



Consultation on Adjustment Spreads for the Conversion of Legacy SOR Contracts to SORA

18 May 2022

Steering Committee for SOR & SIBOR Transition to SORA

(SC-STS)

PREFACE

This consultation paper sets out recommendations for the setting of adjustment spreads for the conversion of legacy Singapore dollar Swap Offer Rate (“**SOR**”) contracts to a Singapore Overnight Rate Average (“**SORA**”) reference rate.

Specifically, this consultation seeks feedback on proposals relating to:

- (a) adjustment spreads for setting of the MAS Recommended Rate in ISDA IBOR 2020 Fallbacks Protocol, Supplement number 70 to the 2006 ISDA Definitions and the 2021 ISDA Interest Rate Derivatives Definitions¹ (collectively referred to as the “**ISDA Documentation**” in this document), as well as the SC-STS’ recommended contractual fallbacks for bilateral and syndicated corporate loans. These fallbacks will apply *after* Fallback Rate (SOR) is discontinued after 31 December 2024;
- (b) supplementary guidance on adjustments spreads for the period *before and including* 31 December 2024, which would be necessary to support the industry’s active transition from SOR; and
- (c) application of the SC-STS supplementary guidance to active transition across various product types.

For avoidance of doubt, this consultation focuses on the setting of adjustment spreads for the conversion of institutional SOR contracts (i.e. bilateral and syndicated corporate loans, bonds, and derivatives), and does not affect earlier SC-STS guidance on the setting of adjustment spreads for the conversion of legacy SOR retail loans to compounded-in-advance SORA².

No representation or warranty is given by the SC-STS as to the accuracy or completeness of the contents of this consultation, or to its suitability for any particular product and/or transaction. The SC-STS shall not be liable for any losses suffered by any person as a result of any transaction entered into on the basis of the contents of this report or which may arise from the presence of any errors or omissions in this report and no proceedings shall be taken by any person in relation to such losses.

¹ For avoidance of doubt, for the purpose of the ISDA Documentation, the MAS Recommended Rate referred to in this document is the rate (inclusive of any spreads or adjustments) recommended as the replacement for Fallback Rate (SOR) by the Monetary Authority of Singapore or by a committee officially endorsed or convened by the Monetary Authority of Singapore, notwithstanding that the same definition may be used in other context and refers to a different rate under the relevant ISDA definitions.

² Further details on the SORA Conversion Package for retail (and SME) loans based on compounded-in-advance SORA may be found at the SC-STS webpage [here](#).

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1. Background and Aim

1.1 In August 2019, SORA was identified by the Association of Banks in Singapore (“ABS”) and Singapore Foreign Exchange Market Committee (“SFEMC”) as the alternative risk-free rate (RFR) to replace SOR in Singapore dollar (“SGD”) interest rate products such as derivatives, corporate loans and bonds. This was to address the impending situation that SOR, which relies on US dollar (“USD”) London Interbank Offered Rate (“LIBOR”) in its computation methodology, would be discontinued when USD LIBOR was expected to be discontinued after end-2021. The UK Financial Conduct Authority subsequently announced in March 2021 that the overnight, 1-month, 3-month, 6-month and 12-month USD LIBOR settings, which are used in SGD SOR, would cease to be provided by any administrator or be no longer representative immediately after 30 June 2023. Consequently, SOR would similarly be discontinued immediately after 30 June 2023, across all tenor settings.

Update on progress in SOR to SORA transition

1.2 Market participants have made significant progress in reducing outstanding exposures to SOR, and adopting SORA as the de facto interest rate benchmark for use in SGD financial products.

- Derivatives. The outstanding stock of SOR derivatives has declined from over S\$3 trillion in December 2019 to S\$0.9 trillion in January 2022. Meanwhile, the outstanding stock of SORA derivatives increased to S\$1.1 trillion in January 2022, exceeding the outstanding stock of SOR derivatives. Moreover, trading activity in SORA derivatives reached a record high turnover of S\$380 billion in January 2022. This is comparable to the monthly trading activity in SOR derivatives prior to the industry-wide shift towards broader usage of SORA in 2020.
- Corporate loans. In the SGD corporate loan markets, SOR usage has steadily declined, as the adoption of SORA is increasing. As of January 2022, the outstanding stock of SORA corporate loans reached S\$32 billion, while SOR corporate loans have decreased from S\$114 billion in December 2019 to S\$84 billion in January 2022.
- Bonds. With most SGD bonds referencing a fixed rate instead of a floating rate, the SGD bond market’s reliance on SOR is relatively low. As of January 2022, only 83 SOR-linked bonds by 61 unique issuers remained outstanding. Of these, 21 bonds will mature before the discontinuation of SOR, while 34 bonds have fallback provisions in their bond documentation providing for benchmark discontinuation. For the remaining 28 SOR-linked bonds, issuers have the option of calling the bonds at the next call date, or conducting a consent solicitation exercise to convert the SOR

reference to SORA. Meanwhile, SGD issuers have transitioned to the use of SORA as a reference, with eight SORA-OIS linked bonds issued as of January 2022.

1.3 The transition from SOR to SORA has benefited from the SC-STS' recommendations³ in July 2021 for wholesale market participants to rely on the SOR-SORA basis swap market for conversion of SOR contracts to SORA.

- SOR-SORA basis swap spreads, which reflect the prices for receiving SORA over a given period in exchange for SOR, are market-implied spreads that should minimise value transfer risk. They are a good representation of the price that a SOR borrower transitioning to SORA should pay over the SORA benchmark rate, and are hence a useful reference for active transition.
- The SC-STS recommended that financial institutions should use the SOR-SORA basis swap market, and industry-level compression and conversion cycles, to facilitate their exit from SOR derivatives and transition to SORA. For financial institutions that were unable to complete the transition to SORA, the SC-STS recommended that they reduce their gross and net risk exposures to centrally cleared SOR derivatives across the entire curve, so as to minimise unintended valuation effects when clearing houses subsequently convert outstanding SOR contracts to SORA.
- The SC-STS also recommended that banks and their customers should use the SOR-SORA basis swap mid-rate as the starting basis for discussing the adjustment spread for converting loans from SOR to SORA.

1.4 However, the SC-STS also cautioned that the opportunity to rely on the SOR-SORA basis swap market would depend on SOR-SORA basis swap market liquidity, which could be expected to decline at some stage, and encouraged all participants to convert their SOR contracts early.

- In particular, the SC-STS' recommendations on using SOR-SORA basis swap mid-rate pricing would apply insofar as the SOR-SORA basis swap market remained liquid and could provide representative pricing references.
- The SC-STS viewed that the window of opportunity to use the SOR-SORA basis swap market to facilitate transition was likely to be 6 to 12 months from mid-2021,

³ See the SC-STS report, "[Recommendations for Transition of Legacy SOR Contracts](#)" (29 July 2021).

following which liquidity in the SOR-SORA basis swap market was expected to decline as the outstanding volume of SOR contracts fell.

- The SC-STS noted that the use of historical averages as a guidepost for transition in the later phases might be necessary, when liquidity in the SOR-SORA basis swap markets dried up. Should this happen, market participants would have to accept the pricing outcomes even if these outcomes are not favourable to them.

Impetus for Setting of SOR-to-SORA Adjustment Spreads

1.5 In line with expectations, liquidity in SOR-SORA basis swap markets has declined about 6 to 12 months after the SC-STS issued its recommendations in July 2021, as many market participants have converted a large proportion of their SOR derivatives exposures to SORA. It is increasingly difficult for the remaining users of SOR to find counterparties that are able to transact in large sizes at the published basis swap spreads. Accordingly, the window of opportunity to utilise SOR-SORA basis swap pricing to convert legacy SOR contracts to SORA is closing, and active transition has slowed.

1.6 To maintain transition momentum, further guidance on the setting of SOR-to-SORA adjustment spreads for conversion of legacy SOR contracts to SORA is necessary. This is important for the remaining users of SOR who are looking to reduce their outstanding SOR exposures, but are facing difficulties in determining the appropriate adjustment spreads for the conversion of their SOR contracts. An additional approach that is not reliant on continued liquidity in the SOR-SORA basis swap markets will help to facilitate counterparty negotiations and hence support active transition.

1.7 The setting of the SOR-to-SORA adjustment spreads also serves two other important purposes:

- Setting of the MAS Recommended Rate, a fallback rate defined in the ISDA Documentation and the SC-STS' recommended fallbacks for bilateral and syndicated business loans^{4, 5}; and

⁴ See the SC-STS publication "[Update to the SORA Market Compendium: Transition from SOR to SORA](#)" (17 November 2021).

⁵ In addition, the fallback provisions in some SOR-linked bonds also reference a "spread, formula or methodology which... is formally recommended in relation to the replacement of the Original Reference Rate with the applicable Benchmark Replacement by any Relevant Nominating Body".

- Automatic conversion of cleared SOR derivatives, before the discontinuation of SOR in mid-2023 or when SOR derivatives become illiquid.

MAS Recommended Rate

1.8 **The Monetary Authority of Singapore (“MAS”) has endorsed the SC-STS to make and finalise recommendations towards setting the MAS Recommended Rate, including the appropriate calculation methodology for the adjustment spreads to be used⁶.** The MAS Recommended Rate is the rate (inclusive of any spreads or adjustments), recommended as the replacement for Fallback Rate (SOR) by the MAS, or by a committee officially endorsed or convened by the MAS.

1.9 **The MAS Recommended Rate serves as the contractual fallback rate, in the ISDA Documentation and the SC-STS’ recommended fallbacks for bilateral and syndicated business loans, that will apply after Fallback Rate (SOR)⁷ is discontinued after 31 December 2024.**

- In the ISDA Documentation and the SC-STS’ recommended fallbacks for bilateral and syndicated business loans, Fallback Rate (SOR) is the fallback that will first apply when SOR is discontinued after 30 June 2023. The existence of Fallback Rate (SOR) until 31 December 2024 provides additional time for outstanding SOR derivatives and corporate loans to mature or be transitioned to SORA by that date. As a foreign exchange (“FX”)-implied interest rate benchmark, Fallback Rate (SOR) is close in character to SOR. However, Fallback Rate (SOR) will cease after 31 December 2024 to allow for the transition of SGD interest rate markets to SORA. Accordingly, Fallback Rate (SOR) exposures will be challenging to hedge and value as there is no liquid derivatives market for such exposures.
- The ISDA Documentation provides a waterfall of successive fallback rates for each relevant IBOR. For example, if Fallback Rate (SOFR) is discontinued permanently, the applicable fallback rate for USD LIBOR will be the “Fed Recommended Rate”, which is the rate recommended as the replacement for SOFR by the Federal Reserve Board or the Federal Reserve Bank of New York, or by a committee officially endorsed or convened by the Federal Reserve Board or the Federal Reserve Bank of New York. For

⁶ See MAS and SC-STS joint media release, “[Consultation on Adjustment Spreads for the Transition of Legacy SOR Contracts in Wholesale Markets](#)” (18 May 2022).

⁷ Fallback Rate (SOR) is an FX-implied rate, based on actual transactions in the USD/SGD FX swap market, calculated with reference to Fallback Rate (SOFR) in place of USD LIBOR rates. The calculation methodology for Fallback Rate (SOR) can be found [here](#).

SOR, if Fallback Rate (SOR) is discontinued permanently, the applicable fallback rate in the ISDA Documentation and the SC-STS' recommended contractual fallbacks for bilateral and syndicated loans, is the MAS Recommended Rate.

1.10 The SC-STS recommends for the MAS Recommended Rate to be based on SORA/Compounded SORA, as SORA is the main interest rate benchmark for SGD financial markets. An appropriate adjustment spread will have to be determined and applied on SORA/Compounded SORA to account for structural differences between SOR and SORA.

<p style="text-align: center;">Overnight MAS Recommended Rate = SORA + Overnight Adjustment Spread</p> <p style="text-align: center;">1-month MAS Recommended Rate = 1-month Compounded SORA + 1-month Adjustment Spread</p> <p style="text-align: center;">3-month MAS Recommended Rate = 3-month Compounded SORA + 3-month Adjustment Spread</p> <p style="text-align: center;">6-month MAS Recommended Rate = 6-month Compounded SORA + 6-month Adjustment Spread</p>
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Conversion of cleared SOR derivatives

1.11 As outlined in the SC-STS's July 2021 report, clearing houses are expected to convert all remaining cleared SOR trades to SORA before the discontinuation of SOR in mid-2023, or when SOR derivatives become illiquid. Most major clearing houses, including LCH, have adopted the 2021 ISDA Interest Rate Derivatives Definitions into their rulebooks. This means that in the event of a permanent discontinuation of SOR, cleared derivatives will reference Fallback Rate (SOR), or the MAS Recommended Rate instead if Fallback Rate (SOR) is unavailable or cannot be used.

1.12 This automatic conversion exercise could benefit from the setting of SOR-to-SORA adjustment spreads within the MAS Recommended Rate.

- Adopting consistent adjustment spreads for cleared derivatives and other SOR contracts will minimise basis risk for market participants with positions hedged using cleared derivatives.
- Similarly, the conversion of cleared non-USD LIBOR derivatives in December 2021 relied on the LIBOR-to-RFR adjustment spreads in the ISDA 2020 IBOR Fallbacks.

- LCH, where most SOR derivatives are cleared, is expected to consult later this year on the specific methodology for the automatic conversion of outstanding SOR swaps to SORA, taking into account the SC-STIS' guidance on adjustment spreads.

Aim of Consultation

1.13 This consultation seeks public feedback on recommendations in two key areas:

- First, on the setting of adjustment spreads that would apply in the MAS Recommended Rate in ISDA Documentation and the SC-STIS' recommended contractual fallbacks for bilateral and syndicated loans. This will focus on the setting of adjustment spreads for the period after 31 December 2024, when Fallback Rate (SOR) would be discontinued.
- Second, supplementary guidance on adjustments spreads for the period before 31 December 2024, which would be necessary to support the industry's active transition from SOR.

2 Possible Approaches for Setting the Adjustment Spread

2.1 The SC-STS has considered two main approaches for setting the adjustment spreads (i) in the MAS Recommended Rate and (ii) for supplementary guidance for the period before end-2024, to support active transition.

Approach 1: Term structure based on historical SOR-SORA basis swap pricing

2.2 The first approach is to base the adjustment spread on recent historical prices in the SOR-SORA basis swap market. SOR-SORA basis swap spreads are forward-looking prices that reflect market expectations of economic differences between SOR and SORA across future periods, i.e. the term structure up to the 30Y tenor. Referencing historical SOR-SORA basis swap prices is also in line with the SC-STS' July 2021 recommendation to rely on the SOR-SORA basis swap market.

2.3 The proposal is to use an average price over a recent period when the SOR-SORA basis swap market was liquid. This helps to ensure that adjustment spreads reflect latest expectations of SOR-SORA basis but are not overly exposed to 'pin-risks' of anchoring on a specific day's market conditions, which could be subject to idiosyncratic market events or uncertain demand/supply conditions.

2.4 The term structure would be anchored to the date when it is published, and used to derive the adjustment spreads for conversion of contracts after the publication date. This will imply varying levels of adjustment spreads for future periods that can be used for conversion of future SOR cashflows to SORA.

2.5 As the SOR-SORA basis swap market trades against 6M SOR, such an approach would be useful mainly for the conversion of 6M SOR contracts to SORA. Further adjustments will be necessary for overnight, 1M and 3M SOR to account for the differences between these rates and 6M SOR, and could be based on the historical difference between them.

Adjustment spread within the MAS Recommended Rate

2.6 Box A below provides examples of how the adjustment spread within the MAS Recommended Rate would be computed under this approach for contracts that are referencing 6M SOR.

Box A: Stylised example of the MAS Recommended Rate applying to a contract referencing 6M SOR under Approach 1

For example, on 1 January 2023, the SC-STS recommends a SOR-SORA basis swap term structure with the following values:

- 1Y SOR-SORA basis swap spread = 5bps p.a.
- 2Y SOR-SORA basis swap spread = 10bps p.a.
- 3Y SOR-SORA basis swap spread = 15bps p.a.
- 4Y SOR-SORA basis swap spread = 20bps p.a.
- 5Y SOR-SORA basis swap spread = 25bps p.a.
- ... [longer tenors]

Conceptually, the annualised spread for a contract maturing in year x converted from SOR to SORA in year y would be:

- (a) the total spread payable from 2023 to year x , i.e. $(x-2023) * (\text{SOR-SORA basis for the applicable tenor between 2023 and year } x)$; less
- (b) the total spread payable from 2023 to conversion year y , i.e. $(y-2023) * (\text{SOR-SORA basis for the applicable tenor between 2023 and year } y)$; divided by
- (c) the number of years remaining on the contract at the point of conversion, i.e. $y-x$.

Case 1: MAS Recommended Rate for contract converted on 1 January 2025 with three years to maturity

The MAS Recommended Rate will apply on 1 January 2025, after Fallback Rate (SOR) is discontinued on 31 December 2024. For a SOR contract with three years left to maturity at that point (i.e. maturing on 1 January 2028), the applicable MAS Recommended Rate would be the 6M Compounded SORA plus an adjustment computed as:

Applicable adjustment spread

$$\begin{aligned} &\approx [(5 * 5Y \text{ SOR-SORA basis}) - (2 * 2Y \text{ SOR-SORA basis})]/3 \\ &= [(5 * 25\text{bps}) - (2 * 10\text{bps})]/3 \\ &= 35\text{bps} \end{aligned}$$

Figure 1: Illustration of adjustment spreads computation for Case 1

	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
<i>5Y basis swap spread on 1 Jan 2023</i>	25bps	25bps	25bps	25bps	25bps
<i>2Y basis swap spread on 1 Jan 2023</i>	10bps	10bps	35bps	35bps	35bps

3Y adjustment spread for conversion on 1 Jan 2025
 35bps 35bps 35bps

Case 2: MAS Recommended Rate for contract converted on 1 January 2025 with one year to maturity

The MAS Recommended Rate will apply on 1 January 2025, after Fallback Rate (SOR) is discontinued on 31 December 2024. For a SOR contract with one year left to maturity (i.e. maturing on 1 January 2026), the applicable MAS Recommended Rate would be the 6M Compounded SORA plus an adjustment spread of 25bps, computed as:

Applicable adjustment spread

$$\begin{aligned}
 &\approx [(3 * 3Y \text{ SOR-SORA basis}) - (2 * 2Y \text{ SOR-SORA basis})]/1 \\
 &= [(3 * 15\text{bps}) - (2 * 10\text{bps})]/1 \\
 &= 25\text{bps}
 \end{aligned}$$

Figure 2: Illustration of adjustment spreads computation for Case 2

	<u>2023</u>	<u>2024</u>	<u>2025</u>
<i>3Y basis swap spread on 1 Jan 2023</i>	15bps	15bps	15bps
<i>2Y basis swap spread on 1 Jan 2023</i>	10bps	10bps	25bps

1Y adjustment spread for conversion on 1 Jan 2025
 25bps

Supplementary guidance: Adjustment spread for active transition

2.7 Box B provides an example of how this approach would work for the active transition (before end-2024) of contracts that reference 6M SOR.

Box B: Stylised example of the adjustment spread for active transition of contracts referencing 6M SOR under Approach 1

For example, on 1 January 2023, the SC-STS recommends a SOR-SORA basis swap term structure with the following values:

- 1Y SOR-SORA basis swap spread = 5bps p.a.
- 2Y SOR-SORA basis swap spread = 10bps p.a.
- 3Y SOR-SORA basis swap spread = 15bps p.a.
- 4Y SOR-SORA basis swap spread = 20bps p.a.
- 5Y SOR-SORA basis swap spread = 25bps p.a.
- ... [longer tenors]

Case 1: Conversion on 1 January 2023

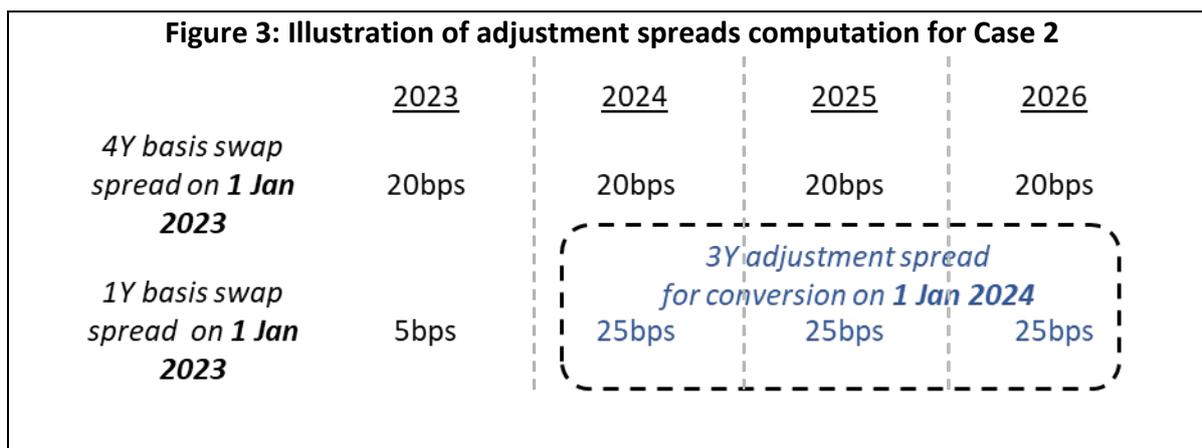
If a SOR contract with 3 years left to maturity is converted to SORA on the day that the term structure is published and fixed on 1 January 2023, the applicable adjustment spread for that transition would simply be 15bps.

Case 2: Conversion on 1 January 2024 using an implied 3Y SOR-SORA basis 1Y forward

However, if a SOR contract with 3 years left to maturity is converted to SORA on 1 January 2024 (1 year after the term structure is recommended), the applicable adjustment spread for that transition would require a computation of the 3Y SOR-SORA basis 1Y forward. This can be computed as:

Applicable adjustment spread

$$\begin{aligned} &\approx [(4 * 4Y \text{ SOR-SORA basis}) - (1 * 1Y \text{ SOR-SORA basis})]/3 \\ &= [(4 * 20\text{bps}) - 5\text{bps}]/3 \\ &= 25\text{bps} \end{aligned}$$



Approach 2: Single spread from the historical median difference of SOR and SORA

2.8 The second approach is to base the adjustment spreads in the longer term (i.e. for periods after end-2024, as required for the setting of the MAS Recommended Rate) on the historical median of the spread between SOR and SORA, while adjustments spreads in the near-term would be anchored to recent spreads between SOR and SORA.

Adjustment spread within the MAS Recommended Rate

2.9 The historical median spread between SOR and SORA can be used for the setting of the MAS Recommended Rate for periods after Fallback Rate (SOR)'s discontinuation at end-2024.

- A reasonable assumption is that the spreads between SOR and SORA will revert in the longer term to some average spread between these two rates. While spreads between SOR and SORA are highly variable, historically these have tended to mean-revert over time. Observed pricing in SOR-SORA basis swap markets reflect current market expectations for spreads between SOR and SORA in the longer term to be at levels close to the five-year historical median spread between SOR and SORA (refer to Box C). A five-year historical median spread approach was also adopted globally for setting of the contractual fallback for LIBOR in the ISDA Documentation.
- This approach is readily available for all four tenors of SOR⁸ without adjustment, as the historical median can be easily computed regardless the tenor.

⁸ Overnight, 1M, 3M and 6M.

2.10 For simplicity and alignment with LIBOR fallbacks in the ISDA Documentation for LIBOR contracts, the SC-STS proposes using the five-year lookback period to compute the historical median SOR-SORA spread to be applied to the MAS Recommended Rate when Fallback Rate (SOR) is discontinued after end-2024. A five-year lookback period is sufficiently long to smooth out the effects of idiosyncratic market events, and reflects a more stable view of the long run spreads.

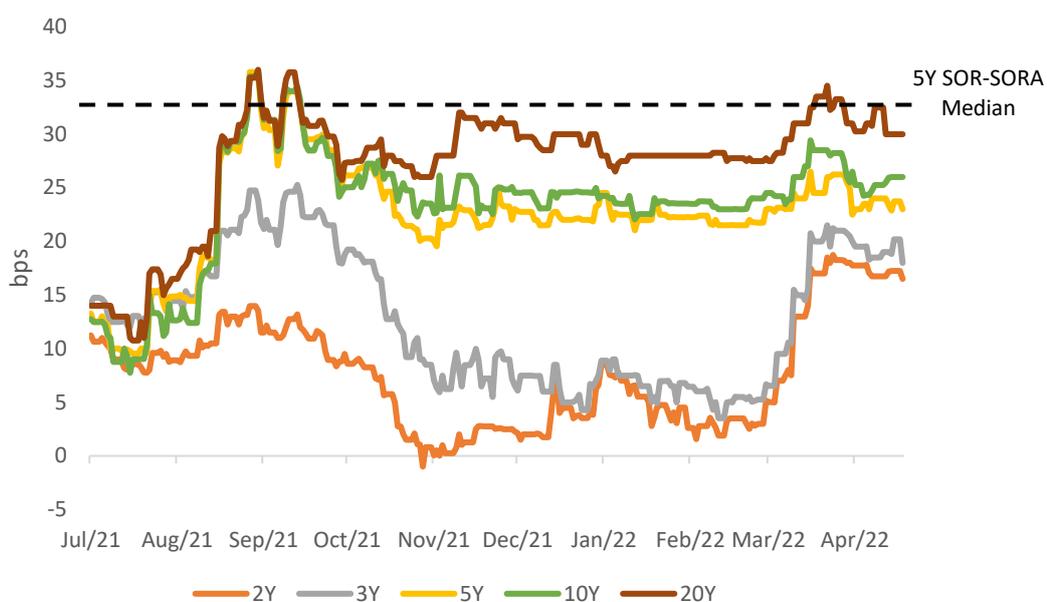
2.11 The five-year lookback period could be set from a specified date in 3Q 2022 in conjunction with the publication of the response to this consultation. The adjustment spread derived in this manner would then be finalised and applied as part of the MAS Recommended Rate, which would be effective after end-2024 when Fallback Rate (SOR) is discontinued.

Box C: Market pricing in SOR-SORA basis swap markets

The SOR-SORA basis swaps for the longer tenors (5Y and longer) have been relatively stable, after a period of initial price discovery, where pricing was somewhat volatile as markets adjusted to the balance of demand and supply. Moreover, the prices are relatively close across the longer tenors.

Market expectations of the spread between SOR and SORA in the longer term, implied from SOR-SORA basis swaps pricing, have trended towards the current five-year historical median spread between SOR and SORA.

Figure 4: 6M SOR-SORA basis swap prices



Supplementary guidance: Adjustment spread for active transition

2.12 To support active transition, the SC-STS proposes to issue supplementary guidance for the pricing of adjustment spreads before end-2024. Shorter tenor SOR-SORA basis swaps (i.e. up to 2Y) would tend to be affected more by recent differences between SOR and SORA benchmarks, particularly as SOR or Fallback Rate (SOR) will continue to be printed daily till end-2024. Hence, the application of a 5Y historical median spread between SOR and SORA as an adjustment spread for conversion of short tenor SOR contracts could introduce significant market distortion at the point of announcement. For most of 2H 2021 and early-2022, spreads for shorter tenor SOR-SORA basis swaps remained low, reflecting the small spreads between SOR and SORA, which were low and close to the zero lower bound. More recently, with interest rates rising from the zero-lower bound, the spreads for shorter tenor SOR-SORA basis swaps have normalised to historical ranges, in tandem with widening spreads between SOR and SORA.

2.13 Specifically, the SC-STS proposes that adjustment spreads before end-2024 can be based on a linear interpolation between:

- (a) a reference spread based on a recent and shorter historical median of the SOR-SORA spread (“reference spot spreads”⁹); and
- (b) the adjustment spreads for the MAS Recommended Rate that would apply after end-2024.

2.14 The SC-STS proposes that the reference spot spreads be based on a recent and shorter historical median of the spread between SOR and Compounded SORA, such as the 6-month historical median. The recent historical median is intended to reflect recent differences between SOR and Compounded-in-arrears SORA, but an average rather than a single day’s rate is used to smooth out day-to-day volatilities (i.e. reduce pin risk). In implementation, the use of straightline interpolation for active transition can be simplified by expressing the applicable adjustment spread as a formula¹⁰ tied to the start and end dates of the contract to be converted. Box D provides a stylised example of how this would work for the active transition of a SOR contract.

⁹ There will be a reference spot spread for each of the tenors of SOR.

¹⁰ Reference spot spread = S

Adjustment spread within MAS Recommended Rate = M

Adjustment spread = $[(S+M)/2 * (\text{Daycount from contract start date till 31 Dec 2024}) + M * (\text{Daycount from 31 Dec 2024 till contract maturity})] / \text{Tenor in Days}$

2.15 **The reference spot spreads would be fixed from a specified date in Q3 2022 in conjunction with the publication of the response to this consultation.** This approach provides certainty to all market participants and facilitates active transition of SOR contracts. The SC-STS also considered the alternative for the reference spot spread to be based on the prevailing recent median SOR-SORA spread on the date of conversion of individual contracts, rather than to be fixed for all contracts on a specified date in Q3 2022. However, the SC-STS decided to not pursue this option as the lack of certainty on the reference spot spreads could create difficult for communications and implementation (elaborated in Paragraph 2.17) and at the same time, expose market participants to market volatility.

Box D: Stylised example of active transition for a 4Y contract referencing 6M SOR under Approach 2 to SORA

For example, the SC-STS makes the following recommendations on 1 January 2023:

- To fix the reference spread based on a 6-month average of SOR-SORA spread at 20bps; and
- To fix the adjustment spread for the 6M SOR tenor within the MAS Recommended Rate at 30bps.

If a contract with 4 years left to maturity on 1 January 2023 is converted, the applicable adjustment spread can be computed as:

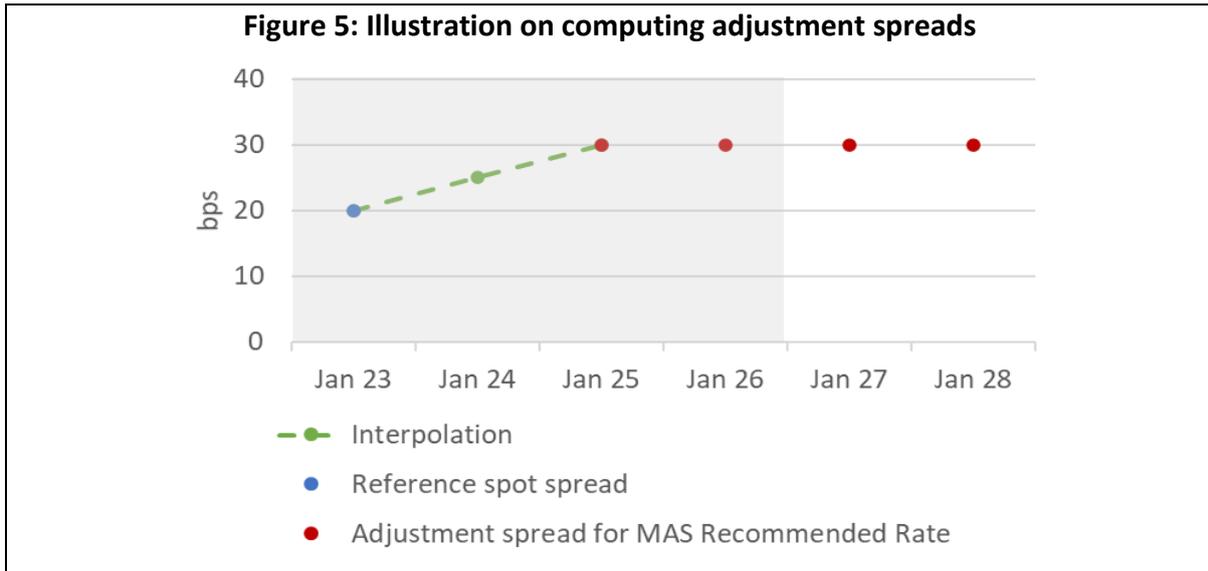
Applicable adjustment spread

$$\begin{aligned} &= [(20\text{bps for 2023}) + (25\text{bps for 2024}) + (30\text{bps for 2025}) + (30\text{bps for 2026})] / 4 \\ &= 26.25\text{bps} \end{aligned}$$

If a contract with 3 years left to maturity is converted on 1 January 2024 (1 year after the term structure is recommended), the applicable adjustment spread at the point of conversion on 1 January 2024 can be computed as:

Applicable adjustment spread

$$\begin{aligned} &= [(25\text{bps for 2024}) + (30\text{bps for 2025}) + (30\text{bps for 2026})] / 3 \\ &= 28.33\text{bps} \end{aligned}$$



2.16 Table 1 below summarises the two approaches.

Table 1: Summary of Approach 1 and 2

	Approach 1	Approach 2
Reference for adjustment spread	SOR-SORA basis swap prices from a recent period.	Historical spread between SOR and Compounded SORA.
Adjustment spread for MAS Recommended Rate (effective after end-2024)	Various adjustment spreads for different tenors based on implied spreads for 1 January 2025, using a term structure of SOR-SORA basis swap prices published in 2023.	Single adjustment spread for all tenors based on five-year historical median spread between SOR and Compounded SORA.
Adjustment spread for active transition of SOR contracts before end-2024	Implied spreads for the conversion date, using a term structure of SOR-SORA basis swap prices published in 2023.	(i) Apply a linear interpolation between a reference spot spread based on a recent historical median of the spread between SOR and SORA, and the adjustment spread within MAS Recommended Rate, and (ii) Compute an average per annum adjustment spread based on the remaining maturity of the contract.

The SC-STS' recommendation

2.17 In coming up with its recommendation, the SC-STS took the following factors into consideration, in order of priority:

- **Factor 1: Data availability and quality** – The transition approach should be based on data that is accurate and readily available. Subjectivity should also be minimised, as it could otherwise lead to protracted discussions among counterparties and delay conversion.
- **Factor 2: Simplicity in communication and implementation** – As a transition approach, it is paramount that as many market participants as possible are able to understand its mechanics and that implementation be feasible (e.g. easily programmable into systems and processes).
- **Factor 3: Minimising value transfer risk** – The transition approach should minimise value transfer risk, where different parties to the same contract could end up with varying economic outcomes due to differences in how the same contracts are being valued. This can be achieved by adhering, to the greatest extent possible, to market expectations of the future spreads between SOR and SORA, as the reference point for contract valuation.
- **Factor 4: Applicability to different SOR tenors** – The transition approach should ideally cater to the various SOR tenors (overnight, 1M, 3M and 6M), without requiring further adjustments.

2.18 **The SC-STS therefore recommends Approach 2 for the determination of adjustment spreads.** The adjustment spreads for Approach 2 can be robustly determined with SOR and SORA benchmarks (Factor 1). Approach 2 is easier to communicate and implement (Factor 2), and can be applied to overnight, 1M, 3M and 6M SOR conversion without need for further adjustments (Factor 4). The use of the historical median spread under Approach 2 may introduce valuation impact on short tenor contracts. However, this can be mitigated to an extent by the supplementary guidance of basing the front-end spreads on the reference spot spreads (Factor 3). The details are set out below, and Table 2 summarises the assessment of both approaches.

Factor 1: Data availability and quality

- There are significant challenges in obtaining data for construction of a robust benchmark curve for Approach 1. Indicative pricing will have to be used as transactions data for SOR-SORA basis swaps is not readily available now that liquidity has tailed off. Most SOR-SORA basis swaps trades are booked separately as interest

rate swaps referencing SOR and overnight indexed swaps referencing SORA. In comparison, Approach 2 will use SOR and Compounded SORA, which are readily available benchmarks.

- Approach 1 will also require more technical adjustments, compared to Approach 2, for the purpose of smoothing the curve as there are “kinks” in the SOR-SORA basis curve. When used to derive forward implied spreads, this can lead to adjustment spreads in certain future periods that may be extremely high or low, absent significant smoothing. This could lead to perceptions that smoothing adjustments are arbitrary.

Factor 2: Communication and Implementation

- In Approach 1, the application of forward implied spreads to the conversion of individual contracts is slightly more accurate technically, but also requires a high level of technical understanding of interest rate curves, which could be more complicated for end-users to understand and implement.
- In contrast, Approach 2 uses a single spread number for setting the MAS Recommended Rate. This one-size-fits-all approach offers a slightly more approximate setting of spreads, but is borne out by recent market pricing and is simpler to explain. Such an approach is similar to the approach in the ISDA Documentation for LIBOR, which market participants would be familiar with. The supplementary guidance for active transition will be simple for end-users to understand and implement.

Factor 3: Value transfer risk

- Approach 1 minimises value transfer risk through the use of market determined prices (i.e. average SOR-SORA basis swap pricing) over a recent historical period.
- Under Approach 2, the application of a single historical median spread for the MAS Recommended Rate introduces valuation impact on short tenor SOR contracts, which are more sensitive to recent market prices and market developments. However, the supplementary guidance in Approach 2, if applied, could help to mitigate this impact by basing the front-end spreads on the reference spot spreads which would track recent market prices more closely.

Factor 4: Applicability to different SOR tenors

- For Approach 1, further adjustments would be necessary for the setting of adjustment spreads for conversion of contracts referencing overnight, 1M or 3M SOR. This is to account for the basis between the overnight, 1M or 3M SOR, and the 6M SOR, as the

SOR-SORA basis swaps reference the 6M SOR¹¹. While there exists 1M SOR-6M SOR and 3M SOR-6M SOR basis swaps markets, the committee’s view is that the depth of liquidity in these markets are insufficient to provide a robust reference for the adjustment. Historical spreads between overnight/1M/3M SOR and 6M SOR may be required to adjust the term structures based on 6M SOR-SORA basis swap trading. In contrast, Approach 2 is readily applicable across all SOR tenors (i.e. overnight/1M/3M/6M).

Table 2: Assessment of Approach 1 and 2

	Approach 1	Approach 2
Data availability and quality	<p style="text-align: center;">✘</p> <p>Significant challenges in obtaining data for construction of a robust benchmark curve. Will also require some arbitrary smoothing of the curve to ensure forward implied spreads are not unreasonably high or low.</p>	<p style="text-align: center;">✔</p> <p>Computed from SOR and Compounded SORA, which are readily available benchmarks.</p>
Communication & implementation	<p style="text-align: center;">✘</p> <p>Complexity of forward-implied spreads makes it difficult to communicate and implement.</p>	<p style="text-align: center;">✔</p> <p>Flat spread is easy to understand and implement. Similarity to the LIBOR approach also helps. However, supplementary guidance for active transition and LCH conversion is relatively complicated.</p>
Minimise value transfers	<p style="text-align: center;">✔</p> <p>Reduce value transfer risks through the use of average</p>	<p style="text-align: center;">-</p> <p>Will cause basis swaps at the longer end of the curve to</p>

¹¹ SOR-SORA basis swaps price market expectations of the spread between 6M SOR and 6M Compounded SORA.

	SOR-SORA basis swap pricing over a recent historical period	converge towards the computed flat spread, while front end spread could converge to the interpolated curve.
Applicability to different SOR tenors	x Directly applicable only to the 6M SOR tenor. Additional adjustments required for overnight, 1M and 3M SOR tenors.	✓ Yes, applicable to the overnight, 1M, 3M and 6M SOR tenors

Proposed approach for application of the SC-STS' supplementary guidance to support active transition of different product types

2.19 **The SC-STS recognizes that there is merit to provide flexibility on applying the supplementary guidance for active transition across different products**, in order to balance providing certainty in transition outcomes and minimising valuation impact.

2.20 **The SC-STS proposes the following approach for adopting the supplementary guidance on adjustment spreads for active transition across the following product types:**

- **For unhedged loans**, the recommended spreads should be applied directly without need for further negotiation.
- **For bilateral derivatives and hedged loans**, the recommended spreads should be a starting point for counterparty discussions. As valuation of derivatives are generally marked to market, a conversion at historical pricing could introduce significant valuation impacts for counterparties. Hence, some flexibility in implementation may be necessary when derivatives are involved. Nonetheless, the following principles should be adhered to:
 - Customers should be informed of the reason why the spreads for the conversion may be different than the guidance, if there are deviations from the guidance.
 - In addition, for loans that are hedged with the same bank or set of banks, the loan and the corresponding derivatives should be converted concurrently at the same spread as determined by the lending bank or set of bank(s).

3 Invitation to Provide Feedback

3.1 With regard to the proposed approaches for setting the adjustment spread within the MAS Recommended Rate, the SC-STs welcomes interested parties to provide feedback on the following:

Q1 Do you agree with the SC-STs' recommendation for Approach 2 (historical median spread) over Approach 1 (SOR-SORA basis swap forward-implied prices) in determining the adjustment spread within the MAS Recommended Rate, taking into account all relevant SOR product classes i.e. derivatives and business loans (para 2.18)? Please elaborate on the reasons for your preference.

Q2 Would a 5-year historical median approach be appropriate to compute the adjustment spread (para 2.10-2.11)? If not, please provide a suggested lookback period and elaborate on reasons why it would be appropriate.

Q3 Under Approach 2, do you agree with the proposed methodology (reference spot spread fixed upon announcement in Q3 2022, based on more recent – e.g. 3M/6M – historical median) for setting the supplementary guidance for short-end spreads applicable for the period before end-2024 (para 2.12-2.15)? If you agree with the proposed methodology, is a 3M or 6M historical median more appropriate, and why? If not, please provide an alternative methodology and elaborate on the reasons why such an alternative is preferable.

Q4 Do you agree with the proposed approach for application of the SC-STs supplementary guidance for active transition across various product types (para 2.19-2.20)?

3.2 Please submit your feedback **by 10 June 2022**. Electronic submissions via the [online feedback form](#) are encouraged and written feedback may be submitted to:

The Association of Banks in Singapore
#12-08, MAS Building
10 Shenton Way, Singapore 079117
Fax: 6224 1785
Email: SORTransition@abs.org.sg

3.3 Please note that all submissions received may be published and attributed to the respective respondents unless they expressly request the SC-STS not to do so. As such, if respondents would like

(i) their whole submission or part of it (but not their identity), or

(ii) their identity along with their whole submission,

to be kept confidential, please expressly state so in the submission to the SC-STS.