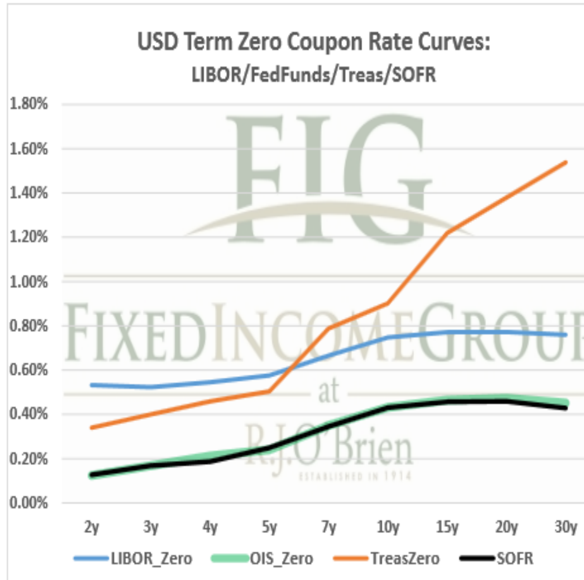
THE SOFR CURVE

Distributed by The Fixed Income Group at RJ O'Brien

Making the change from LIBOR to a new reference rate is not an insignificant exercise. It will take planning and changes to processes and systems. Sonia and SOFR appear likely to offer two options for users: compounded, setting in arrears (currently used in OIS markets) or a term rate setting in advance like LIBOR. You have questions, we have answers.



For more information on the Libor replacement contact:

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3/23/2020 6:16 ct

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Term SOFR from 1-day Returns

0.08382%	**0.09050%**	**0.07947%**	**0.07970%**	**0.08867%**	**0.08715%**	**0.12185%**
1.000072183	1.000231276	1.0004062	1.00060879	1.000899	1.0008594	1.0024708
1mo	**3mo**	**6mo**	**9mo**	**12mo**	**FHLB**	**24mo**
3/23/2020	3/23/2020	3/23/2020	3/23/2020	3/23/2020	3/23/2020	3/23/2020
4/22/2020	6/22/2020	9/22/2020	12/22/2020	3/22/2021	3/12/2021	3/22/2022
31	92	184	275	365	355	730

Term SOFR+Credit from 1-day Returns

1.66398%	**1.67314%**	**1.66497%**	**1.66859%**	**1.68104%**	**1.71292%**	**1.72946%**
1.001432873	1.004275796	1.0085099	1.0127462	1.0170439	1.0261221	1.0350697
1mo	**3mo**	**6mo**	**9mo**	**12mo**	**18mo**	**24mo**
3/23/2020	3/23/2020	3/23/2020	3/23/2020	3/23/2020	3/23/2020	3/23/2020
4/22/2020	6/22/2020	9/22/2020	12/22/2020	3/22/2021	9/22/2021	3/22/2022
31	92	184	275	365	549	730