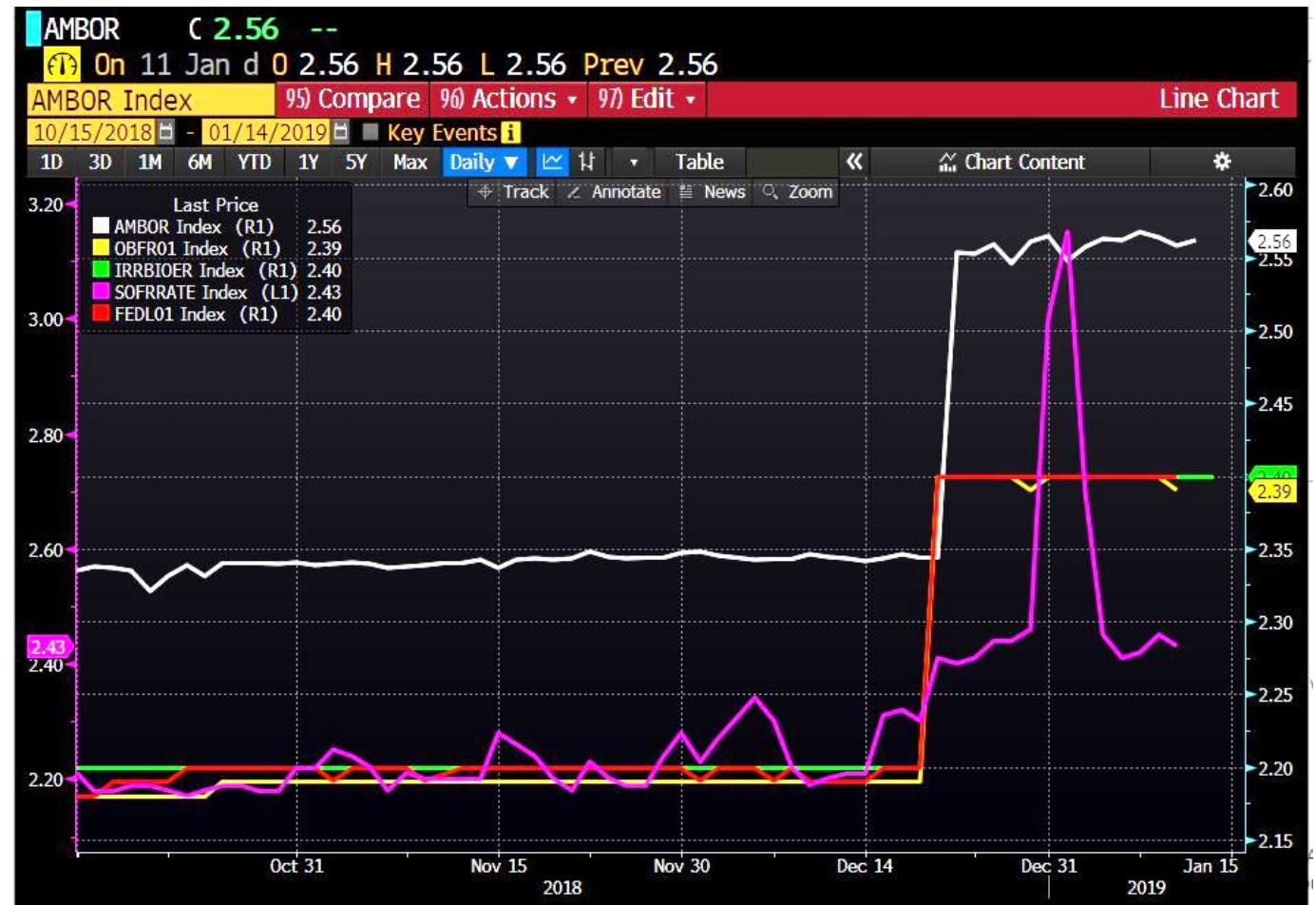
Start Dt	Valuaxn Dt	1mSOFR ICE	Days	Fut Px	SOFR Imp Yld	DUS UPB	NomDV'01	PV_DV'01	PartlRate	Future	Hedge Qty
2/6/2019	3/1/2019	SRDG9	23	97.5625	2.4375	65,412,621	\$ 417.91	\$ 417.26	0.16	SRDG9	-4
3/1/2019	4/1/2019	SRDH9	31	97.5375	2.4625	65,412,621	\$ 563.28	\$ 561.21	0.22	SRDH9	-6
4/1/2019	5/1/2019	SRDJ9	30	97.56499	2.43501	65,266,328	\$ 543.89	\$ 540.79	0.21	SRDJ9	-5
5/1/2019	6/3/2019	SRDK9	33	97.57	2.43	65,152,465	\$ 597.23	\$ 592.52	0.23	SRDK9	-6
6/3/2019	7/1/2019	SRDM9	28	97.55	2.45	65,026,983	\$ 505.77	\$ 500.82	0.19	SRDM9	-5
7/1/2019	8/1/2019	SRDN9	31	97.56499	2.43501	64,911,865	\$ 558.96	\$ 552.34	0.21	SRDN9	-6
8/1/2019	9/3/2019	SRDQ9	33	97.56499	2.43501	64,785,162	\$ 593.86	\$ 585.52	0.23	SRDQ9	-6
9/3/2019	10/1/2019	SRDU9	28	97.56499	2.43501	64,668,776	\$ 502.98	\$ 494.97	0.19	SRDU9	-5
10/1/2019	11/1/2019	SRDV9	31	97.5625	2.4375	64,551,779	\$ 555.86	\$ 545.87	0.21	SRDV9	-5
11/1/2019	12/2/2019	SRDX9	31	97.57249	2.42751	64,423,249	\$ 554.76	\$ 543.65	0.21	SRDX9	-5
12/2/2019	1/2/2020	SRDZ9	31	97.5775	2.4225	64,304,965	\$ 553.74	\$ 541.52	0.21	SRDZ9	-5
1/2/2020	1/27/2020	SRDF0	25	97.59	2.41	64,175,182	\$ 445.66	\$ 435.10	0.17	SRDF0	-4
						0	Hedge Yield:		2.4351%		

Via Synthetics (efficient mkt): 27bps difference between N-curve & SOFR => Additional IG Yield to add to SOFR hedge is: $(27\text{bps benchmark spread}) / (68\text{bps/IG}) \Rightarrow 0.4 \text{ IG}$.
 So, $(0.4 \text{ IG}) * \$65\text{mm} = \$26\text{mm_IG} \Rightarrow -260 \text{ IG Futures}$ (Also, optimized MVHR is good)

Ameribor: The New Inter-Bank Index

www.theAFEX.com

- UN-secured Overnight Borrow/Lend Platform
- Just over 100 participating banks, funds
- Bilateral- Bank/Fund-to-Bank/Fund
- CFE/CBOE Exchange Integrity Piping (no touch, but enforcement)
- History suggests most activity at IOER+15ish bps
- Blind Execution with mutually accepted counterparties
- Excellent late-day funding source for banks at competitive rates
- Excellent late day lending alt for funds/non-bank financials
- FUTURES SOON

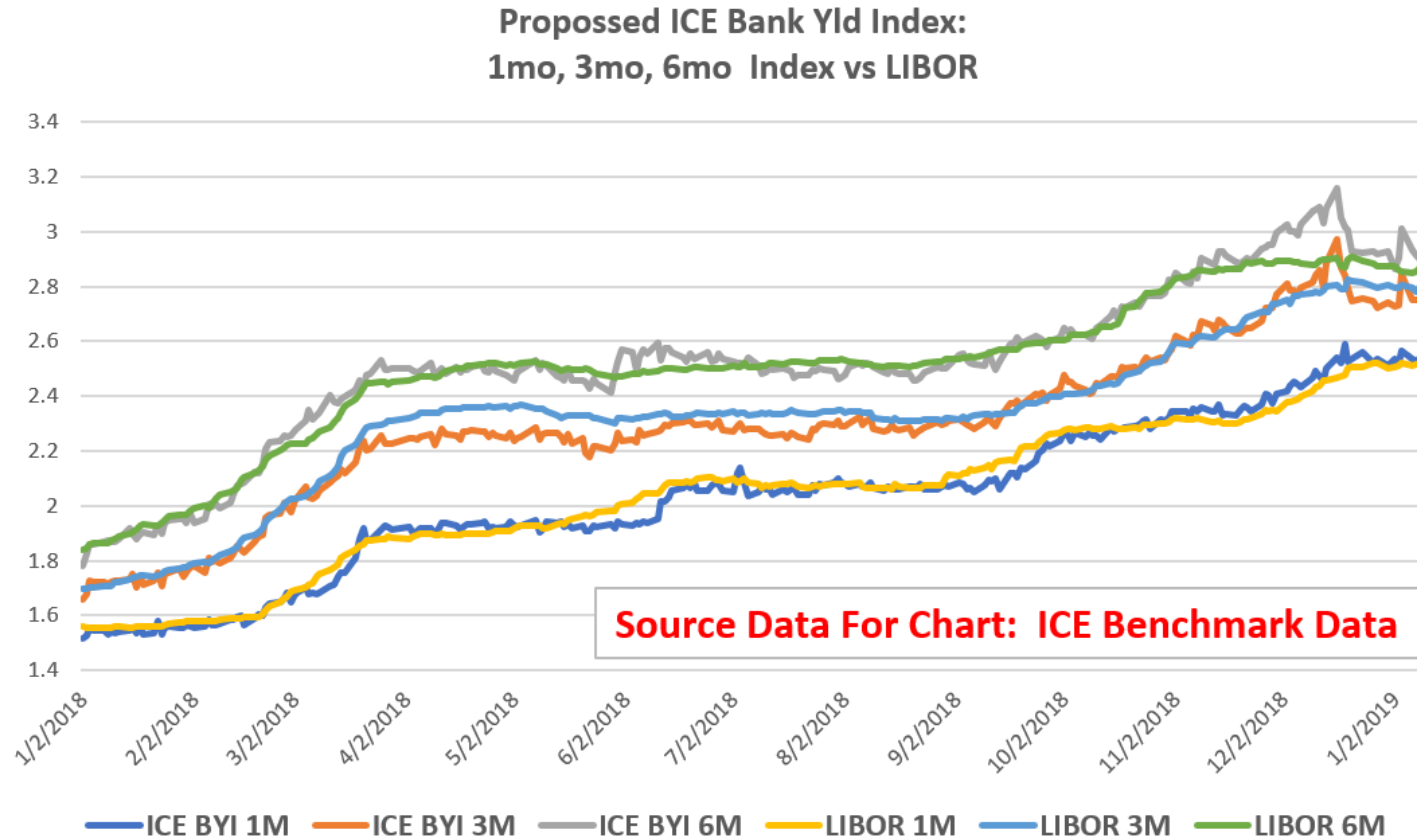


(chart source: Bloomberg)

New ICE Benchmark Seeks to Better Replace Rate & Credit Sensitivity of LIBOR (**fill or kill 1Q2020**)

- THE U.S. DOLLAR ICE BANK YIELD INDEX
- TRANSACTION-BASED
- Index is designed to measure the yields at which investors are willing to invest U.S. dollar funds in large, internationally active banks on a wholesale, unsecured basis over one-month, three-month and six-month periods.
 - Effectively, offshore US Dollar-based CD rates from BIG, Money-Center Banks
- IBA is now inviting market participants and stakeholders to review and provide feedback on the U.S. Dollar ICE Bank Yield Index and its proposed methodology via email at IBA@theice.com by March 31, 2019.

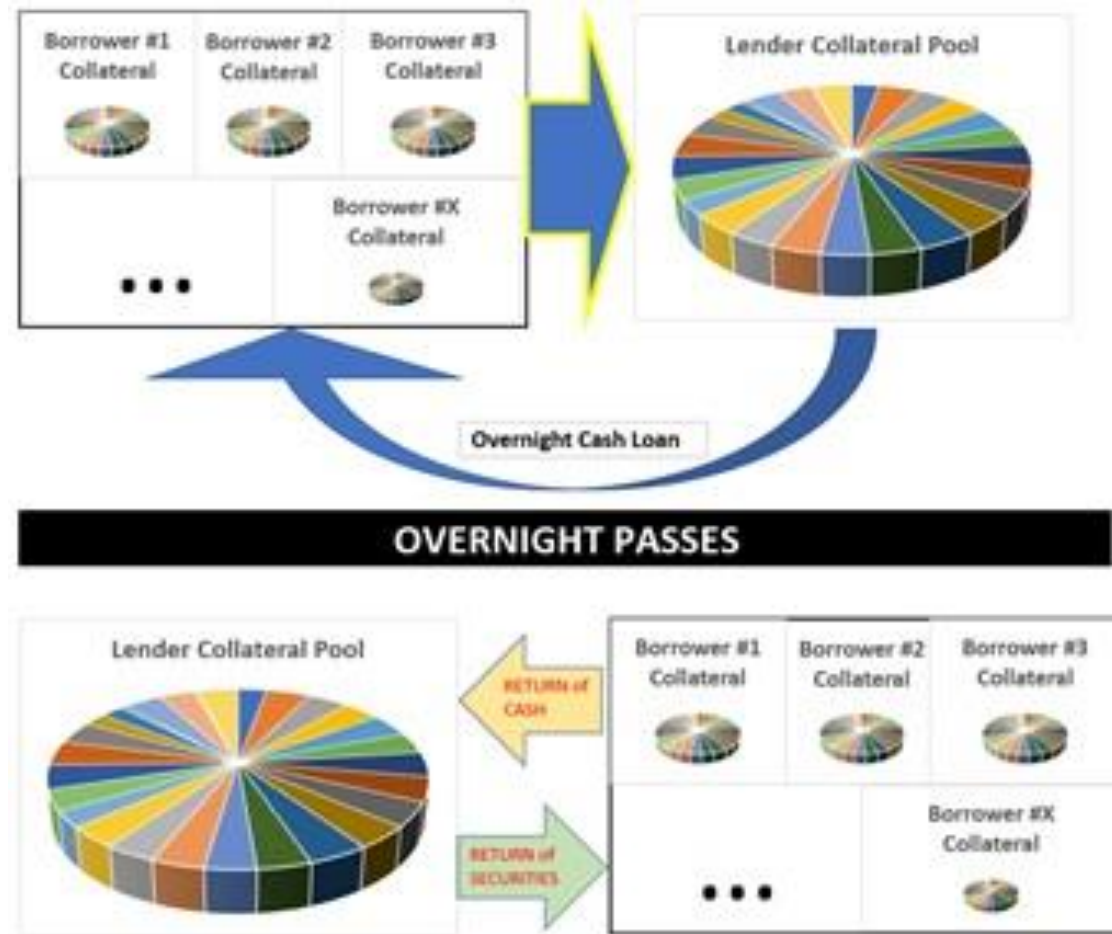
Please Contact ICE Benchmark Administration To Express Interest and/or Comments



<https://www.theice.com/iba/Bank-Yield-Index-Test-Rates>

FIG @ RJO Proposed Credit (not Price) Based Overnight Lending Platform: IG_SOFR

- **Overnight Lending Based Upon Credit of Bonds Pledged**
- **Haircut Based on Credit, Maturity, Coupon**
- **Max concentration of Bonds Pledged is 5% in any single CUSIP**
- **Aggregate info on all bonds pledged is announced**
- **Lenders bid, Dutch-Auction-Style**
- **Pure CREDIT-BASED overnight lending rate established from massive transactions (akin to Treasury-SOFR)**
- **Goal: Create a TARP-like overnight lending platform that eliminates security PRICE from 'lending equation'**



MarketWatch

Home > Economy & Politics > Federal Reserve > The Fed

Powell agrees with Bernanke: Congress shouldn't have taken away Fed's crisis-fighting tools

By Greg Robb
Published: Sept 27, 2018 7:58 a.m. ET

Fed chairman in accord with Bernanke, Geithner, Paulson, but says he doubts lawmakers will give powers back



Central bankers lack the weapons to fight the next big recession

cnn.com

SOFR, Ameribor, Potentially ICE Bank Yield Index, and FIG_IG_SOFR all provide Avenues for the FED to ADD LIQUIDITY IN CRISIS– Without doing what the ECB, BOJ, and other Central Banks have done: Risk Balance Sheet Integrity by ADDING CREDIT-RISK ASSETS. We don't want that...

Thank you all for participating.
Thanks to SFBTA for the opportunity to speak.

Contact RJO FIG with Questions:
800-367-3349 fig@rjobrien.com

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