![NAIC - National Association of Insurance Commissioners]

MEMORANDUM

TO: Life Actuarial (A) Task Force

FROM: Pat Allison, NAIC Staff

DATE: May 26, 2022

RE: Recommended replacement related to APF 2022-04 Swap Spreads and LIBOR transition
to SOFR

Background

The purpose of this memo is to recommend: 1) Secured Overnight Financing Rate (SOFR) swap spreads
as the replacement for LIBOR swap spreads upon adoption by LATF, and 2) The approach to be used in
calculating current and long-term swap spread curves from the date of this adoption through the
remainder of 2022. These recommendations are consistent with APF 2022-04 (which would be effective
for the 2023 *Valuation Manual*), which identifies the SOFR as the replacement for LIBOR, and 2) the VM-
20 Section 9.F.8.d Procedure for Setting Prescribed Gross Asset Spreads, cited below:

> A current and long-term swap spread curve shall be prescribed for year one and years four and
> after, respectively, with yearly grading in between. The three-month and six-month points on
> the swap spread curves shall be the market-observable values for these tenors. Currently, this
> shall be the corresponding London Interbank Offered Rate (LIBOR) spreads over Treasuries.
> When the NAIC determines LIBOR is no longer effective, the NAIC shall recommend a
> replacement to the Life Actuarial (A) Task Force which shall be effective upon adoption by the
> Task Force.

The last sentence above notes that the NAIC shall recommend "a replacement", which indicates an
intent to replace the prescribed current and long-term swap spread curves with a single replacement, as
opposed to continuing the use of LIBOR beyond the adoption date.

Commented [AR1]: To improve clarity, delete "use" (which might be misinterpreted) and insert "NAIC's prescription"

Determination that LIBOR is no longer effective

An American Academy of Actuaries' extrapolation of data published on April 13 by the International
Swaps and Derivatives Association (ISDA) Clarus Financial Technology[1] shows that SOFR-based
transactions are growing in popularity and can be expected to reach in July or August a two-thirds
majority of newly executed USD interest rate derivatives (based on a risk-based DV01 metric). A

Bloomberg February 9 article[2] states that over two-thirds of newly executed USD interest rate swaps in January 2022 were SOFR swaps (with the floating rate based on SOFR) rather than LIBOR swaps (with the floating rate based on LIBOR). Based on the information provided in these publications, NAIC staff has determined that LIBOR is no longer effective.

Actuarial judgment may be required in the use of prescribed swap spreads (for example, in the case where companies have a combination of SOFR and LIBOR-based swaps). VM-20 Section 9.F.8.d states, in part "Interest rate swap spreads over Treasuries shall be prescribed by the NAIC for use throughout the cash-flow model *wherever appropriate* for transactions and operations…" (emphasis added).

Recommended Replacement for Current Benchmark Swap Spreads

Effective [TBD, potentially June 30, 2022] and through December 31, 2022, NAIC staff recommends that for each month-end date, LIBOR swap spreads shall be replaced with SOFR swap spreads[3]:

- o 3-month LIBOR spread should be replaced with   3m SOFR swap[4] spread
- o 6-month LIBOR spread should be replaced with   6m SOFR swap spread
- o 1-year swap spread should be replaced with 1y SOFR swap spread
- o …
- o 30-year swap spread should be replaced with 30y SOFR swap spread

Recommended Replacement for Long-Term Benchmark Swap Spreads

Effective on the adoption date by the Life Actuarial (A) Task Force of SOFR swap spreads as the replacement for swap spreads previously prescribed and through December 31, 2022, NAIC staff recommends the following approach for the calculation of long-term benchmark swap spreads, consistent with APF 2022-04:

1. Extract daily swap spread data over the prescribed observation period (rolling 15-year period) ending on the last business day of the quarter from at least two reputable data sources. If the data source provides swap rates rather than swap spreads, convert the daily swap rate for each maturity to a swap spread by subtracting the corresponding maturity Treasury yield from the swap rate.
2. Calculate SOFR swap spreads as follows for each business day "u" on or after the effective date of the adoption by the Life Actuarial (A) Task Force of SOFR swap spreads as the replacement for swap spreads previously prescribed:
    a. For each maturity "m" = 0.25, 0.5, 1 … 30 years, and business day "u":
        SOFR swap spread(m,u) = SOFR swap rate(m,u) - Treasury yield(m,u).

3. Calculate SOFR swap spreads as follows for each business day before the effective date of the adoption by the Life Actuarial (A) Task Force of SOFR swap spreads as the replacement for swap spreads previously prescribed, utilizing Bloomberg's 2021-03-05 published USD Spread Adjustments:
    a. For each maturity "m" = 3 or 6 months, and business day "u",

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Commented [AR2]: To improve clarity, delete "a combination of SOFR and LIBOR-based swaps" and insert "a financial instrument with floating rate payments based on an index that is not prescribed by the NAIC (e.g., 1-month SOFR or 3-month LIBOR)"

Commented [AR3]: To improve concision, delete "u" here because it is defined in 2.a below

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[2] See "Growth in SOFR Swaps Volume" within this 2022-02-09 Bloomberg article: https://www.bloomberg.com/professional/blog/sofr-liquidity-eclipses-libor/
[3] During 2021 the swap market evolved such that the definition of a standard n-year interest rate swap changed in January 2022 to be a SOFR swap from the LIBOR swap.
[4] 3-month and 6-month SOFR swap rates are defined herein as the fixed rate one party pays at the end of three months or six months in exchange for receiving at such time 3-month SOFR or 6-month SOFR, calculated on a compounded in arrears basis.

        i.   SOFR swap spread(3 months,u) = LIBOR swap spread(3 months,u) - 0.26161% (the USD 3-month Spread Adjustment)

        ii.   SOFR swap spread(6 months,u) = LIBOR swap spread(6 months,u) - 0.42826% (the USD 6-month Spread Adjustment)

    b.   For each maturity "m" = 1 … 30 years, and business day "u":

        SOFR swap spread(m,u) = LIBOR swap spread(m,u) - 0.26161% (the USD 3-month Spread Adjustment)

3. Average the swap spread data from the data sources by maturity over the prescribed observation (rolling 15-year period).
4. Calculate the Long-Term Benchmark Swap Spreads as the 85% conditional mean for each of the 32 maturity categories (three-month, six-month, one-year, two-year, … 30-year) using the same business trading days as were used in the 85% conditional mean for long-term bonds spreads.
5. Publish the Long-Term Benchmark Swap Spreads in a table. Among tables published on the NAIC website (See Subsection H), Table J shows Long-Term Benchmark Swap Spreads.

In Table J, NAIC staff shall clarify that from the adoption date forward, current and long-term benchmark swap spreads are SOFR swap spreads.