

SORA Market Compendium:

Transition from SOR to SORA

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Disclaimer

This Compendium is intended to facilitate awareness of the transition in certain Singapore interest rate financial products (including derivatives and cash market products) from the use of the Singapore Swap Offer Rate (“**SOR**”) to the Singapore Overnight Rate Average (“**SORA**”). It seeks to provide market participants with industry guidance on the key issues that need to be considered for their existing or future Singapore dollar financial products that may be affected by such transition. While this Compendium has been prepared with professional market participants in mind, it is not exhaustive of all the issues that may be involved. In particular, this Compendium should be treated as a living document, which may need to be updated or supplemented as the relevant market conventions evolve over time.

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1. General Introduction

This chapter gives an overview of the background to the transition to the Singapore Overnight Rate Average (“SORA”) as one of the key interest rate benchmarks for Singapore dollar financial products.

1.1 What is an interest rate benchmark

Generally speaking, an interest rate represents the time value of money or the cost or price of borrowing money through various types of financial instruments, for example, a debt or loan instrument. These instruments may make reference to interest rate benchmarks as a basis for determining the interest rate applicable to that instrument. Interest rate benchmarks are regularly updated rates that are publicly accessible. They are typically determined by reference transactions in an underlying market (or expressions of opinion provided by market participants in respect of transactions in that market to the administrator of the benchmark). Over time, the use of one or more interest rate benchmarks has become very common throughout the financial system.

The benefits of an interest rate benchmark to the general market include:

- (a) enabling price comparisons on the interest rates charged (or received) on financial products;
- (b) helping market participants make decisions on savings, investments and spending; and
- (c) having a standardised way to value assets on a balance sheet.

Beyond these benefits, the use of interest rate benchmarks also facilitates financial institutions’ management of interest rate risk in their portfolios. Interest rate benchmarks are widely referenced across various financial products, including mortgages, corporate loans, bonds, and derivatives such as interest rate swaps.

In view of their fundamental role in the financial markets and the heavy reliance placed upon them by the public, interest rate benchmarks need to be credible, reliable and publicly accessible. Their calculation methodologies need to be available in a transparent manner, and this also needs to be periodically reviewed and improved to ensure their robustness and sustainability over time.

In July 2013, the International Organization of Securities Commissions (the “IOSCO”) published the Principles for Financial Benchmarks (“IOSCO Principles”)¹, which sets out a framework of recommended standards and practices for benchmarks, including interest rate benchmarks as well as other benchmarks used in financial markets. The IOSCO Principles have been endorsed by regulators internationally as a global standard to be used for administering benchmarks. The IOSCO has also recommended jurisdictions to tailor their regulatory framework based on factors specific to that jurisdiction (such as economic and financial stability impact, and investor and retail exposure), as a one-size-fits-all approach towards financial benchmarks may not be appropriate given the diversity of types of benchmarks.

In Singapore, interest rate benchmarks are subject to the regulatory framework for financial benchmarks² set out in the Securities and Futures Act, Chapter 289 of Singapore (the “SFA”). In order

¹ See IOSCO Final Report, “Principles for Financial Benchmarks” (July 2013) <<https://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf>>.

² “Financial benchmark” is defined in section 2 of the SFA to mean any price, rate, index or value that is:

- (i) determined periodically by the application (whether direct or indirect) of a formula or any other method of calculation to information or expressions of opinion concerning transactions in, or the state of, the market in respect of one or more underlying things;
- (ii) made available to the public (whether free of charge or for payment); and

to maintain public confidence in their integrity and credibility, penal and criminal sanctions can be imposed against any persons found to have committed market misconduct relating to financial benchmarks. This seeks to deter any potential manipulation of financial benchmarks.

1.2 Transition from SOR to SORA

1.2.1 *Reason for transition of SOR to SORA*

In July 2014, the Financial Stability Board Official Sector Steering Group (“**FSB OSSG**”) published a report³ setting out certain international standards based on the IOSCO Principles for improving the robustness and integrity of financial benchmarks. A key recommendation of the report was for relevant authorities and market participants to identify and develop near risk-free rates (“**RFRs**”), and to encourage derivatives market participants to transition to referencing the appropriate RFRs.

Arising from this global development, the UK Financial Conduct Authority (“**FCA**”) announced on 27 July 2017 that, after the end of 2021, the FCA will no longer encourage or compel panel banks to continue making submissions towards the determination of the London Interbank Offered Rate (“**LIBOR**”) ⁴. The FCA highlighted that this was not a remote probability “black swan event”, but something that firms should be prepared for. The FCA announcement was made amidst longstanding concerns of the sustainability of LIBOR due to, among other reasons, the rising scarcity of transactions in the underlying unsecured wholesale bank borrowing market. Such scarcity meant that LIBOR panel bank submissions have increasingly been made based on “expert judgement” rather than on empirical data.

The imminent discontinuation of LIBOR gives rise to a need to transition away from industry reliance on the Singapore Swap Offer Rate (“**SOR**”), which is widely used in Singapore interest rate financial products, including derivatives and cash market products. This is because the SOR methodology relies on USD LIBOR as a component in its calculation, and its sustainability will be impacted when LIBOR ceases.

In view of this, The Association of Banks in Singapore (“**ABS**”) and the Singapore Foreign Exchange Market Committee (“**SFEMC**”) established a working group in November 2018, to conduct a review of the implications of LIBOR discontinuation on the SOR benchmark, to explore possible options to address this development, and to consult publicly to seek feedback from relevant stakeholders.

The ABS-SFEMC published a consultation report on 30 August 2019⁵ (the “**Consultation**”) recommending SORA as the most suitable and robust key interest rate benchmark to replace SOR in the Singapore dollar interest rate markets. Concurrently, the Monetary Authority of Singapore (the “**MAS**”) established an industry-led Steering Committee for SOR Transition to SORA (“**SC-STs**”), comprising senior representatives from key banks, relevant industry associations, and the MAS. The SC-STs was tasked to provide strategic direction and to oversee an orderly industry-wide transition from SOR to SORA. The SC-STs had further published a response paper on 19 March 2020⁶ (the

(iii) used for reference to determine the interest payable or other sums due on deposits or credit facilities, to determine the price or value of any investment product, or to measure the performance of any product offered by a prescribed person.

³ See FSB OSSG Report, “Reforming Major Interest Rate Benchmarks” (22 July 2014) <http://www.fsb.org/wp-content/uploads/r_140722.pdf>.

⁴ LIBOR is widely used in the global financial system as an interest rate benchmark for a broad range of financial products. It is calculated and published daily across five currencies (GBP, USD, EUR, JPY and CHF) and seven tenors (overnight, one week, and one, two, three, six and 12 months) by the ICE Benchmark Administration. It is calculated based on submissions by a panel of banks using available transaction data and their expert judgement.

⁵ See ABS-SFEMC Consultation Paper, “Roadmap for Transition of Interest Rate Benchmarks: From SGD Swap Offer Rate (SOR) to Singapore Overnight Rate Average (SORA)” (30 August 2019) <<https://abs.org.sg/docs/library/consultation-report.pdf>>.

⁶ See SC-STs paper, “Response to Feedback Received on Proposed Roadmap for Transition from SOR to SORA” (19 March 2020) <<https://abs.org.sg/docs/library/sc-sts-response-paper.pdf>>.

“**Response Paper**”), in response to feedback from market participants following the Consultation. The Response Paper recognised that there was broad agreement from respondents on the proposed transition roadmap and approach set out in the Consultation, with several respondents highlighting that the proposed transition to SORA was aligned with the global transition from LIBOR and other Interbank Offered Rates (“**IBORs**”) to RFRs.

1.2.2 *What is SORA?*

SORA is the volume-weighted average rate of borrowing transactions in the unsecured overnight interbank Singapore dollar cash market in Singapore between 8.00am and 6.15pm.

The MAS has been the administrator of SORA since 2005⁷. On 5 August 2020, the SORA calculation methodology was enhanced to broaden its representativeness, including by widening the scope of eligible transactions for the calculation of SORA. Previously, SORA was based only on brokered unsecured overnight interbank Singapore dollar cash transactions provided by brokers. It now captures both brokered and bilateral interbank transactions provided by reporting banks to the MAS. The publication timing of SORA for a given business day was also moved to 9am on the next business day in Singapore (from end of a given business day).

The MAS has also begun publishing a compounded SORA⁸ with tenors of 1-month, 3-months and 6-months, and a SORA Index⁹ to serve as reference points for market participants on a daily basis¹⁰.

The MAS has also prescribed SORA as a financial benchmark under the SFA. This ensures that regulatory and enforcement powers, including criminal and civil actions, can be exercised against any person found to have committed market misconduct relating to SORA. This safeguards the integrity and robustness of SORA, given its growing role as a key interest rate benchmark for SGD financial markets.

In addition, the MAS has issued a Statement of Compliance with the IOSCO Principles¹¹, affirming that its administration of SORA meets international standards relating to benchmarks administration.

1.2.3 *Key differences between SOR and SORA*

There are three important differences between SOR and SORA:

- (a) SOR is a foreign exchange implied rate (being the effective cost of borrowing Singapore dollars synthetically, by borrowing US dollars and swapping for Singapore dollars), while SORA is a Singapore dollar rate based on transactions in the Singapore dollar cash market.
- (b) SOR is a forward looking term rate, and is published at various maturities (namely, overnight, one month, three months and six months). SOR products typically reference a single day's

⁷ While SORA has been published by the MAS since 2005, it was previously only used as an indicator of money market conditions, and not as an interest rate benchmark for financial products.

⁸ See User Guide to Compounded SORA Index, Compounded SORA and MAS Floating Rate Notes at <www.mas.gov.sg/~media/MAS/FRN/User-Guide-for-SORA-Index-Compounded-SORA-and-MAS-FRN>.

⁹ The SORA Index is a daily data series representing the returns from earning compounded interest each day at the daily SORA rate. This is set to a value of 1.000000000 on 3 January 2020, and computed up to 10 decimal places. The change in the SORA Index for any reference period (i.e. between any two dates) can be used to calculate the compounded SORA over that period.

¹⁰ See the MAS website at <<https://eservices.mas.gov.sg/statistics/dir/DomesticInterestRates.aspx>>. The methodology for the compounded SORA published by the MAS can also be found at <<https://www.mas.gov.sg/monetary-policy/sora>>. Users may wish to note that the compounded SORA published by the MAS serve mainly as reference points and may not exactly match the compounded SORA in your contracts due to different start and/or end dates for the computation period. While the MAS published the compounded SORA data series from 5 August 2020, this does not preclude market participants from computing a longer historical time series of 1-month/3-month/6-month compounded SORA rates given that the underlying SORA rates have been published since 2005.

¹¹ See MAS IOSCO statement, “Singapore Overnight Rate Average (SORA): Statement of Compliance with the IOSCO Principles for Financial Benchmarks” (August 2020) <<https://www.mas.gov.sg/~media/MAS/SORA/IOSCO-Statement.pdf?la=en&hash=14AD57BBE559FE6157F4E641481108025E3E37ED>>.

reading of SOR for each interest payment period. In contrast, SORA is an overnight rate – financial products that reference overnight rates would typically reference an average of overnight rates, rather than a single day’s reading of that rate¹².

- (c) SOR, like other forward looking term rates, incorporates a credit premium (to reflect term bank credit risk) and a term liquidity premium (to reflect the risk inherent in longer-dated funding). SORA, being a RFR, is determined based on historic data which means that it does not incorporate a term liquidity premium. The short (daily) tenor results in credit premium being factored to a smaller extent.

Banks and financial institutions would therefore need to adjust how they reference interest rate benchmarks in their product structures and documentation when transitioning from SOR to SORA, due to the different features highlighted above. This will be discussed in greater detail in the subsequent chapters. Furthermore, the internal processes and systems of banks and financial institutions will need to be enhanced to cater for the new SORA interest rate benchmark regime.

There are several key reasons why SORA has been recommended as the preferred benchmark to replace SOR.

1.2.4 *Why SORA is the preferred benchmark*

First, it is an interest rate benchmark that is based solely on market transactions, and underpinned by a deep and liquid overnight interbank funding market. This market is expected to remain active as banks will continue to require such overnight funding transactions for their daily cash management needs.

Secondly, SORA has been published by the MAS since 1 July 2005. The availability of a long historical time series allows market participants to perform technical analyses and model trends for risk management, asset-liability pricing and trading purposes. As mentioned in the earlier part of this chapter, the MAS has also introduced measures to further enhance the robustness of SORA, including to broaden the scope of eligible transactions and to prescribe SORA as a financial benchmark under the SFA.

Thirdly, it is expected that the use of an averaged/compounded SORA would result in more stable rates compared to forward-looking term rates. The comparison table set out in **Appendix A** illustrates, based on some historical data on SORA, SOR and the Singapore Interbank Offered Rate, that a 6-month compounded average SORA would be more stable than a 6-month term SOR.

Lastly, the transition to SORA is in line with developments in the key global financial markets in shifting towards the use of overnight interest rate benchmarks. For example, in the US dollar market, the Secured Overnight Financing Rate¹³ (“**SOFR**”) has been promoted as a replacement for USD LIBOR. In the United Kingdom, the Sterling Overnight Index Average (“**SONIA**”) is regarded as the replacement for Sterling LIBOR. By aligning the Singapore dollar market with international conventions and best practices, Singapore can promote continued global participation in the Singapore derivatives and cash markets (such as floating rate notes and loans). As banks in Singapore get ready for SORA adoption, this will have synergies with their transition efforts to trade and risk-manage positions denominated in

¹² This is similar to how other RFRs are being used in other jurisdictions. The averaging can either be done by way of a simple averaging or by compounding over a period. Relative to simple averaging, compounding interest rates reflects the time value of money more accurately.

¹³ SOFR is a RFR administered by the Federal Reserve Bank of New York and is a broad measure of the cost of borrowing USD overnight in transactions secured by US Treasuries.

other major LIBOR currencies, which are similarly shifting to risk-free interest rate benchmarks.

1.2.5 *Roadmaps and timelines of transition process*

The SC-STIS was established by the MAS to oversee the industry-wide interest rate benchmark transition from SOR to SORA. It consists of a main Steering Committee comprising senior representatives from key banks in Singapore, relevant industry associations, and the MAS. The SC-STIS has further established four product subgroups (Derivatives; Bonds/perpetual securities; Business/syndicated loans; and Consumer products) and three horizontal subgroups (for Legal, Public communications/education and Tax and accounting issues cutting across all products).

The SC-STIS has identified five key pillars of work, as set out in its transition roadmap, which covers the following areas: (a) conventions and infrastructure, (b) building liquidity, (c) legacy transition, (d) industry readiness and (e) engaging customers early. For the latest roadmap of the transition of SOR to SORA, please refer to the following link: <https://abs.org.sg/benchmark-rates/transition-roadmap>.

1.3 Scope of this Compendium

Each of the following chapters deals with a specific financial product in the derivatives and cash markets. We briefly introduce the current usage of SOR in that financial product and explore the potential application of SORA in that financial product, such as the possible (and where some industry-specific consensus has developed, the preferred) market conventions. For example, this may include the implementation of SORA contractual “fallback” provisions (e.g. replacement rates that would apply (either temporarily or permanently) in certain specified events, such as the temporary unavailability of SORA).

2. Derivatives

2.1 Current usage of SOR in derivatives transactions

Derivatives¹⁴ are used in the financial markets for a variety of reasons, including to hedge and manage the risks of changes in interest rates, foreign exchange rates, commodity and equity prices and the prices of other assets. Currently, Singapore dollar interest rate derivatives transactions typically reference SOR. These include, most commonly, spot starting fixed-for-floating SOR interest rate swaps and floating-for-floating SOR-USD LIBOR cross currency basis swaps, although a variety of other SOR derivatives, including forward starting contracts, are also used. SOR derivatives transactions may be used to hedge exposures under cash market products such as loans.

2.2 Shifting to SORA for derivatives markets

ABS-SFEMC has recommended that Singapore dollar interest rate derivatives transactions reference SORA instead of SOR, for the reasons explained in the Introduction chapter. Financial products (including derivatives) that reference overnight rates typically use an average rate over a period of time rather than a single day's rate. In line with this global market practice, SORA derivatives transactions will reference averages of SORA over a period of time.

2.3 New SORA derivatives transactions

ISDA definition of SGD-SORA COMPOUND

On 3 February 2020, the International Swaps and Derivatives Association, Inc. ("**ISDA**") published a supplement to the 2006 ISDA Definitions¹⁵ that defines the self-compounding Floating Rate Option¹⁶ of "SGD-SORA-COMPOUND". The definition of "SGD-SORA-COMPOUND" sets out a formula for calculating a compounded average of SORA over a calculation period, i.e. an average of SORA for each business day over the calculation period, compounded so that the interest rate applies to both the principal borrowed as well as the accumulated unpaid interest.

Market participants who wish to enter into SORA derivatives transactions documented under an ISDA Master Agreement should incorporate the 2006 ISDA Definitions, which includes the supplement defining "SGD-SORA-COMPOUND", as part of the ISDA Master Agreement governing the SORA derivatives transaction or the confirmation for the particular SORA derivatives transaction.

SC-STS template confirmations

In addition, the SC-STS has published template confirmations, based on the exhibits to the 2006 ISDA Definitions, for the following types of derivatives transactions¹⁷:

- (a) a Self-compounding Overnight Interest Rate Swap Transaction that references SGD-SORA-COMPOUND, i.e. a fixed-to-floating interest rate swap transaction where one party makes

¹⁴ In this Compendium, "derivatives" refers to over-the-counter derivatives transactions.

¹⁵ Supplement number 62 to the 2006 ISDA Definitions, published on 3 February 2020 and available on the ISDA website at <<https://www.isda.org/book/supplements-to-the-2006-isda-definitions/>>.

¹⁶ Self-compounding Floating Rate Options are used in overnight interest rate swaps contracts under the 2006 ISDA Definitions. While the referenced RFRs may be new, the concept of self-compounding Floating Rate Options is not new and has been around for many years. Recently, in addition to "SGD-SORA-COMPOUND", ISDA has also published self-compounding Floating Rate Options for RFRs in other jurisdictions, such as "GBP-SONIA-COMPOUND" (on 23 April 2018), "USD-SOFR-COMPOUND" (on 16 May 2018), "EUR-EuroSTR-COMPOUND" (on 1 October 2019) and "THB-THOR-COMPOUND" (on 8 June 2020). The calculation method for SGD-SORA-COMPOUND is consistent with the calculation method for these other RFR Floating Rate Options.

¹⁷ The template confirmations are available on the ABS website at <<https://www.abs.org.sg/benchmark-rates/publication>> under "Contract Templates".

periodic payments based on a fixed interest rate while the other party makes periodic payments based on a floating interest rate referencing a compounded average of SORA;

- (b) a Cross Currency Rate Swap that references SGD-SORA-COMPOUND and USD-SOFR-COMPOUND, i.e. a cross currency interest rate swap transaction where one party makes periodic payments based on a floating interest rate referencing a compounded average of SOFR while the other party makes periodic payments based on a floating interest rate referencing a compounded average of SORA.

This is the typical cross currency swap for end users. In contrast to interdealer Mark-to-market Currency Swaps (see sub-paragraph (c) below), here the notional amounts in USD are fixed throughout the life of the swap. For example, if the notional amounts at contract initiation were 100m USD and 136m SGD, the notional amounts would remain the same throughout the life of the swap. Interest payments would be calculated based on these notional amounts. This increases sensitivity of the swap to FX risk, and in recent years, most interdealer trades have shifted from Cross Currency Rate Swaps to Mark-to-market Currency Swaps;

- (c) an interdealer Mark-to-market Currency Swap that references SGD-SORA-COMPOUND and USD-SOFR-COMPOUND, i.e. a cross currency interest rate swap transaction between two dealers where one dealer makes periodic payments based on a floating interest rate referencing a compounded average of SOFR while the other dealer makes periodic payments based on a floating interest rate referencing a compounded average of SORA.

This cross currency swap is typically used in the interdealer market. In contrast to Cross Currency Swaps (see sub-paragraph (b) above), here the USD notional amount changes for every calculation period, based on the USD-SGD FX spot rate at the beginning of the relevant calculation period. Specifically, the SGD notional amount would be fixed but the USD notional amount would be updated based on the USD-SGD FX spot rate at the beginning of the relevant calculation period. Interest payments would be calculated based on these notional amounts instead. Mark-to-market Currency Swaps are the default trading practice in interdealer markets now; and

- (d) a Rate Swap Transaction that references SGD-SORA-COMPOUND and SGD-SOR-VWAP, i.e. an interest rate swap transaction where one party makes periodic payments based on a floating interest rate referencing a compounded average of SORA while the other party makes periodic payments based on a floating interest rate referencing SOR.

This template would be applicable for SOR-SORA Basis Swaps which are booked as single floating-to-floating transactions.

An alternative which is expected to be more widely used is for users to book SOR-SORA Basis Swaps as two separate transactions – i.e. one fixed-to-floating SORA Overnight Index Swap (OIS) and one fixed-to-floating SOR Interest Rate Swap (IRS) – instead of as a single SOR-SORA floating-to-floating transaction. Booking SOR-SORA Basis Swaps in two separate transactions will allow compression cycles subsequently to compress the SOR IRS transactions, while leaving the SORA OIS intact. If a SOR-SORA Basis Swap is booked as a single floating-to-floating transaction instead, it would be difficult to exit this position subsequently. Such transactions can be booked using the current SOR-fixed IRS and the template in sub-paragraph (a) above.

Users may wish to note that SOR-SORA Basis Swaps will have different payment dates for SOR and SORA – SOR IRS will not have any payment delay, whereas SORA OIS would have a two day payment delay.

Market participants who wish to enter into any of the above types of SORA derivatives transactions under an ISDA Master Agreement may use the template confirmations published by the SC-STS, which reflect the standard market conventions.

Singapore market conventions

The market convention is for SORA derivatives transactions to be compounded in arrears, i.e. the calculation period is the period of time immediately before the payment date. This is aligned with the market conventions in other jurisdictions for derivatives referencing overnight rates.

SORA derivatives transactions generally adopt Delayed Payment of two Singapore Business Days, without Rate Cut-off Date (as such terms are used in the 2006 ISDA Definitions). Given the compounding nature of SORA derivatives, the floating amount payable will be known only at the end of each calculation period.

Clearing of SORA derivatives transactions

SORA derivatives transactions can be cleared through LCH Limited. LCH Limited has offered clearing of SORA derivatives transactions since May 2020.

2.4 Legacy SOR derivatives transactions: contractual fallbacks

Historically, IBOR fallbacks under the 2006 ISDA Definitions were designed to address temporary unavailability of rates (such as service disruption), and did not contemplate the permanent cessation of a benchmark. Such fallbacks typically require the counterparty that is the calculation agent to obtain quotes from major dealers in the relevant interdealer market if the IBOR is unavailable.

In the case of “SGD-SOR-VWAP” (which is the Floating Rate Option used by derivatives referencing SOR), if SOR is unavailable, the calculation agent would be required to determine a fallback rate by reconstructing SOR in accordance with the formula prescribed in “SGD-SOR-Reference Banks” by polling banks in the Singapore interbank market for the USD/SGD spot rate and forward points and, if USD LIBOR is unavailable, polling banks in the London interbank market.

If USD LIBOR is discontinued, it is unlikely that such bank poll will be successful. And if the bank poll results in insufficient or no quotations, the 2006 ISDA Definitions do not provide for any further fallbacks. Accordingly, the payments under affected derivative contracts would be uncertain in a situation where a benchmark is discontinued. Even if a bank poll is successful, it may introduce basis risk across markets and in a bank’s portfolio as different polls are conducted based on different bilateral contracts.

Thus, since July 2016, ISDA has undertaken work¹⁸, at the request of the FSB OSSG, to strengthen the robustness of derivatives markets in the event of discontinuation of major interest rate benchmarks. Following a series of public consultations by ISDA with industry participants, regulators and the FSB OSSG, it was determined that the fallbacks for derivatives referencing certain IBORs will be based on

¹⁸ Please see the ISDA microsite (Benchmark Reform and Transition from LIBOR) at <<https://www.isda.org/2020/05/11/benchmark-reform-and-transition-from-libor/>>.

the RFRs identified by the relevant private/public sector national working groups.

Fallback Rate (SOR) as the Contractual Fallback

For legacy SOR derivatives transactions, Fallback Rate (SOR) has been selected as the contractual fallback as it is similar to the construct of SOR and would reduce the risk of value transfer, compared to a SORA-based fallback rate¹⁹.

On 23 October 2020, ISDA launched a supplement to its 2006 ISDA Definitions (the “**ISDA IBOR Fallbacks Supplement**”)²⁰ that amends the definitions of certain IBORs to incorporate fallbacks based on RFRs. Under the ISDA IBOR Fallbacks Supplement, the fallback for SOR is Fallback Rate (SOR)²¹. Fallback Rate (SOR) is calculated based on actual transactions in the USD/SGD foreign exchange swap market and a USD interest rate calculated by reference to the fallback for USD LIBOR (the fallback for USD LIBOR is term adjusted SOFR²² plus a spread adjustment²³). The calculation methodology for Fallback Rate (SOR) is published on the website of ABS Benchmarks Administration Co Pte Ltd (“**ABS Co**”)²⁴. The fallback for SOR will be triggered if there is a permanent discontinuation of SOR²⁵ or USD LIBOR, or if the FCA makes a determination that USD LIBOR is no longer representative of its underlying market, even if USD LIBOR continues to be published²⁶.

ISDA concurrently published an **IBOR Fallbacks Protocol**²⁷ to facilitate multilateral amendments to existing derivatives transactions that reference IBORs, so that the fallbacks under the ISDA IBOR Fallbacks Supplement (including Fallback Rate (SOR)) can be incorporated into the terms of existing derivatives transactions. An ISDA protocol is a multilateral contractual amendment mechanism through which a market participant agrees to amend the terms of its ISDA Master Agreements and derivatives transactions that are entered into with other market participants that sign up to the protocol, in accordance with the terms of the protocol and without further negotiation with counterparties²⁸.

Market participants who are party to existing SOR derivatives transactions whose maturity date will extend beyond end-2021, and which are documented under an ISDA Master Agreement, are strongly encouraged to sign up to the ISDA IBOR Fallbacks Protocol. This will incorporate Fallback Rate (SOR) into the terms of such existing SOR derivatives transactions and avoid disruption to such transactions when SOR or USD LIBOR eventually ceases.

Market participants should also note that the ISDA IBOR Fallbacks Protocol covers a limited set of agreements other than ISDA Master Agreements²⁹. Accordingly, where a market participant signs up to

¹⁹ See the letter by SC-STC Chair to ISDA on Enhancing Contractual Robustness for Derivatives Referencing the Singapore Dollar Swap Offer Rate (SOR) at <<https://abs.org.sg/docs/library/item-3---sc-sts-letter-to-isda.pdf>>.

²⁰ Supplement number 70 to the 2006 ISDA Definitions, final on 23 October 2020 and available on the ISDA website at <<https://www.isda.org/book/supplements-to-the-2006-isda-definitions/>>.

²¹ See definition of “Fallback Rate (SOR)” in the ISDA IBOR Fallbacks Supplement.

²² SOFR is a RFR administered by the Federal Reserve Bank of New York and is a broad measure of the cost of borrowing USD overnight in transactions secured by US Treasuries. Term adjusted SOFR means the rate obtained by compounding SOFR over the relevant period (e.g. 1-month, 3-months, 6-months).

²³ The spread adjustment is to ensure that the fallback for USD LIBOR based on SOFR can meet the original objectives of the parties who entered into a derivatives transaction referencing USD LIBOR, as there are structural differences between USD LIBOR (being an IBOR) and SOFR (being an overnight rate). For example, USD LIBOR incorporates a bank credit risk premium. Fallbacks for IBORs based on RFRs generally incorporate a spread adjustment to reflect such structural differences. The spread adjustment in the case of the SOFR fallback for USD LIBOR is calculated based on the median over a five-year period of the historical difference between USD LIBOR in the relevant tenor and SOFR compounded over the corresponding period, and is calculated by Bloomberg Index Services Limited.

²⁴ See the ABS Co website at <<https://www.abs.org.sg/benchmark-rates/publication>>.

²⁵ See sub-paragraphs (i) and (ii) of the definition of “Index Cessation Event” in the ISDA IBOR Fallbacks Supplement.

²⁶ See sub-paragraph (iii) of the definition of “Index Cessation Event” in the ISDA IBOR Fallbacks Supplement.

²⁷ The ISDA 2020 IBOR Fallbacks Protocol, published on 23 October 2020 and available on the ISDA website at <<https://www.isda.org/protocol/isda-2020-ibor-fallbacks-protocol/>>. ISDA has also published a list of frequently asked questions on the ISDA Fallbacks Protocol at <<https://assets.isda.org/media/3062e7b4/3cfa460a-pdf/>>.

²⁸ See the ISDA website at <<https://www.isda.org/protocols/protocols-overview/>> for more information on ISDA protocols.

²⁹ See definition of “Protocol Covered Documents” in the ISDA IBOR Fallbacks Protocol.

the ISDA IBOR Fallbacks Protocol, the terms of its transactions that reference SOR and that are entered into under such other agreements that are covered by the ISDA IBOR Fallbacks Protocol will also be amended to incorporate Fallback Rate (SOR).

However, documentation governing cleared transactions will not be automatically amended by the ISDA IBOR Fallbacks Protocol³⁰. Parties to cleared SOR derivatives transactions should consult the rules of the relevant central counterparty in respect of the cleared SOR derivatives transaction, which may in some instances contain the terms of the IBOR Fallbacks Supplement.

For market participants who do not wish to sign up to the ISDA IBOR Fallbacks Protocol or who have entered into SOR derivatives transactions that are not documented under an ISDA Master Agreement or other agreement covered by the ISDA IBOR Fallbacks Protocol, ISDA has also published bilateral forms of amendments that such market participants can reference or use to amend the terms of their legacy SOR derivatives transactions³¹.

Market participants entering into new SOR transactions documented under an ISDA Master Agreement should incorporate the 2006 ISDA Definitions, which will include the ISDA IBOR Fallbacks Supplement effective from 25 January 2021, as part of the ISDA Master Agreement governing the SOR derivatives transaction or the confirmation for the particular SOR derivatives transaction. This will ensure that Fallback Rate (SOR) is incorporated as part of the terms of the SOR derivatives transaction.

However, market participants should note that Fallback Rate (SOR) is intended solely as an interim fallback reference rate, and is not intended for use in new derivatives contracts as a primary reference rate. For new contracts, the Singapore dollar derivatives and cash markets will be adopting SORA as the benchmark replacement rate for SOR. Fallback Rate (SOR) will be discontinued after about three years following the fallback trigger³². Market participants should therefore plan ahead to avoid having a large book of outstanding derivatives transactions referencing SOR or Fallback Rate (SOR) by end-2021. Apart from ensuring that contractual fallbacks are put in place, market participants should actively transition to SORA derivatives or voluntarily reduce exposure to SOR by close-outs, compression exercises or entry into offsetting basis swaps.

³⁰ "Protocol Covered Documents" is defined in the ISDA IBOR Fallbacks Protocol to exclude "any such documentation governing cleared transactions (including any transactions that are "Client Transactions" (or in substance equivalent) under a 2016 ISDA/FIA Client Cleared OTC Derivatives Addendum or any agreement that in substance relates to the same matters as those contemplated by the 2016 ISDA/FIA Client Cleared OTC Derivatives Addendum between a clearing member and its client)".

³¹ See the ISDA website at <<http://assets.isda.org/media/79487fdd/>>.

³² See the announcement by the SC-STC on 1 September 2020 at <<https://www.abs.org.sg/benchmark-rates/sor-discontinuation-and-contractual-fallbacks>>.

3. Capital Markets

3.1 Legacy products

SOR has been used as the benchmark in determining the interest rates of the following securities (“**legacy products**”):

- (a) floating rate securities; and
- (b) resettable fixed rate securities (including perpetual / hybrid securities issued by corporates as well as capital instruments issued by financial institutions such as Tier 2 securities and Additional Tier 1 securities).

SOR is also referenced in certain securities with an early redemption feature or more commonly known as “make-whole” redemption.

For ease of reading, references in this chapter to (i) “interest” will include “distribution” and “interest period” will include “distribution period” used in perpetual securities or capital instruments, (ii) “market participants” will include issuers, lead managers and their professional advisers and (iii) “business days” or “non-business days” means “business days of Singapore” or “non-business days of Singapore”, unless the context requires otherwise.

3.1.1 *Floating rate securities*

Floating rate securities bear interest at a rate that is determined for each interest period. Such interest period is usually less than a year and a period of three months is common for SGD floating rate securities. The interest rate is the aggregate of the applicable SOR at the relevant time and an agreed spread. Such interest rate is determined in advance, typically two business days prior to the start of the interest period.

3.1.2 *Resettable fixed rate securities*

Resettable fixed rate securities bear interest at a fixed rate but the applicable fixed interest rate may be reset at fixed time intervals. Such fixed time intervals may range in duration and are typically measured in years. The reset fixed interest rate is the aggregate of the applicable SOR at the relevant time and an agreed spread together with a step-up margin (if applicable). Similar to floating rate securities, the reset fixed interest rate is determined in advance, typically two business days prior to the reset date.

3.1.3 *Determination of SOR in legacy products*

There is no single method or standard hierarchy used in determining SOR in legacy products. Below is a general summary of the hierarchy seen in determining the applicable SOR:

- (a) by reference to the relevant Bloomberg or Reuters screen page or such other replacement page; or
- (b) if the relevant Bloomberg or Reuters screen page is unavailable, by reference to the rate published by a recognised industry body; or

- (c) if the relevant Bloomberg or Reuters screen page or such other replacement screen is unavailable and no rate is published by a recognised industry body, by reference to quotations provided by reference banks;
- (d) if (a) to (c) above are unavailable, the applicable SOR will be the SOR determined in the immediately preceding interest period.

It should be noted that some legacy products may not include all the above limbs in the interest rate calculation provisions. Moreover, some legacy products may not rank the hierarchy in the same order outlined above.

3.1.4 *Fallback provisions for cessation of SOR in legacy products*

Prior to 2019, fallback provisions used in legacy products generally had not anticipated a permanent cessation of SOR.

Some legacy products may contain a final fallback provision providing that, absent any other intervention, the interest rate used for the last preceding interest period would be used for the determination of interest rate for that interest period (e.g. limb (d) in paragraph 3.1.3 above). Such mechanism was designed to address only temporary inability to determine SOR and hence, in the event of a permanent cessation of SOR, it would effectively convert such floating rate security into a fixed rate security. Some resettable fixed rate securities also have similar final fallback provisions. Notwithstanding the existence of such final fallback provisions, issuers are encouraged to discuss their effectiveness with their professional advisors and whether it is necessary to amend the terms and conditions of such securities to reflect the original intention of the contracts.

For securities without such final fallback provisions, there is significant uncertainty as to how permanent cessation of SOR could be addressed. Issuers are encouraged to discuss with their professional advisors on the steps to be taken to address this uncertainty.

3.2 Transition period

From the end of 2019, some issuers of securities referencing SOR had begun to adjust fallback provisions for SOR-referencing securities to reflect the announcement made by the SC-STS on the roadmap for transition of interest rate benchmark from SOR to SORA. The adjusted provisions provide for a fallback on the permanent cessation of SOR to a successor rate or, failing which, an alternative rate and an adjustment spread (if applicable) to be applied to either such rate. Typically, these rates are to be determined by an independent adviser on the basis of (a) any recommendations made by relevant official bodies or (b) if no such recommendations have been made, customary market practice. In some cases, an additional “pre-cessation trigger” (being a declaration of non-representativeness of SOR) has been included as a trigger to the fallback provisions.

3.2.1 *Recommended Fallback Replacement Language*

To facilitate the transitioning of SOR-referencing securities, during this transition period and in tandem with the growing adoption of SORA as a benchmark, a more detailed fallback provision has been developed by the SC-STS (the “**Recommended Fallback Replacement Language**”) for consideration for inclusion in the relevant documentation for SOR-referencing securities. The Recommended Fallback Replacement Language is intended to not only address the transition of SOR but also caters for a situation in the future should the replacement benchmark

itself need replacing. This language is set out below. Its adoption by market participants is voluntary and may be adapted to suit specific circumstances.

“(●) Benchmark Discontinuation and Replacement

(a) Independent Adviser

Notwithstanding the provisions above in this Condition [●], if a Benchmark Event occurs in relation to an Original Reference Rate prior to the relevant Interest Determination Date when any Interest Rate (or any component part thereof) remains to be determined by reference to such Original Reference Rate, then the Issuer shall use its reasonable endeavours to appoint an Independent Adviser, as soon as reasonably practicable, to determine the Benchmark Replacement (in accordance with Condition [●](b)) and an Adjustment Spread, if any (in accordance with Condition [●](c)), and any Benchmark Amendments (in accordance with Condition [●](d)) by the relevant Interest Determination Date. An Independent Adviser appointed pursuant to this Condition [●] as an expert shall act in good faith and in a commercially reasonable manner and in consultation with the Issuer. In the absence of bad faith or fraud, the Independent Adviser shall have no liability whatsoever to the Issuer, the Trustee, the Issuing and Paying Agent, the Noteholders or the Couponholders for any determination made by it or for any advice given to the Issuer in connection with any determination made by the Issuer, pursuant to this Condition [●].

If the Issuer is unable to appoint an Independent Adviser after using its reasonable endeavours, or the Independent Adviser appointed by it fails to determine the Benchmark Replacement prior to the relevant Interest Determination Date, the Issuer (acting in good faith and in a commercially reasonable manner) may determine the Benchmark Replacement (in accordance with Condition [●](b)) and an Adjustment Spread if any (in accordance with Condition [●](c)) and any Benchmark Amendments (in accordance with Condition [●](d)).

If the Issuer is unable to determine the Benchmark Replacement prior to the relevant Interest Determination Date, the Rate of Interest applicable to the next succeeding Interest Accrual Period shall be equal to the Rate of Interest last determined in relation to the Notes in respect of the immediately preceding Interest Accrual Period. If there has not been a first Interest Payment Date, the Rate of Interest shall be the initial Rate of Interest. Where a different Margin or Maximum or Minimum Rate of Interest is to be applied to the relevant Interest Accrual Period from that which applied to the last preceding Interest Accrual Period, the Margin or Maximum or Minimum Rate of Interest relating to the relevant Interest Accrual period shall be substituted in place of the Margin or Maximum or Minimum Rate of Interest relating to that last preceding Interest Accrual Period. For the avoidance of doubt, this paragraph shall apply to the relevant next succeeding Interest Accrual period only and any subsequent Interest Accrual Periods are subject to the subsequent operation of, and to adjustments as provided in, the first paragraph of this Condition [●](a).

(b) Benchmark Replacement

The Benchmark Replacement determined by the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) shall (subject to adjustment as provided in Condition [●](c)) subsequently be used in place of the Original Reference Rate to determine the Interest Rate (or the relevant component part thereof) for all future payments of interest on the Notes (subject to the operation of this Condition [●]).

(c) Adjustment Spread

If the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be) determines (i) that an Adjustment Spread is required to be applied to the Benchmark Replacement and (ii) the quantum of, or a formula or methodology for determining, such Adjustment Spread, then such Adjustment Spread shall be applied to the Benchmark Replacement.

(d) Benchmark Amendments

If the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be) determines (i) that Benchmark Amendments are necessary to ensure the proper operation of such Benchmark Replacement and/or Adjustment Spread and (ii) the terms of the Benchmark Amendments, then the Issuer shall, subject to giving notice thereof in accordance with Condition [●](e), without any requirement for the consent or approval of Noteholders, vary these Conditions, the Trust Deed and/or the Agency Agreement to give effect to such Benchmark Amendments with effect from the date specified in such notice.

At the request of the Issuer, but subject to receipt by the Trustee of a certificate signed by a director or an authorised signatory of the Issuer pursuant to Condition [●](e), the Trustee shall (at the expense of the Issuer), without any requirement for the consent or approval of the Noteholders, be obliged to concur with the Issuer in effecting any Benchmark Amendments (including, *inter alia*, by the execution of a deed supplemental to or amending the Trust Deed), provided that the Trustee shall not be obliged so to concur if in the reasonable opinion of the Trustee doing so would impose more onerous obligations upon it or expose it to any additional duties, responsibilities or liabilities or reduce or amend the protective provisions afforded to the Trustee in these Conditions or the Trust Deed (including, for the avoidance of doubt, any supplemental trust deed) in any way.

For the avoidance of doubt, the Trustee and the Paying Agents shall, at the direction and expense of the Issuer, effect such consequential amendments to the Trust Deed, the Agency Agreement and these Conditions as may be required in order to give effect to this Condition [●]. Noteholders' consent shall not be required in connection with effecting the Benchmark Replacement or such other changes, including for the execution of any documents or other steps by the Trustee, the Calculation Agent, the Paying Agents, the Registrars or the Transfer Agents (if required).

In connection with any such variation in accordance with Condition [●](d), the Issuer shall comply with the rules of any stock exchange on which the Notes are for the time being listed or admitted to trading.

(e) Notices, etc.

Any Benchmark Replacement, Adjustment Spread and the specific terms of any Benchmark Amendments, determined under this Condition [●] will be notified promptly by the Issuer to the Trustee, the Calculation Agent, the Issuing and Paying Agent and, in accordance with Condition [●], the Noteholders. Such notice shall be irrevocable and shall specify the effective date of the Benchmark Amendments, if any.

No later than notifying the Trustee of the same, the Issuer shall deliver to the Trustee a certificate signed by a director or an authorised signatory of the Issuer:

- (i) confirming (1) that a Benchmark Event has occurred, (2) the Benchmark Replacement and, (3) where applicable, any Adjustment Spread and/or the specific terms of any Benchmark Amendments, in each case as determined in accordance with the provisions of this Condition [●]; and
- (ii) certifying that the Benchmark Amendments are necessary to ensure the proper operation of such Benchmark Replacement and/or Adjustment Spread.

The Trustee shall be entitled to rely on such certificate (without liability to any person) as sufficient evidence thereof. The Benchmark Replacement and the Adjustment Spread (if any) and the Benchmark Amendments (if any) specified in such certificate will (in the absence of manifest error or bad faith in the determination of the Benchmark Replacement and the Adjustment Spread (if any) and the Benchmark Amendments (if any) and without prejudice to the Trustee's ability to rely on such certificate as aforesaid) be binding on the Issuer, the Trustee, the Calculation Agent, the Issuing and Paying Agent and the Noteholders.

(f) Survival of Original Reference Rate

Without prejudice to the obligations of the Issuer under Conditions [●](a), [●](b), [●](c) and [●](d), the Original Reference Rate and the fallback provisions provided for in Condition [●] will continue to apply unless and until the Calculation Agent has been notified of the Benchmark Replacement, and any Adjustment Spread and Benchmark Amendments, in accordance with Condition [●](e).

(g) Definitions

As used in this Condition [●]:

“Adjustment Spread” means either a spread (which may be positive or negative), or the formula or methodology for calculating a spread, in either case, which the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be) determines is required to be applied to the Benchmark Replacement to reduce or eliminate, to the extent reasonably practicable in the circumstances, any economic prejudice or benefit (as the case may be) to Noteholders and Couponholders as a result of the replacement of the Original Reference Rate with the Benchmark Replacement and is the spread, formula or methodology which:

- (i) is formally recommended in relation to the replacement of the Original Reference Rate with the applicable Benchmark Replacement by any Relevant Nominating Body; or
- (ii) if the applicable Benchmark Replacement is the ISDA Fallback Rate, is the ISDA Fallback Adjustment; or
- (iii) is determined by the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be) having given due consideration to any industry-accepted spread adjustment, or method for calculating or determining such spread adjustment, for the replacement of the Original Reference Rate with the applicable Benchmark Replacement for the purposes of determining rates of interest (or the relevant component part thereof) for the same interest accrual period and in the same currency as the Notes;

“Alternative Rate” means an alternative benchmark or screen rate which the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be) determines in accordance with Condition [●](b) has replaced the Original Reference Rate for the Corresponding Tenor in customary market usage in the international or if applicable, domestic debt capital markets for the purposes of determining rates of interest (or the relevant component part thereof) for the same interest period and in the same currency as the Notes (including, but not limited to, Singapore Government Bonds);

“Benchmark Amendments” means, with respect to any Benchmark Replacement, any technical, administrative or operational changes (including changes to the definition of “Interest Accrual Period”, timing and frequency of determining rates and making payments of interest, [changes to the definition of “Corresponding Tenor” solely when such tenor is longer than the Interest Accrual Period], any other amendments to these Conditions, the Trust Deed and/or the Agency Agreement, and other administrative matters) that the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be) determines may be appropriate to reflect the adoption of such Benchmark Replacement in a manner substantially consistent with market practice (or, if the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be) determines that adoption of any portion of such market practice is not administratively feasible or if the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be) determines that no market practice for use of such Benchmark Replacement exists, in such other manner as the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be) determines is reasonably necessary);

“Benchmark Event” means:

- (i) the Original Reference Rate ceasing to be published for a period of at least five Singapore business days or ceasing to exist; or
- (ii) a public statement by the administrator of the Original Reference Rate that it has ceased or will, by a specified date within the following six months, cease publishing the Original Reference Rate permanently or indefinitely (in circumstances where no successor administrator has been appointed that will continue publication of the Original Reference Rate); or
- (iii) a public statement by the supervisor of the administrator of the Original Reference Rate that the Original Reference Rate has been or will, by a specified date within the following six months, be permanently or indefinitely discontinued; or
- (iv) a public statement by the supervisor of the administrator of the Original Reference Rate that the Original Reference Rate has been prohibited from being used or that its use has been subject to restrictions or adverse consequences, or that it will be prohibited from being used or that its use will be subject to restrictions or adverse consequences within the following six months; or
- (v) it has become unlawful for the Issuing and Paying Agent, the Calculation Agent, the Issuer or any other party to calculate any payments due to be made to any Noteholder using the Original Reference Rate; or

- (vi) a public statement by the supervisor of the administrator of the Original Reference Rate that the Original Reference Rate is no longer representative or will, by a specified date within the following six months, be deemed to be no longer representative,

provided that the Benchmark Event shall be deemed to occur (a) in the case of sub-paragraphs (ii) and (iii) above, on the date of the cessation of publication of the Original Reference Rate or the discontinuation of the Original Reference Rate, as the case may be, (b) in the case of sub-paragraph (iv) above, on the date of the prohibition or restriction of use of the Original Reference Rate and (c) in the case of sub-paragraph (vi) above, on the date with effect from which the Original Reference Rate will no longer be (or will be deemed to no longer be) representative and which is specified in the relevant public statement, and, in each case, not the date of the relevant public statement.

“Benchmark Replacement” means the Interpolated Benchmark, provided that if the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be) cannot determine the Interpolated Benchmark by the relevant Interest Determination Date, then “Benchmark Replacement” means the first alternative set forth in the order below that can be determined by the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be):

- (i) Term SORA;
- (ii) Compounded SORA;
- (iii) the Successor Rate;
- (iv) the ISDA Fallback Rate (including Fallback Rate (SOR)); and
- (v) the Alternative Rate.

“Compounded SORA” means the compounded average of SORAs for the applicable Corresponding Tenor, with the rate, or methodology for this rate, and conventions for this rate (which will be compounded in arrears with the selected mechanism to determine the interest amount payable prior to the end of each Interest Accrual Period) being established by the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be) in accordance with

- (i) the rate, or methodology for this rate, and conventions for this rate selected or recommended by the Relevant Nominating Body for determining Compounded SORA; provided that:

- (ii) if, and to the extent that, the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be) determines that Compounded SORA cannot be determined in accordance with clause (1) above, then the rate, or methodology for this rate, and conventions for this rate that have been selected by the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be) giving due consideration to any industry-accepted market practice for the relevant Singapore dollar denominated notes at such time.

[Notwithstanding the foregoing, Compounded SORA will include a selected mechanism as specified in the applicable Pricing Supplement to determine the interest amount payable prior to the end of each Interest Accrual Period;]

“Corresponding Tenor” with respect to a Benchmark Replacement means a tenor (including overnight) having approximately the same length (disregarding business day adjustment) as the applicable tenor for the then-current Original Reference Rate;

“Fallback Rate (SOR)” has the meaning ascribed to it in the 2006 ISDA Definitions as amended and supplemented by Supplement number 70, published on 23 October 2020.

“Independent Adviser” means an independent financial institution of good repute or an independent financial adviser with experience in the local or international debt capital markets appointed by and at the cost of the Issuer under Condition [●](a);

“Interpolated Benchmark” with respect to the Original Reference Rate means the rate determined for the Corresponding Tenor by interpolating on a linear basis between: (1) the Original Reference Rate for the longest period (for which the Original Reference Rate is available) that is shorter than the Corresponding Tenor and (2) the Original Reference Rate for the shortest period (for which the Original Reference Rate is available) that is longer than the Corresponding Tenor;

“ISDA Definitions” means the 2006 ISDA Definitions published by the International Swaps and Derivatives Association Inc. or any successor thereto, as may be updated, amended or supplemented from time to time, or any successor definitional booklet for interest rate derivatives published from time to time;

“ISDA Fallback Adjustment” means the spread adjustment (which maybe positive or negative value or zero) that would apply for derivative transactions referencing the Original Reference Rate in the ISDA Definitions to be determined upon the occurrence of an index cessation event with respect to the Original Reference Rate for the applicable tenor;

“ISDA Fallback Rate” means the rate that would apply for derivative transactions referencing the Original Reference Rate in the ISDA Definitions to be effective upon the occurrence of an index cessation event with respect to the Original Reference Rate for the applicable tenor excluding the applicable ISDA Fallback Adjustment;

“Original Reference Rate” means, initially, Swap Offer Rate (being the originally-specified reference rate of applicable tenor used to determine the Interest Rate) or any component part thereof, including the relevant USD London Interbank Offered Rate, *provided that* if a Benchmark Event has occurred with respect to Swap Offer Rate or the then-current Original Reference Rate, then “Original Reference Rate” means the applicable Benchmark Replacement;

“Relevant Nominating Body” means, in respect of a benchmark or screen rate (as applicable):

- (i) the central bank for the currency to which the benchmark or screen rate (as applicable) relates, or any central bank or other supervisory authority which is responsible for supervising the administrator of the benchmark or screen rate (as applicable); or
- (ii) any working group or committee sponsored by, chaired or co-chaired by or constituted at the request of (1) the central bank for the currency to which the benchmark or screen rate (as applicable) relates, (2) any central bank or other supervisory authority which is responsible for supervising the administrator of the benchmark or screen rate (as applicable), (3) a group of the aforementioned central banks or other supervisory authorities or (4) the Financial Stability Board or any part thereof;

“SORA” or **“Singapore Overnight Rate Average”** with respect to any Singapore Business Day means a reference rate equal to the daily Singapore Overnight Rate Average published by the Monetary Authority of Singapore (or a successor administrator), as the administrator of the benchmark, on the Monetary Authority of Singapore’s website currently at <http://www.mas.gov.sg>, or any successor website officially designated by the Monetary Authority of Singapore (or as published by its authorised distributors) on the Singapore Business Day immediately following such Singapore Business Day;

“Successor Rate” means a successor to or replacement of the Original Reference Rate which is formally recommended by any Relevant Nominating Body as the replacement for the Original Reference Rate for the applicable Corresponding Tenor; and

“**Term SORA**” means the forward-looking term rate for the applicable Corresponding Tenor based on SORA that has been selected or recommended by the Relevant Nominating Body, or as determined by the Independent Adviser or the Issuer (in the circumstances set out in Condition [●](a)) (as the case may be) having given due consideration to any industry-accepted market practice for the relevant Singapore dollar denominated notes.”

3.2.2 *Explanation of mechanism for the Recommended Fallback Replacement Language*

(a) Benchmark Event

As SOR relies on USD LIBOR in its computation, a Benchmark Event would occur following a permanent cessation of USD LIBOR. In addition, a Benchmark Event would also occur following a determination by the FCA that USD LIBOR is no longer representative of its underlying market, even if it continues to be published. This is aligned with the fallback triggers for SOR and USD LIBOR derivatives contracts.

In the above Recommended Fallback Replacement Language, a Benchmark Event will occur in relation to an Original Reference Rate if:

- (i) the Original Reference Rate ceases to be published for a period of at least five Singapore business days or ceases to exist;
- (ii) a public statement by the administrator of the Original Reference Rate that it has ceased or will, by a specified date within the following six months, cease publishing the Original Reference Rate permanently or indefinitely (in circumstances where no successor administrator has been appointed that will continue publication of the Original Reference Rate);
- (iii) a public statement by the supervisor of the administrator of the Original Reference Rate that the Original Reference Rate has been or will, by a specified date within the following six months, be permanently or indefinitely discontinued;
- (iv) a public statement by the supervisor of the administrator of the Original Reference Rate that the Original Reference Rate has been prohibited from being used or that its use has been subject to restrictions or adverse consequences, or that it will be prohibited from being used or that its use will be subject to restrictions or adverse consequences within the following six months;
- (v) it has become unlawful for the issuing and paying agent, the calculation agent, the issuer or any other party to calculate any payments due to be made to any securityholder using the Original Reference Rate; or
- (vi) a public statement by the supervisor of the administrator of the Original Reference Rate that the Original Reference Rate is no longer representative or will, by a specified date within the following six months, be deemed to be no longer representative,

provided that the Benchmark Event shall be deemed to occur (a) in the case of sub-paragraphs (ii) and (iii) above, on the date of the cessation of publication of the Original Reference Rate or the discontinuation of the Original Reference Rate, as the case may be, (b) in the case of sub-

paragraph (iv) above, on the date of the prohibition or restriction of use of the Original Reference Rate and (c) in the case of sub-paragraph (vi) above, on the date with effect from which the Original Reference Rate will no longer be (or will be deemed to no longer be) representative and which is specified in the relevant public statement, and, in each case, not the date of the relevant public statement.

(b) Independent advisor

Upon the occurrence of a Benchmark Event in relation to an Original Reference Rate prior to the relevant interest determination date when any interest rate (or any component part thereof) remains to be determined by reference to such Original Reference Rate, the above Recommended Fallback Replacement Language would require the issuer to use its reasonable endeavours to appoint an Independent Adviser, as soon as reasonably practicable, to determine the Benchmark Replacement.

It is also envisaged that the role of an Independent Advisor will be undertaken by an independent financial institution of good repute with experience in the local or international debt capital markets.

If the issuer is unable to appoint an Independent Adviser or the Independent Adviser fails to determine the Benchmark Replacement, the Issuer (acting in good faith and in a commercially reasonable manner) may determine the Benchmark Replacement.

In the event that the Benchmark Replacement still cannot be determined despite best efforts by the Issuer, the above Recommended Fallback Replacement Language provides that the benchmark rate for that interest period will be the benchmark rate applicable for the previous interest period. Notwithstanding this final fallback, the issuer and/or Independent Advisor are expected to continue to use their best efforts to determine the Benchmark Replacement for the following interest period.

(c) Benchmark Replacement

In the first instance, the Benchmark Replacement would be the Interpolated Benchmark. This is expected to be the case where the Benchmark Event has been deemed to occur only with respect to the Original Reference Rate for the Corresponding Tenor, but has not occurred with respect to the Original Reference Rate for other tenors.

If the Independent Adviser or, as the case may be, the Issuer cannot determine the Interpolated Benchmark, (for example, because the Benchmark Event has occurred with respect to the Original Reference Rate for all tenors), the Benchmark Replacement would be the first of the following alternatives – (i) Term SORA, (ii) Compounded SORA, (iii) the Successor Rate, (iv) the ISDA Fallback Rate (including Fallback Rate (SOR)) and (v) the Alternative Rate. This hierarchy has been designed with a view to have Term SORA, a forward-looking rate, to be the replacement rate for SOR, which is also a forward-looking rate, in the first instance.

It should be noted, however, that the above Benchmark Replacement hierarchy differs from the fallback hierarchy specified in ISDA Supplement number 70, which specifies Fallback Rate (SOR) as the replacement rate for SOR following the permanent cessation of SOR. Issuers who also enter into SOR-referencing derivative contracts to hedge the issued SOR-referencing securities may thus want to consider varying the Benchmark Replacement hierarchy above to mitigate any potential mismatch between the issued securities and the hedging derivatives

following the cessation of SOR.

The Benchmark Replacement shall subsequently be used in place of the Original Reference Rate to determine the interest rate (or the relevant component part thereof) for all future payments of interest on the affected securities.

(d) Adjustment Spread

If the Independent Adviser or, as the case may be, the Issuer determines (i) that an Adjustment Spread is required to be applied to the Benchmark Replacement and (ii) the quantum of, or a formula or methodology for determining, such Adjustment Spread, then such Adjustment Spread shall be applied to the Benchmark Replacement.

As of the date of this Compendium, alternatives and suitable methods on how Adjustment Spread will be determined are being explored and deliberated upon.

(e) Benchmark Amendments

If the Independent Adviser or, as the case may be, the Issuer determines (i) that Benchmark Amendments are necessary to ensure the proper operation of such Benchmark Replacement and/or Adjustment Spread and (ii) the terms of the Benchmark Amendments, then the Issuer shall, without any requirement for the consent or approval of securityholders, vary the terms and conditions, the trust deed and/or the agency agreement to give effect to such Benchmark Amendments. Benchmark Amendments could include technical, administrative or operational changes (including changes to the definition of "Interest Accrual Period", timing and frequency of determining rates and making payments of interest and other amendments to the Conditions, the Trust Deed and/or the Agency Agreement, and other administrative matters) that the Independent Adviser or the Issuer (as the case may be) determines may be appropriate to reflect the adoption of such Benchmark Replacement.

(f) Original Reference Rate

"Original Reference Rate" will include SOR and such applicable Benchmark Replacement. The fallback replacement language is intended to not only address the transition of SOR but also any subsequent or future transition of the benchmark which has replaced SOR.

3.3 New products

As explained in the Introduction to this Compendium, SOR is a forward-looking rate which can be determined prior to the commencement of an interest period while SORA is a backward-looking rate. Interest calculation using SORA in arrears as inputs will thus only be known at the end of the period for which interest is to be determined.

While trading activity in SORA derivatives is growing and quotations are provided by dealers for SORA OIS (with tenors up to 30 years as at the date of this Compendium), there is not yet a Term SORA benchmark, nor is there any certainty on when sufficient market activity would develop to produce an IOSCO-compliant Term SORA benchmark. In the absence of an IOSCO-compliant forward-looking Term SORA benchmark which could be used for the calculation of interest for securities referencing SORA, it is thus envisaged that the backward-looking SORA would be used as the benchmark rate for calculation of interests. Consequentially, there will be a significant shift in the method of calculating

interest rate for securities referencing SORA as well as a significant shift in documentation.

How SORA is envisaged to be used in determining the interest rates of SORA-referencing securities are discussed below.

3.3.1 *Using an average rate over a period*

Securities referencing SORA will use an average of SORA and not a single day's reading of SORA, unlike the case with SOR. Using an averaged SORA reflects movements in overnight rates over a given period of time and by using an averaged SORA, any idiosyncratic and day-to-day fluctuations in market rates are smoothed out. Moreover, by using this mechanism, the frequency of payments can be less than daily without causing a potential loss of interest for the securityholders.

An averaged SORA can be calculated by using either simple average or compounded average:

- A simple average can be derived by aggregating the SORA readings over the relevant number of days and dividing the sum by the number of days accordingly.
- On the other hand, under compounded average, the additional amount of interest owed each day is calculated by applying the daily rate of interest both to the principal borrowed and the accumulated unpaid interest up to that day. Compounded average thus recognises the fact that the issuer does not pay interest owed on a daily basis and accumulated interest owed but not yet paid will therefore need to be compounded to reflect the time value of money of the delayed payment.

Utilising the compounded average has emerged as the market convention for floating rate securities and is also in line with the derivatives market practice. Moreover, the established practice is for the compounding calculation to (i) only compound the daily rate (and not the margin), and (ii) only compound the daily rate in respect of each relevant business day. The rate applied to a day that is not a business day would be the daily rate in respect of the previous business day but such rate would not be compounded.

The SC-STS recommends Compounded Daily SORA calculated on the aforementioned basis for SORA-referencing securities.

3.3.2 *Weighting of SORA rates*

SORA is an overnight rate and is only published with respect to business days. The applicable SORA rate in respect of a non-business day would be the SORA rate applicable in respect of the immediately preceding business day. This means that certain SORA rates will be utilised for (i) the business day in respect of which it is applicable for, and (ii) non-business day(s) immediately following such business day. In such a scenario, the weighting of this particular SORA rate will be equal to the same number of days it is utilised for, and is denoted " n_i " in the compounding formulae below. On most days, this weighting will be equal to "1", but a SORA rate in respect of a Friday will generally be given the weight of "3" (to account for Saturday and Sunday) and a SORA rate in respect of a day before a public holiday will also be given a weight greater than 1.

Depending on the choice of approach to observation periods, the weighting could be based on the number of business days and non-business days in the Observation Period (as defined below) or in the interest period.

3.3.3 Choices of approaches to observation periods

As explained above, if SORA is to be used as the benchmark rate for calculation of interest, interest amounts can only be determined in arrears, at the end of the period for which interests are calculated. Without any modification made to the interest rate calculation provisions, this will give rise to a situation that the interest amount will only be known on the same day that the interest payment is due, which is operationally challenging as it leaves neither time for paying agent to calculate the interest payment nor issuers to effect interest payment.

A number of solutions have been considered and used by securities referencing other overnight rates to resolve this problem by configuring sufficient time for the issuer, paying agents as well as the applicable clearing system to calculate and arrange for the interest payment. Typically, these entail modifications to be made to the period for which the SORA rate used for the compounded average is observed (the “**Observation Period**”) or when payment of interest is due. The four options which have been most commonly used to allow determination of the payment amount in advance are listed below:

- (a) lockout observation period;
- (b) lookback observation period;
- (c) backward shifted observation period; and
- (d) payment delay.

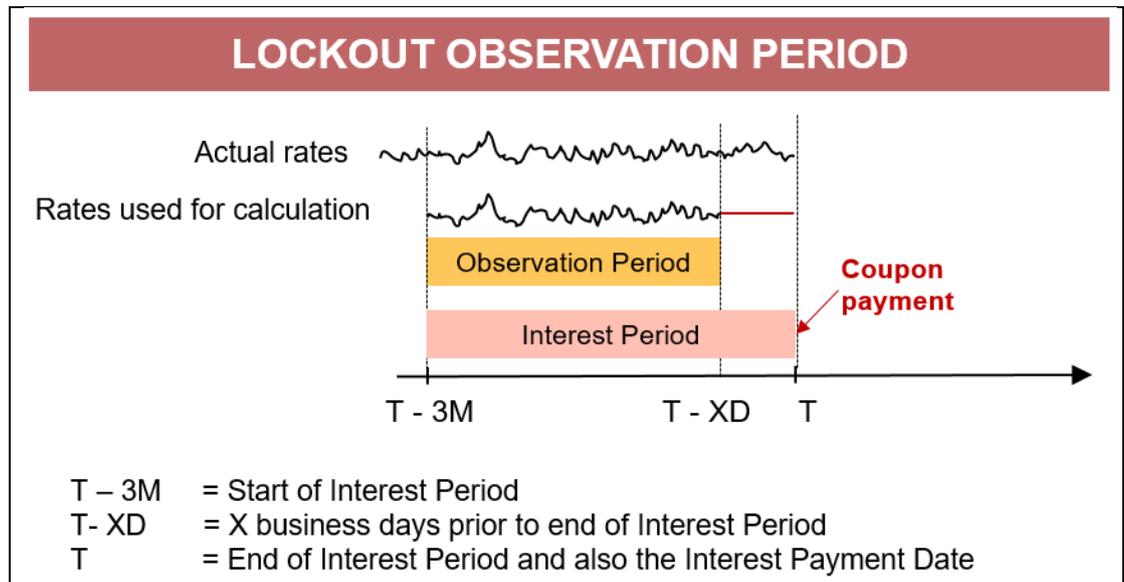
The above options are not exhaustive and the methods of determining Observation Period are expected to evolve over time. It is also to be noted that any option selected will be subject to the actual workings of the paying agents and clearing systems such as The Central Depository (Pte) Limited. Market participants may wish to contact the relevant paying agents and clearing systems directly prior to confirming their choice of option.

(a) Lockout Observation Period

In this option, daily SORA is observed up to a certain number of days (referred to as “X” in the diagram below) prior to the end of an interest period. Daily SORA is no longer observed (i.e. frozen) for that set number of days at the end of the interest period (the “**Lockout Period**”). During the Lockout Period, the SORA of the day prior to the start of the Lockout Period is applied for the remaining days of the interest period. As a result, the averaged SORA can be calculated a few days before the end of the interest period. The length of the Lockout Period is configured to allow sufficient time for the issuer, paying agents as well as the applicable clearing system to calculate and arrange for the interest payment. It is envisaged that a Lockout Period may range from two to five business days subject to confirmation with the relevant paying agent and clearing system.

This option may involve interest rate risk that may be more difficult to hedge due to potential changes in SORA during the Lockout Period. As of the date of this Compendium, no securities referencing SORA has selected this approach.

The following diagram illustrates this approach, assuming that the interest period is for a period of three months:



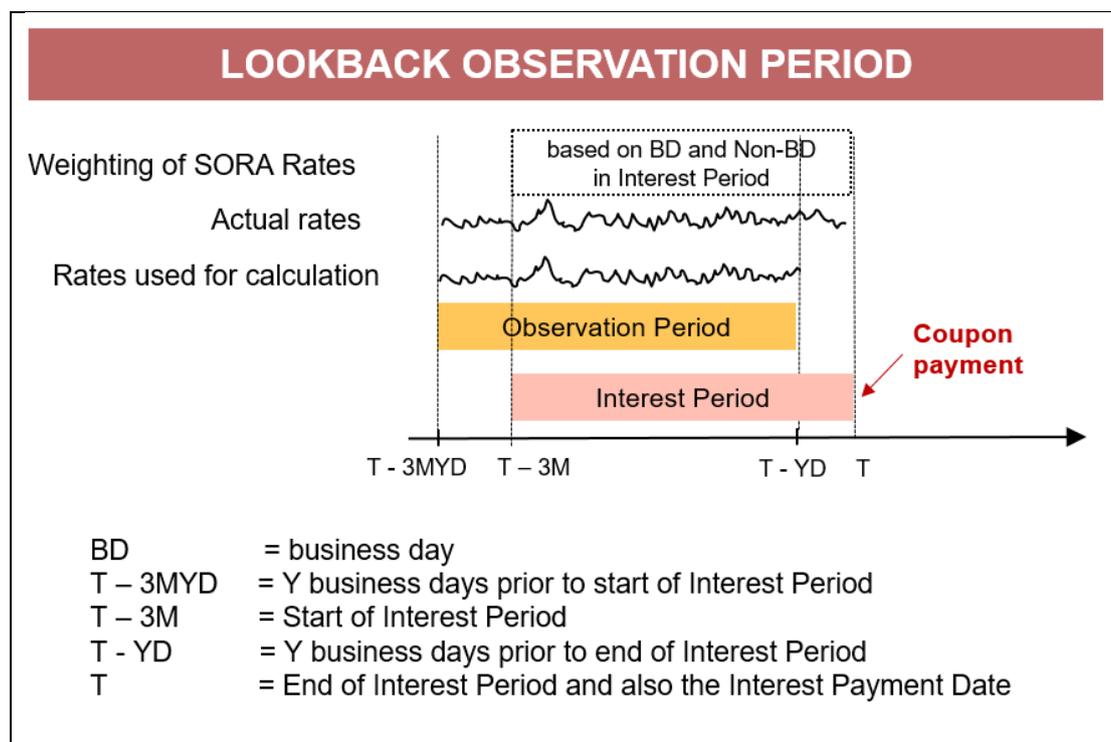
(b) Lookback Observation Period

In this option, the SORA rate for each day in an interest period is based on the SORA rate of a certain number business day (referred to as “Y” in the diagram below) prior to that day. Another way to describe this is that the Observation Period starts Y business days prior to the first day of the relevant interest period and ends the same number of days prior to the end of such interest period. Similar to the Lockout Observation Period option, the number of prior days’ lookback for the Observation Period is configured to allow sufficient time for parties to calculate and arrange for the interest payment, with two to five business days the norms observed in other currencies thus far.

In this option, the SORA rates used for the compounded average formula are those applicable for the Observation Period (which begins Y business days from prior to the first day of the relevant interest period and ends the same number of days prior to the end of such interest period) while the weightings of the SORA rates are determined based on the business days and non-business days in the interest period (instead of the Observation Period). The possible mismatch of business days and non-business days in the Observation Period and in the interest period could lead to a possible mismatch between the weightings of the SORA rates and the SORA rates themselves, thus embedding slight incremental interest rate risk vis-à-vis a mechanism where the Observation Period is the same as interest period, albeit less than the Lockout Observation Period option above.

Thus far, one private issue of SORA floating rate notes has adopted the Lookback Observation Period approach.

The following diagram illustrates this approach assuming that the interest period is for a period of three months:



(c) Backward Shifted Observation Period

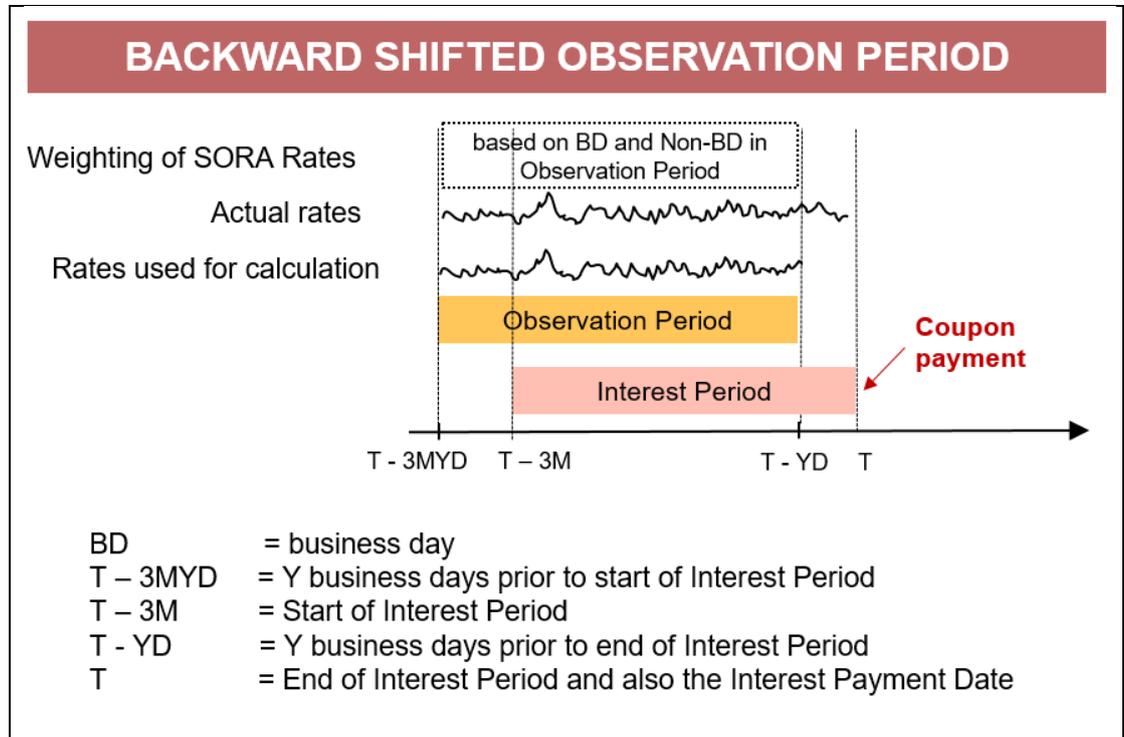
This option is very similar to the Lookback Observation Period option described above except that the weightings for each SORA rate in the compounding formula is based on the number of business days and non-business in the relevant Observation Period (instead of the relevant interest period). Because this option eliminates the mismatch between the weightings of the SORA rates and the SORA rates themselves (with both referring to the Observation Period), it carries the least incremental interest rate risk vis-à-vis the mechanism where Observation Period is the same as the interest period. Better economic alignment is also achieved with this option, as any correlation between a SORA rate and the number of calendar days such SORA rate is applicable for (especially over non-business days) is correctly factored in via the application of the matching weightings. Hedging of interest rate risks using derivatives under this option would also thus require less customisation compared with the options above.

The MAS has started publishing a SORA Index³³ with effect from August 2020. The SORA Index could be referenced in documentation, thereby standardising and simplifying the calculation method, which in turn should have the effect of reducing operational risk by facilitating reconciliation of interest amounts between market counterparties. By its construct, the SORA Index is compatible with any financial product using a Backward Shifted Observation Period, but not Lookback Observation Period or Lockout Observation Period as compounding calculation under these two options require inputs that are specific to the issued SORA-based securities.

³³ Please refer to footnote 8 above.

Thus far, MAS SORA floating rate notes have adopted the Backward Shifted Observation Period approach.

The following diagram illustrates this approach assuming that the interest period is for a period of three months:

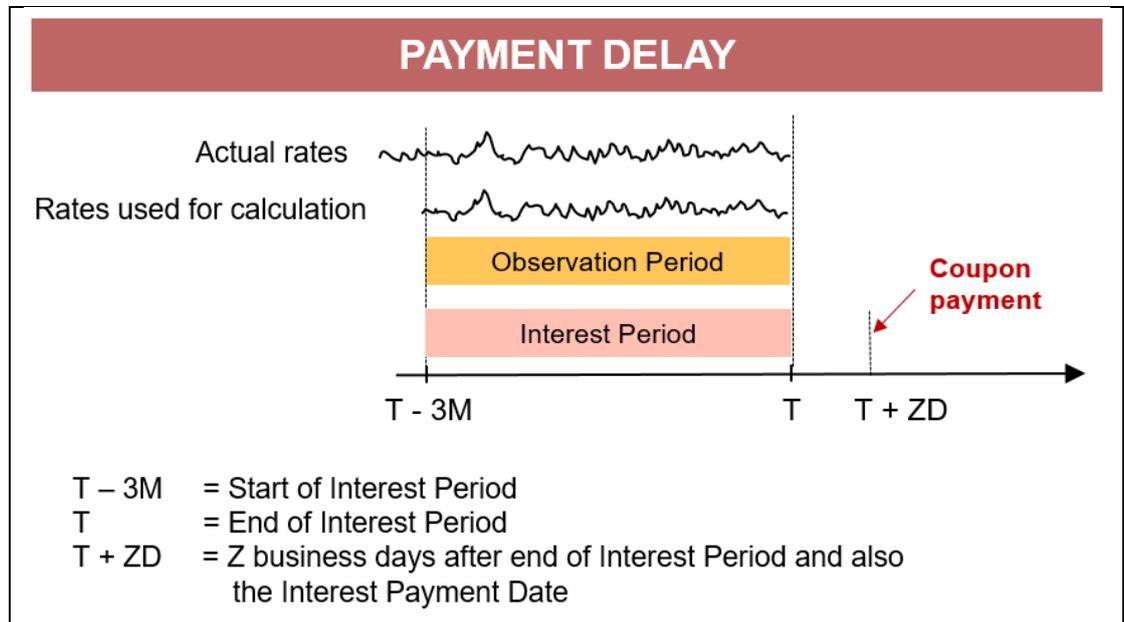


(d) Payment Delay

In this option, interest payments are delayed by a certain number of business days (referred to as “Z” in the diagram below). Interest payments are thus due Z business days after the end of an interest period. This delay period is configured to allow sufficient time for parties to calculate and arrange for the interest payment.

In the last interest period, the interest payment is due after the repayment of the principal amount. This could lead to a mismatch of cash flows and may be difficult to handle from an operational and credit risk perspective. To overcome this, a Payment Delay approach is sometimes combined with a Lockout Observation Period approach for the final interest period. In this combined approach, the SORA rate will be “frozen” a certain number of days prior to the final interest period so that the final interest payment can be made on the same day as the repayment of the principal amount. As of the date of this Compendium, no securities referencing SORA has selected such option.

The following diagram illustrates this approach for the interest period before the final interest period and for the final interest period if the Payment Delay approach is not combined with a Lockout Observation period approach assuming that the interest period is for a period of three months:



3.3.4 Determination of SORA floating rate securities

The Compounded Daily SORA for any interest period corresponding to each of the options outlined above may be determined in accordance with formulae set out below.

(a) Lockout Observation Period

(●) in the case of Floating Rate Notes which are specified in the applicable Pricing Supplement as being SORA Notes, the Rate of Interest for each Interest Accrual Period will, subject as provided below, be Compounded Daily SORA (as defined below) plus or minus the Margin:

(1) where Lockout is specified in the applicable Pricing Supplement:

“Compounded Daily SORA” means, with respect to an Interest Accrual Period, the rate of return of a daily compound interest investment during such Interest Accrual Period (with the reference rate for the calculation of interest being the daily Singapore Overnight Rate Average) calculated in accordance with the formula set forth below by the Calculation Agent (or such other party responsible for the calculation of the Rate of Interest, as specified in the applicable Pricing Supplement) on the Rate Cut-off Date, with the resulting percentage being rounded, if necessary, to the nearest one ten-thousandth of a percentage point (0.0001%), with 0.00005% being rounded upwards.

$$\left[\prod_{i=1}^{d_o} \left(1 + \frac{SORA_i \times n_i}{365} \right) - 1 \right] \times \frac{365}{d}$$

where:

“**d**” is the number of calendar days in the relevant Interest Accrual Period;

“**d_o**”, for any Interest Accrual Period, is the number of Singapore Business Days in the relevant Interest Accrual Period;

“**i**”, for the relevant Interest Accrual Period, is a series of whole numbers from one to **d_o**, each representing the relevant Singapore Business Days in chronological order from, and including, the first Singapore Business Day in such Interest Accrual Period to, but excluding, the last Singapore Business Day in such Interest Accrual Period;

“**n_i**”, for any day “**i**”, is the number of calendar days from and including such day “**i**” up to but excluding the following Singapore Business Day;

“**Rate Cut-Off Date**” means, with respect to a Rate of Interest and Interest Accrual Period, the date falling [**•**] Singapore Business Days (or such other number of Singapore Business Days specified in the applicable Pricing Supplement) prior to the Interest Payment Date in respect of the relevant Interest Accrual Period;

“**Singapore Business Days**” or “**SBD**” means a day (other than a Saturday, Sunday or gazetted public holiday) on which commercial banks settle payments in Singapore;

“**SORA**” means, in respect of any Singapore Business Day “**i**”, a reference rate equal to the daily Singapore Overnight Rate Average published by the Monetary Authority of Singapore (or a successor administrator), as the administrator of the benchmark, on the Monetary Authority of Singapore’s website currently at <http://www.mas.gov.sg>, or any successor website officially designated by the Monetary Authority of Singapore (or as published by its authorised distributors) (the “Relevant Screen Page”) on the Singapore Business Day immediately following such day “**i**”;

“**SORA_i**” means, in respect of any Singapore Business Day falling in the relevant Interest Accrual Period:

- (A) if such Singapore Business Day is a SORA Reset Date, the reference rate equal to SORA in respect of that Singapore Business Day; and

(B) if such Singapore Business Day is not a SORA Reset Date (being a Singapore Business Day falling in the Suspension Period), the reference rate equal to SORA in respect of the first Singapore Business Day falling in the Suspension Period (the “**Suspension Period SORA_i**”) (such first day of the Suspension Period coinciding with the Rate Cut-Off Date). For the avoidance of doubt, the Suspension Period SORA_i shall apply to each day falling in the relevant Suspension Period;

“**SORA Reset Date**” means, in relation to any Interest Accrual Period, each Singapore Business Day during such Interest Accrual Period, other than any Singapore Business Day falling in the Suspension Period corresponding with such Interest Accrual Period; and

“**Suspension Period**” means, in relation to any Interest Accrual Period, the period from (and including) the date falling [•] Singapore Business Day prior to the Interest Payment Date in respect of the relevant Interest Accrual Period or such other date specified in this Pricing Supplement (such Singapore Business Day coinciding with the Rate Cut-Off Date) to (but excluding) the Interest Payment Date of such Interest Accrual Period.”

(b) Lookback Observation Period

“(•) in the case of Floating Rate Notes which are specified in the applicable Pricing Supplement as being SORA Notes, the Rate of Interest for each Interest Accrual Period will, subject as provided below, be Compounded Daily SORA (as defined below) plus or minus the Margin:

(2) where Lookback is specified in the applicable Pricing Supplement:

“**Compounded Daily SORA**” means, with respect to an Interest Accrual Period, the rate of return of a daily compound interest investment during the Observation Period corresponding to such Interest Accrual Period (with the reference rate for the calculation of interest being the daily Singapore Overnight Rate Average) calculated in accordance with the formula set forth below by the Calculation Agent (or such other party responsible for the calculation of the Rate of Interest, as specified in the applicable Pricing Supplement) on the Interest Determination Date, with the resulting percentage being rounded, if necessary, to the nearest one ten-thousandth of a percentage point (0.0001%), with 0.00005% being rounded upwards.

$$\left[\prod_{i=1}^{d_o} \left(1 + \frac{SORA_{i-x_{SBD}} \times n_i}{365} \right) - 1 \right] \times \frac{365}{d}$$

where:

“**d**” is the number of calendar days in the relevant Interest Accrual Period;

“ d_o ”, for any Interest Accrual Period, is the number of Singapore Business Days in the relevant Interest Accrual Period;

“ i ”, for the relevant Interest Accrual Period, is a series of whole numbers from one to d_o , each representing the relevant Singapore Business Days in chronological order from, and including, the first Singapore Business Day in such Interest Accrual Period to, but excluding, the last Singapore Business Day in such Interest Accrual Period;

“**Interest Determination Date**” means, with respect to a Rate of Interest and Interest Accrual Period, the date falling one Singapore Business Day after the end of each Observation Period;

“ n_i ”, for any day “ i ”, is the number of calendar days from and including such day “ i ” up to but excluding the following Singapore Business Day;

“**Observation Period**” means, for the relevant Interest Accrual Period, the period from, and including, the date falling [\bullet] Singapore Business Days (or such other number of Singapore Business Days specified in the applicable Pricing Supplement) prior to the first day of such Interest Accrual Period (and the first Interest Accrual Period shall begin on and include the Interest Commencement Date) and to, but excluding, the date falling [\bullet] Singapore Business Days (or such other number of Singapore Business Days specified in the applicable Pricing Supplement) prior to the Interest Payment Date at the end of such Interest Accrual Period (or the date falling [\bullet] Singapore Business Days (or such other number of Singapore Business Days specified in the applicable Pricing Supplement) prior to such earlier date, if any, on which the Notes become due and payable);

“**Singapore Business Days**” or “**SBD**” means a day (other than a Saturday, Sunday or gazetted public holiday) on which commercial banks settle payments in Singapore;

“**SORA**” means, in respect of any Singapore Business Day “ i ”, a reference rate equal to the daily Singapore Overnight Rate Average published by the Monetary Authority of Singapore (or a successor administrator), as the administrator of the benchmark, on the Monetary Authority of Singapore’s website currently at <http://www.mas.gov.sg>, or any successor website officially designated by the Monetary Authority of Singapore (or as published by its authorised distributors) (the “Relevant Screen Page”) on the Singapore Business Day immediately following such day “ i ”; and

“**SORA_{i - x SBD}**” means, in respect of any Singapore Business Day falling in the relevant Observation Period, the reference rate equal to SORA in respect of the Singapore Business Day falling five Singapore Business Days (or such other number of Singapore Business Days specified in the applicable Pricing Supplement) prior to the relevant Singapore Business Day “ i ”.

(c) Backward Shifted Observation Period

“(●) in the case of Floating Rate Notes which are specified in the applicable Pricing Supplement as being SORA Notes, the Rate of Interest for each Interest Accrual Period will, subject as provided below, be Compounded Daily SORA (as defined below) plus or minus the Margin:

(3) where Backward Shifted Observation Period is specified in the applicable Pricing Supplement:

“**Compounded Daily SORA**” means, with respect to an Interest Accrual Period, the rate of return of a daily compound interest investment during the Observation Period corresponding to such Interest Accrual Period (with the reference rate for the calculation of interest being the daily Singapore Overnight Rate Average) calculated in accordance with the formula set forth below by the Calculation Agent (or such other party responsible for the calculation of the Rate of Interest, as specified in the applicable Pricing Supplement) on the Interest Determination Date, with the resulting percentage being rounded, if necessary, to the nearest one ten-thousandth of a percentage point (0.0001%), with 0.00005% being rounded upwards.

$$\left[\prod_{i=1}^{d_o} \left(1 + \frac{SORA_i \times n_i}{365} \right) - 1 \right] \times \frac{365}{d}$$

where:

“**d**” is the number of calendar days in the relevant Observation Period;

“**d_o**”, for any Interest Accrual Period, is the number of Singapore Business Days in the relevant Observation Period;

“**i**”, for the relevant Interest Accrual Period, is a series of whole numbers from one to **d_o**, each representing the relevant Singapore Business Days in chronological order from, and including, the first Singapore Business Day in such Observation Period to, but excluding, the last Singapore Business Day in such Observation Period;

“**Interest Determination Date**” means, with respect to a Rate of Interest and Interest Accrual Period, the date falling one Singapore Business Day after the end of each Observation Period;

“**n_i**”, for any day “**i**”, is the number of calendar days from and including such day “**i**” up to but excluding the following Singapore Business Day;

“**Singapore Business Days**” or “**SBD**” means a day (other than a Saturday, Sunday or gazetted public holiday) on which commercial banks settle payments in Singapore;

“Observation Period” means, for the relevant Interest Accrual Period, the period from, and including, the date falling [●] Singapore Business Days (or such other number of Singapore Business Days specified in the applicable Pricing Supplement) prior to the first day of such Interest Accrual Period (and the first Interest Accrual Period shall begin on and include the Interest Commencement Date) and to, but excluding, the date falling [●] Singapore Business Days (or such other number of Singapore Business Days specified in the applicable Pricing Supplement) prior to the Interest Payment Date at the end of such Interest Accrual Period (or the date falling [●] Singapore Business Days (or such other number of Singapore Business Days specified in the applicable Pricing Supplement) prior to such earlier date, if any, on which the Notes become due and payable);

“SORA” means, in respect of any Singapore Business Day “i”, a reference rate equal to the daily Singapore Overnight Rate Average published by the Monetary Authority of Singapore (or a successor administrator), as the administrator of the benchmark, on the Monetary Authority of Singapore’s website currently at <http://www.mas.gov.sg>, or any successor website officially designated by the Monetary Authority of Singapore (or as published by its authorised distributors) (the “Relevant Screen Page”) on the Singapore Business Day immediately following such day “i”; and

“SORA_i” means, in respect of any Singapore Business Day falling in the relevant Observation Period, the reference rate equal to SORA in respect of that Singapore Business Day.”

(d) Payment Delay

“(●) in the case of Floating Rate Notes which are specified in the applicable Pricing Supplement as being SORA Notes, the Rate of Interest for each Interest Accrual Period will, subject as provided below, be Compounded Daily SORA (as defined below) plus or minus the Margin:

(4) where Payment Delay is specified in the applicable Pricing Supplement:

“Compounded Daily SORA” means, with respect to an Interest Accrual Period, the rate of return of a daily compound interest investment during such Interest Accrual Period (with the reference rate for the calculation of interest being the daily Singapore Overnight Rate Average) calculated in accordance with the formula set forth below by the Calculation Agent (or such other party responsible for the calculation of the Rate of Interest, as specified in the applicable Pricing Supplement) on the Interest Determination Date, with the resulting percentage being rounded, if necessary, to the nearest one ten-thousandth of a percentage point (0.0001%), with 0.00005% being rounded upwards.

$$\left[\prod_{i=1}^{d_o} \left(1 + \frac{SORA_i \times n_i}{365} \right) - 1 \right] \times \frac{365}{d}$$

where:

“**d**” is the number of calendar days in the relevant Interest Accrual Period;

“**d₀**”, for any Interest Accrual Period, is the number of Singapore Business Days in the relevant Interest Accrual Period;

“**i**”, for the relevant Interest Accrual Period, is a series of whole numbers from one to **d₀**, each representing the relevant Singapore Business Days in chronological order from, and including, the first Singapore Business Day in such Interest Accrual Period to, but excluding, the last Singapore Business Day in such Interest Accrual Period;

“**Interest Determination Date**” means, with respect to a Rate of Interest and Interest Accrual Period, the date falling one Singapore Business Day after the end of each Interest Accrual Period;

“**n_i**”, for any day “**i**”, is the number of calendar days from and including such day “**i**” up to but excluding the following Singapore Business Day;

“**Singapore Business Days**” or “**SBD**” means a day (other than a Saturday, Sunday or gazetted public holiday) on which commercial banks settle payments in Singapore;

“**SORA**” means, in respect of any Singapore Business Day “**i**”, a reference rate equal to the daily Singapore Overnight Rate Average published by the Monetary Authority of Singapore (or a successor administrator), as the administrator of the benchmark, on the Monetary Authority of Singapore’s website currently at <http://www.mas.gov.sg>, or any successor website officially designated by the Monetary Authority of Singapore (or as published by its authorised distributors) (the “**Relevant Screen Page**”) on the Singapore Business Day immediately following such day “**i**”; and

“**SORA_i**” means, in respect of any Singapore Business Day falling in the relevant Interest Accrual Period, the reference rate equal to SORA in respect of that Singapore Business Day.”

The following sample language may be adopted for the interest payment clause to effect the payment delay approach. The sentence in brackets should only be inserted if the formula above is combined with a Lockout formula for the final Interest Accrual Period.

“Each Floating Rate Note bears interest on its principal amount outstanding from the Interest Commencement Date in respect thereof and as shown in the relevant Pricing Supplement, and such interest will be payable in arrear on each Interest Payment Date unless Payment Delay is specified in the applicable Pricing Supplement for a SORA Note, in which case interest will be payable in arrear on the [●] Business Day following each Interest Payment Date. [Notwithstanding the foregoing, interest in respect of the final Interest Accrual Period will be payable in arrear on the final Interest Payment Date.] Such Interest Payment Date(s) is/are either shown hereon as Specified Interest Payment Date(s) or, if no Specified Interest Payment Date(s) is/are shown hereon, Interest Payment Date shall mean each date which (save as mentioned in these Conditions) falls the number of months specified as the Interest Accrual Period (as defined below) in the relevant Pricing Supplement after the preceding Interest Payment Date or, in the case of the first Interest Payment Date, after the Interest Commencement Date (and which corresponds numerically with such preceding Interest Payment Date or the Interest Commencement Date, as the case may be).”

3.3.5 *SORA fallbacks for temporary unavailability*

There have been several fallbacks developed to provide for scenarios where SORA is not published or cannot be determined due to a temporary unavailability, assuming that there is no occurrence of a Benchmark Event. The SC-STC has developed a recommended SORA fallback language (the “**Recommended SORA Fallback Language for Temporary Unavailability**”) for consideration for inclusion in the relevant documentation for SORA-referencing securities.

(a) Recommended SORA Fallback Language for Temporary Unavailability

- “(●) If, subject to Condition [●][Drafting Note: Refer to Benchmark Event Condition Number], by 5:00 p.m., Singapore time, on the Singapore Business Day immediately following such day “i”, SORA in respect of such day “i” has not been published and a Benchmark Event has not occurred, then SORA for that day “i” will be SORA as published in respect of the first preceding Singapore Business Day for which SORA was published.
- (●) In the event that the Rate of Interest cannot be determined in accordance with the foregoing provisions by the Calculation Agent (or such other party responsible for the calculation of the Rate of Interest, as specified in the applicable Pricing Supplement), subject to Condition [●] [Drafting Note: Refer to Benchmark Event Condition Number], the Rate of Interest shall be:

- (A) that determined as at the last preceding Interest Determination Date or, as the case may be, Rate Cut-off Date (though substituting, where a different Margin or Maximum Rate of Interest or Minimum Rate of Interest is to be applied to the relevant Interest Accrual Period from that which applied to the last preceding Interest Accrual Period, the Margin or Maximum Rate of Interest or Minimum Rate of Interest (as specified in the applicable Pricing Supplement) relating to the relevant Interest Accrual Period in place of the Margin or Maximum Rate of Interest or Minimum Rate of Interest relating to that last preceding Interest Accrual Period); or
- (B) if there is no such preceding Interest Determination Date or, as the case may be, Rate Cut-off Date, the initial Rate of Interest which would have been applicable to such Series of Notes for the first Interest Accrual Period had the Notes been in issue for a period equal in duration to the scheduled first Interest Accrual Period but ending on (and excluding) the Interest Commencement Date (but applying the Margin and any Maximum Rate of Interest or Minimum Rate of Interest applicable to the first Interest Accrual Period).

If the relevant Series of Notes become due and payable in accordance with Condition [●], the final Interest Determination Date shall, notwithstanding any Interest Determination Date specified in the applicable Pricing Supplement, be deemed to be the date on which such Notes became due and payable (with corresponding adjustments being deemed to be made to the Compounded Daily SORA formula) and the Rate of Interest on such Notes shall, for so long as any such Note remains outstanding, be that determined on such date.”

(b) Preceding Day SORA

If by 5:00 p.m., Singapore time, on the Singapore business day immediately following any day in respect of which SORA is to be determined (referred to as day “i” in the formulae), SORA is not published and a Benchmark Event has not occurred, SORA for day “i” shall be the SORA as published in respect of the Singapore business day first preceding day “i” for which SORA is published.

(c) Previous Interest Rate

In the event the interest rate cannot be determined in accordance with one of the formulae set out above or by relying on the preceding day SORA fallback above and a Benchmark Event has not occurred, the benchmark rate for that interest period would be the benchmark rate applicable for the previous interest period.

(d) Benchmark Event

In the event a Benchmark Event occurs in relation to SORA, fallback replacement language for SORA would be applicable. Parties can consider using the Recommended Fallback Replacement Language for SOR cessation in paragraph 3.2.1 as a basis for drafting the fallback replacement language for SORA.

(e) Minimum Interest rate

The minimum interest rate of SOR floating rate securities are customarily set at zero. If market participants wish to opt for alternative minimum interest, please consult the relevant parties (such as legal counsels, paying agent, and clearing system) to ensure that such alternative is permissible and supported by the relevant infrastructures.

(f) SORA-referencing resettable fixed rate securities

The above recommended drafting language and discussion has been provided for SORA-referencing floating rate securities. As of the date of this Compendium, alternatives and suitable methods of using SORA as benchmark rate for resettable fixed rate securities are being considered.

4. Corporate Loans

4.1 Legacy corporate loans

In Singapore, as in many other diversified economies, corporates rely on loans as one of the key funding tools for a variety of purposes, ranging from general purposes such as serving as working capital to more specific purposes such as business acquisitions or project financing. The interest rates charged on corporate loans are typically computed as the aggregate of an agreed reference rate and a margin, although, less commonly, the lender may provide corporate loans having a fixed rate of interest.

At present, in the Singapore dollar loans market, floating rate loans are usually either based on SOR or the Singapore Interbank Offered Rate (SIBOR). Larger-sized loans tend to be based on SOR, and could be hedged with accompanying SOR interest rate swaps, which allow corporates to manage their interest rate risks.

4.1.1 *Effect of transition on legacy corporate loans*

As LIBOR is expected to be discontinued after end-2021, SOR, which relies on USD LIBOR in its computation, will no longer be published when USD LIBOR ceases. In typical loan documentation referencing SOR (in particular, one that is prepared based on the Asia-Pacific Loan Market Association (“**APLMA**”) templates), the cessation of publication of SOR could constitute a “market disruption event”. A “market disruption event” may trigger certain contractual fallbacks, such as the determination of interest on a cost of funds basis. Readers should examine the provisions of the loan documentation in question to determine if this is indeed the case.

4.2 Transition period

Having said the above, it should be noted that, presently, most contracts referencing SOR may not be drafted with the occurrence of a permanent or indefinite cessation of SOR in mind. Consequently, the SOR fallbacks provided in such contracts may not be suitable or appropriate as a long-term response to such an event. As such, legacy SOR corporate loans should preferably include specific contractual fallbacks to allow for more sustainable operations post-cessation of SOR.

4.2.1 *Legacy SOR fallbacks*

(a) Recommended SOR fallback rates

The SC-STS has selected certain preferred SOR fallback rates, in the following applicable order:

- (i) the Fallback Rate (SOR)³⁴;
- (ii) the aggregate sum of (A) a rate recommended by the MAS or a committee officially endorsed or convened by the MAS (the “**Recommended Fallback Rate**”), plus (B) a related benchmark replacement adjustment (the “**Benchmark Replacement Adjustment**”); and

³⁴ See Calculation Methodology for Fallback Rate (SOR) which is available at the ABS Co website: <<https://www.abs.org.sg/benchmark-rates/publication>>.

- (iii) the aggregate sum of (A) a replacement rate that is agreed between the Lender and the Borrower, taking into account market conventions and regulatory guidance (the “**Agreed Fallback Rate**”), plus (B) a related Benchmark Replacement Adjustment.

The above fallback options may not be exhaustive, as the appropriate contractual fallbacks may continue to develop over time. The lenders and borrowers may also separately choose to agree on additional fallbacks to supplement the above options.

Each of the fallbacks is explained further below.

- (i) Fallback Rate (SOR)

Fallback Rate (SOR) is the primary fallback rate for legacy SOR corporate loans that will subsist post-cessation of SOR after end-2021. This is aligned with the selected approach for legacy SOR derivatives transactions.

Fallback Rate (SOR) is calculated based on actual transactions in the USD/SGD foreign exchange swap market and a USD interest rate calculated by reference to “Fallback Rate (SOFR)” (being the fallback for legacy USD LIBOR derivatives transactions, as published by Bloomberg Index Services Limited)³⁵. As the construct of Fallback Rate (SOR) is similar to SOR, the use of Fallback Rate (SOR) as the fallback reference rate would reduce the risk of value transfer and is therefore expected to receive greater market support³⁶.

Using “Fallback SOFR” for the USD LIBOR component means that Fallback Rate (SOR) will be published in arrears, once the relevant USD interest rate inputs by the Federal Reserve Bank of New York and by Bloomberg has been published. Users should take note of the need to prepare for systems and operational changes arising from the shift from a reference to SOR, which is a rate known at the start of an interest period, to a reference to Fallback Rate (SOR), which is published in arrears at the end of an interest period.

- (ii) Recommended Fallback Rate

If the Fallback Rate (SOR) is unable to be determined for any reason on the applicable date that SOR is to be replaced as the reference rate, the next preferred fallback rate is the aggregate of the Recommended Fallback Rate plus a related Benchmark Replacement Adjustment.

Depending on the agreed position between the lender(s) and the borrower, the applicable Benchmark Replacement Adjustment can either be:

- (A) the corresponding spread adjustment (or method for calculating or determining such spread adjustment) (which may be a positive or negative value or zero) selected or recommended by the MAS or a committee officially endorsed or convened by the MAS

³⁵ SOFR is a RFR administered by the Federal Reserve Bank of New York and is a broad measure of the cost of borrowing USD overnight in transactions secured by US Treasuries. Fallback Rate (SOFR) is essentially a term adjusted SOFR plus a spread adjustment. It will be calculated by Bloomberg Index Services Limited by compounding SOFR over the relevant period (e.g. 1-month, 3-months, 6-months), and then adding a spread adjustment. The spread adjustment is to ensure that the fallback for USD LIBOR based on SOFR can meet the original objectives of the parties who entered into a derivatives transaction referencing USD LIBOR, as there are structural differences between USD LIBOR (being an IBOR) and SOFR (being an overnight rate). For example, USD LIBOR incorporates a bank credit risk premium. Fallbacks for IBORs based on RFRs generally incorporate a spread adjustment to reflect such structural differences. The spread adjustment in the case of the SOFR fallback for USD LIBOR is calculated based on the median over a five-year period of the historical difference between USD LIBOR in the relevant tenor and SOFR compounded over the corresponding period.

³⁶ See the SC-STIS website on SOR discontinuation and contractual fallbacks at <<https://www.abs.org.sg/benchmark-rates/sor-discontinuation-and-contractual-fallbacks>>.

with such Recommended Fallback Rate for the applicable period;

- (B) the spread adjustment (which may be a positive or negative value or zero) that would apply to the fallback rate for a derivative transaction referencing SOR in the 2006 ISDA Definitions (as may be amended or supplemented from time to time) to be determined upon an index cessation event with respect to SOR for the applicable period; or
 - (C) a spread adjustment agreed between the lenders and the borrower, having given due consideration to any industry-accepted spread adjustment (or method for calculating or determining such spread adjustment).
- (iii) Agreed Fallback Rate

If the Recommended Fallback Rate is unable to be determined, the next preferred fallback is the aggregate of the Agreed Fallback Rate plus a related Benchmark Replacement Adjustment.

Please refer to paragraph (ii) above on how the applicable Benchmark Replacement Adjustment may be determined.

(b) Trigger to the SOR fallback provisions

As mentioned above, the trigger for the SOR fallback rates to apply is the transition away from SOR. The SC-STS considers that an indicator of the commencement of this transition is if one of the following three events has occurred:

- (i) The first is the issuance of a public statement or publication of information by or on behalf of the administrator of USD LIBOR (being a published component used in computing SOR) announcing that it has ceased or that it will cease to provide USD LIBOR permanently or indefinitely.
- (ii) The second is the issuance of a public statement or publication of information by the regulatory supervisor for the administrator of USD LIBOR, which states that the administrator of USD LIBOR (being a published component used in computing SOR) has ceased or will cease to provide USD LIBOR permanently or indefinitely.
- (iii) The third is a public statement or publication of information by the regulatory supervisor for the administrator of USD LIBOR announcing that USD LIBOR (being a published component used in computing SOR) is no longer or will no longer be representative of the underlying market and economic reality that USD LIBOR is intended to measure and that representativeness will not be restored.

(c) Legacy SOR fallbacks and SORA

Market participants should note that Fallback Rate (SOR), as well as the other selected fallback options for legacy SOR loans, are intended solely as interim fallback reference rates, and are not intended for use in new corporate loans. For new contracts, the Singapore dollar derivatives and cash markets will be adopting SORA as the benchmark replacement rate for SOR. Fallback Rate (SOR) will be discontinued after about three years following the fallback trigger³⁷. During this period, apart from

³⁷ See the announcement by the SC-STS on 1 September 2020 at <<https://www.abs.org.sg/benchmark-rates/sor-discontinuation-and-contractual-fallbacks>>.

ensuring that contractual fallbacks are put in place for its existing SOR contracts, market participants should consider transitioning to SORA as soon as possible.

4.2.2 *Replacement of Screen Rate clause*

In order to facilitate the transition of legacy SOR corporate loans to Fallback Rate (SOR), the loan documentation for such products will need to include language to cater for such transition.

As the possibility of the LIBOR transition was already raised in 2014, recent loan agreements based on the Loan Market Association (“**LMA**”) templates have adopted the drafting of a “Replacement of Screen Rate Clause” (the “**RSR Clause**”) that was first published by the LMA on 21 December 2018³⁸, with the LMA facility agreement templates incorporating such a clause as of 28 February 2020. The RSR Clause was subsequently adopted in the APLMA facility agreement templates as of 5 May 2020. The RSR Clause essentially provides a regime for parties to agree on alternative benchmarks-related amendments in the event that the existing Screen Rate ceases to be available³⁹.

The intention of the RSR Clause is to facilitate the transition from an existing IBOR/SOR to the new replacement RFR, by lowering the thresholds for consent required to make such transition. For example, the template RSR Clause provides that if the existing Screen Rate is unavailable, any amendment to the documentation replacing that Screen Rate may be made with the consent of the Majority Lenders⁴⁰ and Obligors. Other optional devices to expedite negotiations and finalisation of amendments relating to the replacement of the Screen Rate include a form of “snooze-you-lose” where a Lender who fails to respond within a specified time-frame to a request for amendment would be disenfranchised.

Although the RSR Clause was designed to be included into loan documentation for syndicated loans, parties may also consider its inclusion into bilateral loans as a form of signalling of the parties’ intention to agree on the steps to replace the existing Screen Rate in the event of its unavailability.

Having said the above, it should be noted that the RSR Clause does not provide for the operative provisions which will apply in the event that the interest rate is referenced to a new RFR/SORA. Amendments will need to be made to the underlying loan or facility agreement to bring the agreed RFR-related clauses into effect. In this regard, readers may wish to note that the LMA has published an exposure draft on 11 September 2020⁴¹ incorporating certain “rate switch provisions” (the “**Rate Switch Provisions**”) to provide for a direct transition to a replacement RFR upon the occurrence of one or more specified events, without the need to enter into a further amendment agreement.

It is worth mentioning that the RSR Clause and the Rate Switch Provisions should be treated as interim reference tools to kick-start, and to facilitate market participants’ awareness of, the imminent transition to Fallback Rate (SOR). In particular, the Rate Switch Provisions have been prepared based on certain chosen market conventions that are prevailing in respect of SONIA, and which may not be the

³⁸ See the document entitled “LMA Recommended Revised Form of Replacement Screen Rate Clause and Users Guide” (available through the LMA website at <<https://lma.eu.com>>). Please note that the LMA has published a revised version of the RSR Clause on 24 August 2020 (the “**Revised RSR Clause**”), but the LMA and APLMA facility agreement templates have not yet been updated to incorporate such revised version.

³⁹ The Revised RSR Clause provides further flexibility to make changes to the benchmark rate provisions, by including an additional longstop date option to trigger the transition process once the stipulated longstop date has passed.

⁴⁰ Note of course that exact composition of “Majority Lenders” would depend on how such term is defined in the relevant loan document.

⁴¹ See the document entitled “Exposure draft of multicurrency term and revolving facilities agreement incorporating rate switch provisions (lookback without observation shift)”, as well as its accompanying commentary (all available through the LMA website at <<https://lma.eu.com>>).

applicable market conventions for Fallback Rate (SOR).

4.3 New products

Over the past year, the financial industry in Singapore has been making preparations to transition from SOR to SORA. One of the key milestones in these preparations is the launch of commercial bilateral and syndicated loans that reference SORA instead of SOR. Several large corporates in the Singapore market have already taken the first steps and have met this milestone in taking up bilateral loans referencing SORA instead of SOR.

While these pioneer loans assist to enhance market confidence in adopting SORA, it should be noted that they do not establish the market conventions. Work remains under way, even amongst global industry groups and market participants (for example, with respect to SOFR and SONIA), to agree on or make recommendations of, market conventions applicable for replacement RFRs. From a domestic standpoint, to support the development of the commercial SORA loan market, the SC-STS has released the below industry-wide recommendations on SORA loan market conventions and fallbacks. These conventions may be updated periodically as the market further evolves.

4.3.1 *Recommendations for SORA Loan Market Conventions and Fallbacks*

(a) Objectives

In alignment with the key priorities outlined in the roadmap of the transition of SOR to SORA⁴², the SC-STS has issued recommendations on conventions to support the use of SORA in Singapore dollar bilateral and syndicated loans.

The SC-STS recognises the urgent need for lenders and borrowers to transition away from the use of SOR. The SC-STS has evaluated the available market conventions, taking into consideration the overall needs of the SGD market, operational and implementation considerations and the need for consistency across currencies, products and markets. The SC-STS also recognises the desire from many market participants for alignment between loan and derivatives market conventions, to minimise basis risk in hedging arrangements and for international consistency, wherever practicable.

Banks recognise the need for a product feature that provides borrowers with some advance notice of payment (e.g. five business days). The SC-STS has reviewed available methodologies for doing so, and considers the “Lookback with Observation Shift” and the “Lookback without Observation Shift” as suitable options for the SORA loan market. With both approaches remaining relevant in global loan markets to date, including the USD and GBP loan markets, the SC-STS has decided to provide an explanation of both approaches, including the circumstances in which lenders and borrowers may choose to use one or the other.

In publishing these recommendations, the SC-STS has carefully reviewed the potential options that are available in the global market and subjected them to the review and challenge of its members. The SC-STS expects that for many banks, these recommendations will help in the necessary first steps towards making the changes to product and process required to originate SORA-referencing loans.

⁴² See the ABS website at <<https://abs.org.sg/benchmark-rates/transition-roadmap>>.

(b) Summary of recommendations

SORA is the SC-STS's recommended alternative for new bilateral and syndicated loans. For the majority of bilateral and syndicated loans, SORA will be used via a compounded-in-arrears methodology. The scope of this chapter is to describe and explain the loan conventions required to put a compounded-in-arrears methodology in operation.

The SC-STS recognises two main conventions have been recommended by industry working groups globally⁴³ for business loans, to ensure the borrower receives at least a few days' advance notice of payment: (i) Lookback with Observation Shift and (ii) Lookback without Observation Shift.

The SC-STS recommends that both conventions are equally practicable, recognising that borrowers and lenders will use them for different purposes, which are outlined in this chapter (see paragraph 4.3.1(d) below for the comparison between these two approaches).

These recommendations are published in order to assist market participants who have been awaiting direction on the preferred methodology prior to commencing the development of their standard product offerings. These recommendations are not binding or mandatory. It is recognised that in certain transactions or client-specific circumstances for a lender or borrower (or group of lenders or borrowers), variations to the methodology, rate or convention(s) may be more appropriate or convenient.

(c) Indicative terms for SORA Bilateral and Syndicated loans

A brief summary table for the indicative terms for SORA bilateral and syndicated loans is set out below.

No.	Item	Indicative terms and commentary
1.	Interest Basis	Compounded Daily SORA + Margin. Singapore Overnight Rate Average (SORA) – the risk-free rate published by the MAS, chosen by the SC-STS to replace the Singapore Swap Offer Rate (SOR). <i>See row 10 of this table for the definition of Margin.</i> <i>See row 14 of this table for the definition of Compounded Daily SORA.</i>
2.	Mechanism to provide borrower with advance notice of payment (i.e. either Lookback with Observation Shift or Lookback	Either: (a) 5 Business Day Lookback with Observation Shift; OR (b) 5 Business Day Lookback without Observation Shift.

⁴³ For example, in September 2020, the Bank of England's Working Group on Sterling Risk-Free Reference Rates (the "Sterling RFR WG") recommended applying a five business day Lookback without Observation Shift to SONIA loans, while continuing to recognise that Lookback with Observation Shift remains a "viable and robust alternative approach".

	without Observation Shift)	<i>Please refer to paragraph 4.3.1(d) below for considerations for lenders and borrowers to choose between (a) and (b) above.</i> <i>See row 12 of this table for the definition of Business Day.</i>
3.	Interest Period	[•] months or any other period agreed between the borrower and the lender. No Interest Period shall be longer than [•] months.
4.	Interest Determination Date	The day falling one Business Day following the last day of each Observation Period. <i>See row 14 of this table for the definition of Observation Period.</i>
5.	Daily SORA	SORA, as published on the Statistics page of the MAS website, http://www.mas.gov.sg , or any successor website officially designated by the Monetary Authority of Singapore (or as published by its authorised distributors).
6.	Publication Timing	SORA for each Business Day is currently published at 9.00 a.m. SGT the next Business Day. While SORA is eligible for re-publication ⁴⁴ , the mechanism to provide borrower with advance notice of payment permits users to choose the corrected rate if a correction were to occur. The SC-STS recommends that if a corrected rate is published, it is used in place of the original, uncorrected, rate.
7.	Business Day Convention	Modified Following Business Day Convention. This means payments of interest that would fall on a day that is a non-Business Day are adjusted to the next succeeding Business Day, unless that Business Day falls in the next calendar month, in which case the interest payment date is the preceding Business Day.
8.	Day Count Fraction	Actual / 365 (Fixed).
9.	Quotation Day	The Business Day immediately following the last day of the Observation Period relating to the relevant Interest Period.
10.	Margin	The margin should be added to the compounded rate in the interest calculation provision, but the margin itself should not be compounded.

⁴⁴ See Republication Policy section of Singapore Overnight Rate Average ("SORA") Key Features and Calculation Methodology, published by the MAS on 5 August 2020.

11.	<p>Cost of funds</p> <p><i>(relevant where market disruption or cost of funds provisions are included)</i></p>	<p>A lender's "cost of funds" in relation to its participation in a loan is a reference to the average cost (determined either on an actual or a notional basis) which that lender would incur if it were to fund, from whatever source(s) it may reasonably select, an amount equal to the amount of that participation in that loan for a period equal in length to the Interest Period of that loan.</p>
12.	Business Day	Any day other than a Saturday, Sunday, public holiday or bank holiday in Singapore.
13.	Governing Law	Singapore.
14.	Reference Rate	<p>Means, in relation to any loan:</p> <p>(a) the Compounded Daily SORA for the Observation Period relating to the Interest Period of that loan; or</p> <p>(b) as otherwise determined pursuant to Clause [•] <i>(Fallback language for extended unavailability or permanent cessation)</i>,</p> <p>[and if, in either case, that rate is less than zero, the Reference Rate shall be deemed to be zero.]</p> <p>"Compounded Daily SORA" means, with respect to an Interest Period, the rate of return of a daily compound interest investment during the Observation Period corresponding to such Interest Period (with the reference rate for the calculation of interest being the daily Singapore Overnight Rate Average) calculated in accordance with the formula set forth below by the Calculation Agent (or such other party responsible for the calculation of the Rate of Interest) on the Interest Determination Date, with the resulting percentage being rounded, if necessary, to the nearest one ten-thousandth of a percentage point (0.0001%), with 0.00005% being rounded upwards:</p> $\left[\prod_{i=1}^{d_b} \left(1 + \frac{r_i \times n_i}{N} \right) - 1 \right] \times \frac{N}{d_c}$ <p>where:</p> <p>"d_c" is the number of calendar days in the relevant [Interest OR Observation] Period;</p>

		<p>“d_b”, for any [Interest OR Observation] Period, is the number of Business Days in the relevant [Interest OR Observation] Period;</p> <p>“i” is a series of whole numbers from one to d_b, each representing the relevant Business Day in chronological order from, and including, the first Business Day in the relevant [Interest OR Observation] Period;</p> <p>“r_i” is the Daily Singapore Overnight Rate Average applicable on Business Day i in the Observation Period, as published on the Business Day immediately after Business Day i;</p> <p>“n_i” is, for any Business Day “i” in the relevant [Interest OR Observation] Period, the number of calendar days for which rate r_i applies, being the number of calendar days from (and including) such Business Day “i” to (but excluding) the following Business Day, irrespective of whether that following Business Day is included in the [Interest OR Observation] Period. (Therefore, on most days, n_i will be 1, but on a Friday it will generally be 3, and it will also be greater than 1 on the Business Day before a holiday);</p> <p>“Observation Period” means, for the relevant Interest Period, the period from, and including, the date falling five (5) Business Days prior to the first day of such Interest Period (and the first Interest Period shall begin on and include the Interest Commencement Date) and ending on, but excluding, the date falling five (5) Business Days prior to the last day of such Interest Period (or the date falling five (5) Business Days prior to such earlier date, if any, on which the loans become due and payable);</p> <p>N is 365 (being the market convention for quoting the number of days in the year for Singapore dollars);</p> <p><i>Choose the words in the blue brackets [] above, based on whether Lookback with Observation Shift or Lookback without Observation Shift are used – if:</i></p> <p>(a) “Lookback without Observation Shift” is used, then [Interest] should be used; else if</p> <p>(b) “Lookback with Observation Shift” is used, then [Observation] should be used.</p>
15.	Temporary Unavailability of Rate Event and fallback	Means, Daily SORA is not published for at least 1, but no more than 4, consecutive Business Days.

		If a Temporary Unavailability of Rate Event has occurred, the recommended applicable Reference Rate shall be the last available published Daily SORA.
16.	Benchmark Discontinuation Event	<p>Means, in relation to Daily SORA, either:</p> <p>(a) Daily SORA is not published for 5 consecutive Business Days or more;</p> <p>or</p> <p>(b) the MAS issues a public statement that includes one or more of the following:</p> <p>(i) the MAS has ceased or will cease to publish Daily SORA permanently or indefinitely; or</p> <p>(ii) the Benchmark Administrator has ceased to provide Daily SORA permanently or indefinitely.</p> <p>Note: Borrowers whose loans are hedged with an Interest Rate Swap may want to use a different definition of Benchmark Discontinuation Event that is identical to that used in Supplement number 62 to the 2006 ISDA Definitions⁴⁵, so that both loan and interest rate swap will reference the same definitions.</p>
17.	Fallback language for extended unavailability or permanent cessation	<p>If a Benchmark Discontinuation Event has occurred and is continuing, the applicable Reference Rate shall be replaced with:</p> <p>(a) The replacement reference rate recommended by the MAS (or any successor Benchmark Administrator) and/or a working group or committee sponsored or chaired by, or constituted at the request of the MAS;</p> <p>OR</p> <p>(b) A replacement reference rate selected by the lender, and agreed to by the borrower, taking into account such market conventions and regulatory guidance as may be relevant to the selection of a replacement reference rate in connection with such events;</p> <p>OR</p> <p>(c) The lender's cost of funds</p>

⁴⁵ Supplement number 62 to the 2006 ISDA Definitions, published on 3 February 2020 and available on the ISDA website at <<https://www.isda.org/book/supplements-to-the-2006-isd-definitions/>>.

(d) Row 2: Mechanism to provide borrower with advance notice of payment

As mentioned above, the SC-STS recommends that two possible mechanisms are equally practicable to provide a borrower with advance notice of payment, the Lookback with Observation Shift or Lookback without Observation Shift. In either case, the observation period will be the period five business days before the interest period.

The SC-STS has provided the following commentary on the considerations for lenders and borrowers to choose between the two possible mechanisms.

(1) Lookback with Observation Shift

A Lookback with Observation Shift calculates the compounded-in-arrears SORA rate for an interest period a few days before the final day of that interest period by taking an earlier snapshot (the “observation period”) of daily SORA readings. Those daily SORA readings are weighted according to the number of days in the observation period to which each reading applies. See Figure A below.

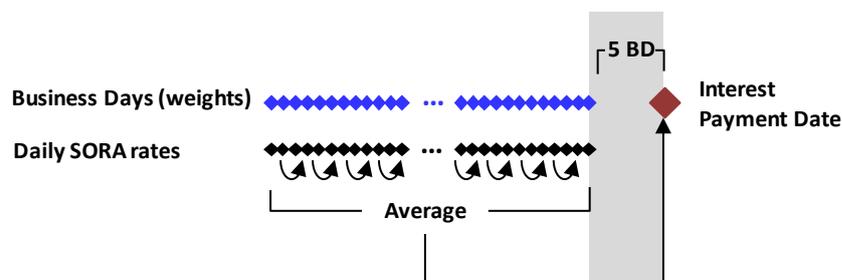


Figure A. Lookback with Observation Shift

Pros

- **Compatible with central bank-published rates.** Because both the snapshot of daily SORA readings and the weights are taken from the same period (the observation period), this approach is compatible with the use of the SORA Index⁴⁶ published by the MAS, which may be used then to calculate the relevant Compounded Daily SORA (as defined in this document) for the contract.
- **Alignment with derivative hedges.** Because the standard market convention for interest settlement of Overnight Index Swaps (OIS) is a two business day payment delay (i.e. effectively a zero-day Observation Shift), a Lookback with Observation Shift convention could allow for closer alignment of interest payments between loans and interest rate swaps that use standard market conventions.
- It has also been noted as a “viable and robust” approach by the Sterling RFR WG.

⁴⁶ Please refer to footnote 8 above.

Cons

- **Harder to operationalise prepayments or loan trading.** As observed by the Alternative Reference Rates Committee convened by the Federal Reserve Board and the Federal Reserve Bank of New York (“**ARRC**”), a Lookback with Observation Shift is challenging to operationalise for loans where prepayment is expected, or where the loan is expected to be traded – for example, many syndicated loans.

If the loan is prepaid in a period with a mismatch between the number of days in the observation period and the number of days in the interest period (for example, if the observation period contains a public holiday, but not the interest period, or vice versa), the interest accrued on the prepayment date would require an adjustment to ensure interest has been accrued for the correct number of days. Similar issues could occur between the buyer and seller in loan trading.

While this issue could be addressed via a system solution, the need for such a solution would create greater operational complexity.

Borrowers and lenders may consider applying a Lookback with Observation Shift method, if (A) they want to use the SORA Index, (B) they want loan interest payments to be better matched to derivative hedges, and/or (C) they do not expect the loan to be prepaid or traded.

(2) Lookback without Observation Shift

A Lookback without Observation Shift calculates the compounded-in-arrears SORA rate for an interest period a few days before the final day of that interest period by taking an earlier snapshot (the “observation period”) of daily SORA readings. Those daily SORA readings are weighted according to the number of days in the interest period to which each reading applies. See Figure B below.

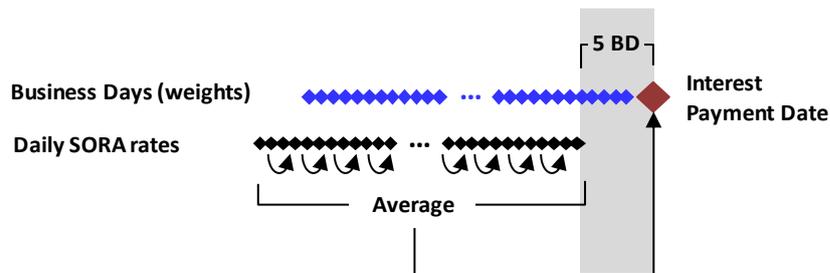


Figure B. Lookback without Observation Shift

Pros

- **Aligned with global default recommendations.** This approach is the default recommendation of both the ARRC and the Sterling RFR WG – therefore it is likely to be aligned with global conventions – a consideration that may be important for certain types of loans (e.g. syndicated multi-currency facilities).

- **Easier to operationalise prepayments or loan trading.** A Lookback without Observation Shift is easier to operationalise for loans where prepayment is expected, or where the loan is expected to be traded – for example, many syndicated loans.

The total interest accrued on the loan up to the prepayment date accounts for the correct number of days' interest due, without adjustment. Similar logic applies between the buyer and seller in loan trading.

Cons

- **Less transparent, because internal computation of interest rate required.** Because the snapshot of daily SORA readings and the weights are taken from different periods – the former from the observation period, and the latter from the interest period – this approach is not compatible with the use of central bank-published rates (i.e. the SORA Index) to calculate interest. Interest payments will have to be computed by the lender and borrower, by applying the relevant formula. Borrowers may find this approach less transparent than applying a central bank-published rate.

Borrowers and lenders may want to consider applying a Lookback without Observation Shift if they would like to align with recommended conventions for global currencies such as USD and GBP, or if they expect loan prepayment or trading.

To illustrate the difficulty with prepayments or loan trading in Lookback with Observation Shift, consider the following:

Day	Date	Type of Day
T-7	Wednesday	Business Day
T-6	Thursday	Business Day
T-5	Friday	Business Day
T-4	Saturday	Weekend
T-3	Sunday	Weekend
T-2	Monday	Business Day
T-1	Tuesday	Business Day
T (start of interest period)	Wednesday	Business Day
T+1	Thursday	Public Holiday

T+2	Friday	Business Day
T+3	Saturday	Weekend
T+4	Sunday	Weekend
T+5	Monday	Business Day
T+6	Tuesday	Business Day

Using a five business day Lookback with Observation Shift in calculating interest on day T, the interest rate applied would be the rate applicable on T-7, with a weightage of “1” (as T-7 is a Business Day that is not a Friday). This is contrasted against using a five business day Lookback without Observation Shift, which would have used the rate applicable on T-7, but with a weightage of “2” (as T+1 is a Public Holiday).

In a syndicated loan where a lender who entered into the loan on T but sold out on T+2, such lender may consider that they have not been fully compensated under the Lookback with Observation Shift method. This is because the lender would have provided principal for two days (from T to T+2), yet only received interest for one day, i.e. on T (being the interest rate applicable on T-7, with a weightage of “1”). As T+1 is a public holiday, no interest would be chargeable on such day. Where the Lookback without Observation Shift method had been used, while the lender would also only have received interest for one day on T, given that the weightage applied for T would be “2”, the lender would have been compensated for the principal provided over the Public Holiday T+1.

A similar issue occurs if a borrower draws a loan on T+5 but decides to repay the loan early on T+6. Using a five business day Lookback with Observation Shift method, the borrower would be charged three days’ interest (being the interest rate applied on T-5, with a weightage of “3” (as T-5 is a Friday)), notwithstanding that it had only borrowed the loan for one day. Had a Lookback without Observation Shift method been used, the borrower would have been charged one day’s interest (being the interest rate applied on T-5, with a weightage of “1”⁴⁷).

Readers may also wish to refer to other publicly available guidance on alternative RFRs, such as SOFR or SONIA, in order to get a flavour of the possible options for market conventions and fallbacks being developed elsewhere⁴⁸.

⁴⁷ See technical appendices to SOFR note, “SOFR “In Arrears” Conventions for Syndicated Business Loans – Technical Appendices” (3 July 2020) <<https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2020/ARRC-Syndicated-Loan-Conventions-Technical-Appendices.pdf>>. See also associated spreadsheets to Sterling RFR WG statement, “Statement on behalf of the Working Group on Sterling Risk-Free Reference Rates – Recommendations for SONIA Loan Market Conventions” (September 2020) <<https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/rfr/uk-loan-conventions-worked-examples.xlsx?la=en&hash=6F18B755963140DAA51A0487C1935206FBA0492C>>

⁴⁸ Good reference points could be: (1) the LMA Exposure Drafts of (a) a compounded SOFR based US dollar term and revolving facilities agreement and (b) a compounded SONIA based sterling term and revolving facilities agreement, as well as the accompanying commentaries (all available at <<https://www.lma.eu.com/>>); (2) the Alternative Reference Rates Committee announcement, “AARC Releases Conventions Related to Using SOFR in Arrears for Syndicated Loans” published on 22 July 2020 <https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2020/ARRC_Press_Release_Syndicated_Loans_Conventions.pdf>; and

5. Consumer Products

5.1 Current usage of SOR in retail loans

Retail loans are used for a variety of purposes. These include residential and investment property purchases.

Retail loan products generally offer borrowers a wide range of interest rate options. For instance, lenders may charge their own mortgage board rates or offer fixed rate packages in home loans or refer to their prime lending rates for study loans. SOR is therefore one of the many interest rate options that are used in retail loans.

Most financial institutions (“**FIs**”) in Singapore had ceased offering SOR retail loans since about 2011. Instead, the FIs charge either bank-administered fixed interest rates or interest rates pegged to floating rates such as SIBOR, bank managed board rates, fixed deposit rates and more recently, SORA.

5.2 Application of SORA in new retail loans

In line with the shift in global financial markets to a world without LIBOR and Singapore’s transition from SOR to SORA, FIs in Singapore are actively taking action to pilot and to launch SORA retail loans in support of the wider use of this rate and the development of the SORA cash markets in Singapore.

5.2.1 *SORA-centered approach*

In July 2020, the ABS, the SFEMC and the SC-STS issued a joint industry consultation which recommended the discontinuation of SIBOR in three to four years, potentially by 2024. This has given added impetus to the transition to SORA as the main interest rate benchmark for consumer products.

The MAS strongly supports the industry recommended SORA-centered approach. This shift would enhance the overall functionality and efficiency of SGD interest rate markets. For banks, compared to managing both SIBOR and SOR exposures, this approach will reduce basis risk based on two different benchmarks, and allow for greater pricing efficiencies. For borrowers, the averaging effect of compounded SORA will provide more stable rates.

5.2.2 *MAS’s publication of Compounded SORA Indices*

Since August 2020, alongside the publication of IOSCO-Compliant SORA, the MAS has started the publication of the Compounded SORA in tenors of 1-month, 3-months and 6-months, and a SORA Index⁴⁹ that will facilitate calculation of Compounded SORA over specified periods. The Compounded SORA rates and SORA index provide market participants with standardised and transparent bases to derive rates which can be referenced for new SORA products. This assures customers that the floating rates are derived from a robust, transparent and reliable source administered by the MAS.

5.2.3 *Compounded SORA-in-advance*

Customers require the interest rates of their retail loans be known upfront, upon the first

(3) the Sterling RFR WG’s statement, “Recommendations for SONIA Loan Market Conventions” published on 1 September 2020 <<https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/rfr/statement-on-behalf-of-rfrwg-recommendations-for-sonia-loan-market-conventions.pdf?la=en&hash=074583D7080993CE84B6A381B554BEFD6594C076>>.

⁴⁹ Please refer to footnote 8 above.

disbursement of a loan, and thereafter, at each rate reset date.

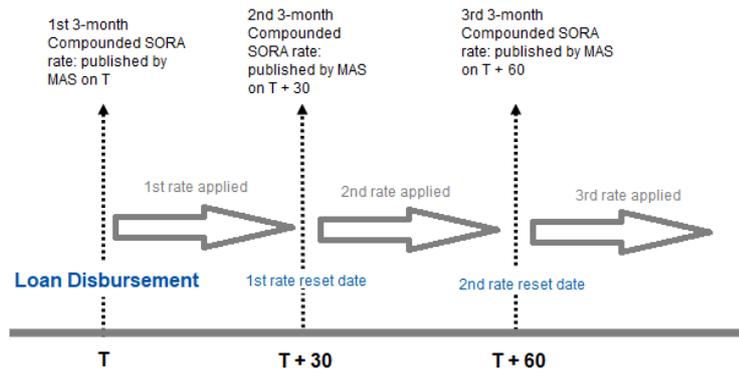
Presently, SORA retail loans in the market compute interest based on the MAS' published 3-month Compounded SORA rates. Thus, the interest payable on a 3-month Compounded SORA loan is calculated based on an aggregate of:

- (a) the margin i.e. customer spread; and
- (b) the 3-month Compounded SORA rate for the previous 3-month period commencing and ending before the first disbursement of a loan, and each subsequent rate reset date.

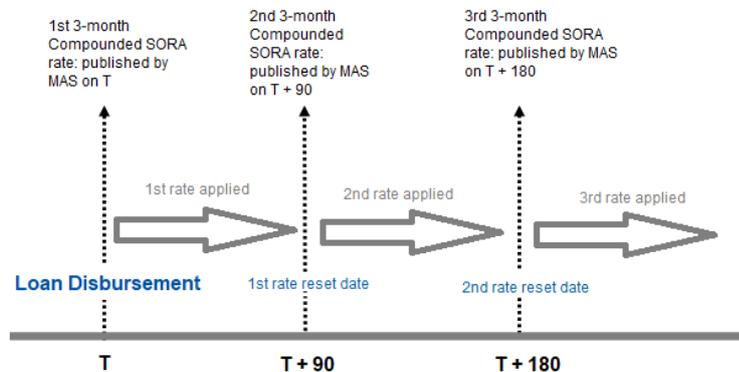
This method of calculation provides retail customers with certainty of the SORA interest rate "in-advance". Customers will be informed on the first day of a loan, and thereafter, on each rate reset date, the SORA-based interest rate to be paid for the coming period until the next rate reset date.

Below are examples of how the 3-month Compounded SORA rate is calculated for a loan package with a 90-day rate reset and a 30-day rate reset respectively.

Example: 3-month Compounded SORA rate with 30-day rate reset



Example: 3-month Compounded SORA rate with 90-day rate reset



As the 3-month Compounded SORA rate published by the MAS is determined based on the historical 3-month period before the actual interest period, customers can therefore be given advance notice of the new “all-in” interest rate and the revised monthly instalment as of each rate reset date. The revised monthly instalment will be payable at the next instalment payment date.

Adopting this “compounding in advance” methodology gives customers certainty of the loan repayment amounts and helps customers better plan their finances.

5.2.4 The key features of SOR, SORA and Compounded SORA-in-advance

The key features of SOR, SORA and Compounded SORA-in-advance are summarised in this table:

	SOR	SORA
Definition	Effective rate of borrowing SGD synthetically, by borrowing USD and swapping for SGD	Volume-weighted average rate of borrowing transactions in the unsecured overnight interbank SGD cash market in Singapore between 8.00am and 6.15pm.
Methodology and Inputs	Volume-weighted average rate of USDSGD FX swap transactions, with USD LIBOR as an input	Volume-weighted average rate of eligible brokered and bilateral interbank transactions provided by reporting banks in Singapore
	SOR	Compounded SORA-in-advance
How is it determined?	Forward looking rate (i.e. reflects the interest rates over the current interest period.) typically determined two business days prior to the relevant interest period in accordance with above formula	The SORA compounded daily for a term occurring prior to its publication date, such term being of equivalent length to the tenor of the Compounded SORA rate. For example, in the case of a 1-month Compounded SORA as at 1 October, the compounded SORA rate would be calculated for the month of September.
When is the amount of interest payment known?	By the first day of the interest period	By the first day of the interest period
Administrator	ABS Co.	MAS
Tenor	Overnight, 1m, 3m, 6m.	Theoretically, any period over which compounding is done. In practice, lenders are expected to maintain similar tenors as SOR.

		The MAS publishes the Compounded SORA in the 1-month, 3-month and 6-month tenors.
Is it reflective of an FI's costs?	Prices in an FI's costs and risks of borrowing money and lending it out over the interest period of a loan i.e. reflects the term and credit risk premiums of the FI.	Does not price in an FI's costs and risks of borrowing money and lending it out over the interest period of a loan i.e. does not reflect the term and credit risk premiums of the FI. In addition, as the compounded rates are historical, they reflect the state of the market during a prior period and not the most up-to-date interest conditions during the period when interest is accrued.

5.3 Proposed industry approach to deal with legacy SOR loans

To support the transition away from SOR for customers with legacy SOR loans extending beyond end 2021, the envisaged industry-wide approach is as follows, taking into account the Guidelines on Fair Dealing – Board and Senior Management Responsibilities for Delivering Fair Dealing Outcomes to Customers published by the MAS:

5.3.1 *Communicate the upcoming transition deadline to customers in a clear, timely and transparent manner, taking into consideration their knowledge and understanding of financial matters*

FIs should notify their customers with legacy retail SOR loans of the upcoming SOR to SORA transition. This may take reference from industry template letter(s) which would be developed for use by the end of 1Q2021 (the “**Customer Notification**”).

5.3.2 *Provide customers with sufficient options*

FIs should be ready to offer multi-rate options to their customers who do not wish to transition from SOR to SORA. For example, apart from providing the option of a SORA package, a customer should also be able to choose to migrate from a current SOR-linked interest package to the board rate or any other available packages offered by their FI.

In view of the fact that the industry has jointly proposed for the discontinuation of SIBOR⁵⁰, customers who may be considering to switch from their SOR-linked loans are strongly advised to consider using alternative reference rates which are not SIBOR-linked, such as SORA, to avoid the need to make another transition out of SIBOR subsequently. Other factors to consider are whether there will be a prepayment fee or penalty in switching to another loan package with the same FI, or in refinancing their loan with another FI.

⁵⁰ The discontinuation of SIBOR is expected as the ABS, SFEMC and the SC-STS have already recommended a shift to the use of SORA as the main interest rate benchmark for SGD financial markets. This serves to avoid market fragmentation, facilitate transparency and easier comparison of loan pricing, and promote the development of deep and efficient SGD financial markets.

5.3.3 *Provide customers with enough time and information to evaluate available options, helping them to make informed financial decisions*

The industry-wide exercise will start with the Customer Notification.

FIs should highlight the key features of the replacement loan packages offered to affected borrowers, including applicable fees and charges.

FIs should also provide clear explanations on how the SOR to SORA transition would impact customers.

In the context of the transition of SOR-linked mortgage loans, examples of key information to be communicated to customers would be:

- (a) The MAS will not consider a FI's offering of replacement loan packages to affected borrowers within the same FI under this industry-wide exercise as a case of refinancing under the property loan rules. As such:
 - (i) The property loan rules under MAS Notice 645⁵¹ for banks (and its equivalent for other FIs⁵²) for refinancing of property loans, such as the computation of Total Debt Servicing Ratio (the "TDSR") for refinancing of investment property loans, will not apply.
 - (ii) The Property Loan Factsheet treatment specified in MAS Notice 632A⁵³ for banks (and its equivalent for other FIs⁵⁴) will not apply. However, a generic Property Loan Factsheet (using the format in MAS Notice 632A) or an abridged version containing key features of the loan (including applicable fees and charges) is to be provided to borrowers. A proposed format for the FIs' adoption, which may be modified to take into account their respective internal requirements and other considerations, is set out in **Appendix B**.
 - (iii) Should the borrower choose to refinance the facility with another FI, or subsequently refinance his or her loan package, the borrower will be subject to the prevailing refinancing rules, i.e. computation of TDSR if the loan in question is an investment property loan, and other rules as specified in the applicable regulations.
- (b) There will be no fee charged for transitioning from SOR to SORA with the same FI, or if the customer opts for another pricing package availed by such FI.
- (c) Other accompanying restructuring requests will be subject to the FI's prevailing fees and charges, as applicable.

⁵¹ See Monetary Authority of Singapore, "Computation of Total Debt Servicing Ratio for Property Loans" (last revised 17 February 2020) <https://www.mas.gov.sg/-/media/MAS/Notices/PDF/2020-02-17-MAS-645_TDSR.pdf>.

⁵² See for example, MAS Notice 128 (applicable to direct insurers), MAS Notice 831 (applicable to finance companies) and MAS Notice 1115 (applicable to merchant banks).

⁵³ See Monetary Authority of Singapore, "Residential Property Loans – Fact Sheet" (19 January 2017) <https://www.mas.gov.sg/-/media/MAS/Notices/PDF/20171212-MAS-NOTICE-632A_HDB_digitalfactsheet.pdf>.

⁵⁴ See for example, MAS Notice 115A (applicable to direct insurers), MAS Notice 825A (applicable to finance companies) and MAS Notice 1106A (applicable to merchant banks).

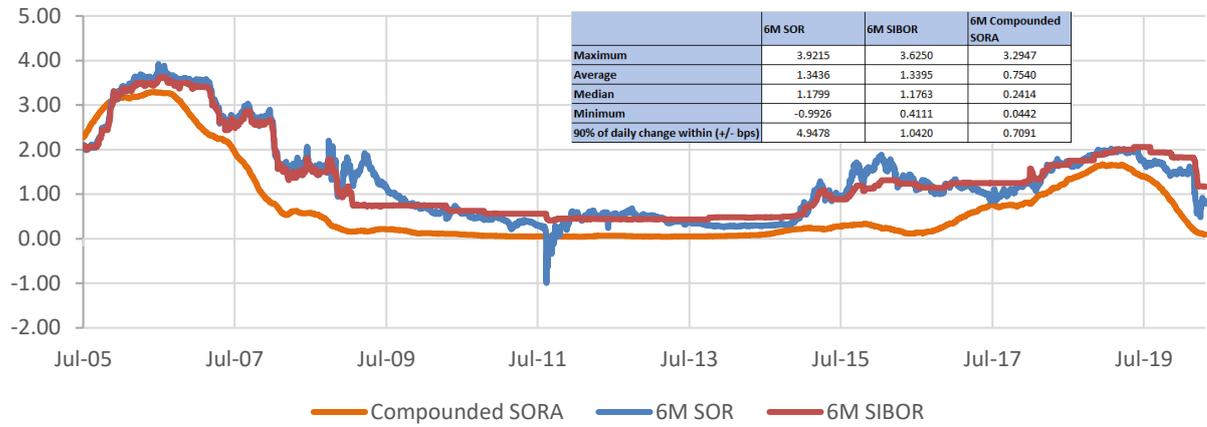
Please refer to **Appendix C** for the proposed indicative timeline for the industry-wide exercise to transition from SOR to SORA, in respect of retail loans.

5.4 Investment products

Retail investment products such as structured notes that reference SOR will also be affected by the transition from SOR to SORA. Distributors of such investment products (for example, FIs) should seek clarity from the product issuers on the replacement reference rate and methodology.

Where the investment product is issued by the FI itself, SORA will be the replacement reference rate.

Appendix A – Illustration of historical six-month term SOR, six-month term SIBOR and six-month compounded SORA



Appendix B – (Retail Loans) Transition of the SGD Swap Offer Rate (SOR) To “XXX” On Your Property Loan

The SGD Swap Offer Rate (SOR) which is the benchmark interest rate on your property loan will be replaced by the “XXX” on “date month 2021”. Please refer to the sections below for details.

You may opt for any other pricing package availed by the Bank at no cost. To do so, please contact us by “date month” 2021.

SECTION 1: Comparison Between SOR and the “XXX”

	Account Details	Existing SOR	Replacement “XXX”
1	Loan Amount	As per outstanding loan amount	No change
2	Loan Tenure	As per remaining loan tenure	No change
3	Spread above the benchmark interest rate	As per spreads stated in the Letter of Offer	Spread(s) as per package availed by the Bank
4	Lock-In Period	As per lock-in period stated in the Letter of Offer	No change (no change to the remaining lock-in period, if any)
5	Fee & Charges	As per the fee and charges stated in Terms & Conditions	No fee for changing pricing due to cessation of SOR
6	Definition of benchmark Interest Rate	Effective rate of borrowing SGD synthetically, by borrowing USD and swapping for SGD	<If SIBOR/SIBOR+> Rate at which a Panel Bank can borrow SGD in the unsecured interbank market <If SORA> Volume-weighted average rate of borrowing transactions in the unsecured overnight interbank SGD cash market in Singapore between 8.00 am and 6.15 pm
7	Changing benchmark interest rate	Replaced if no longer available, with 30 days’ notice.	Replaced if no longer available, with 30 days’ notice.
8	Changing spread above the benchmark interest rate	<If can revise> Spread can be revised with 30 days’ notice	<If can revise> Spread can be revised with 30 days’ notice

SECTION 2: Changes To The Monthly Instalment

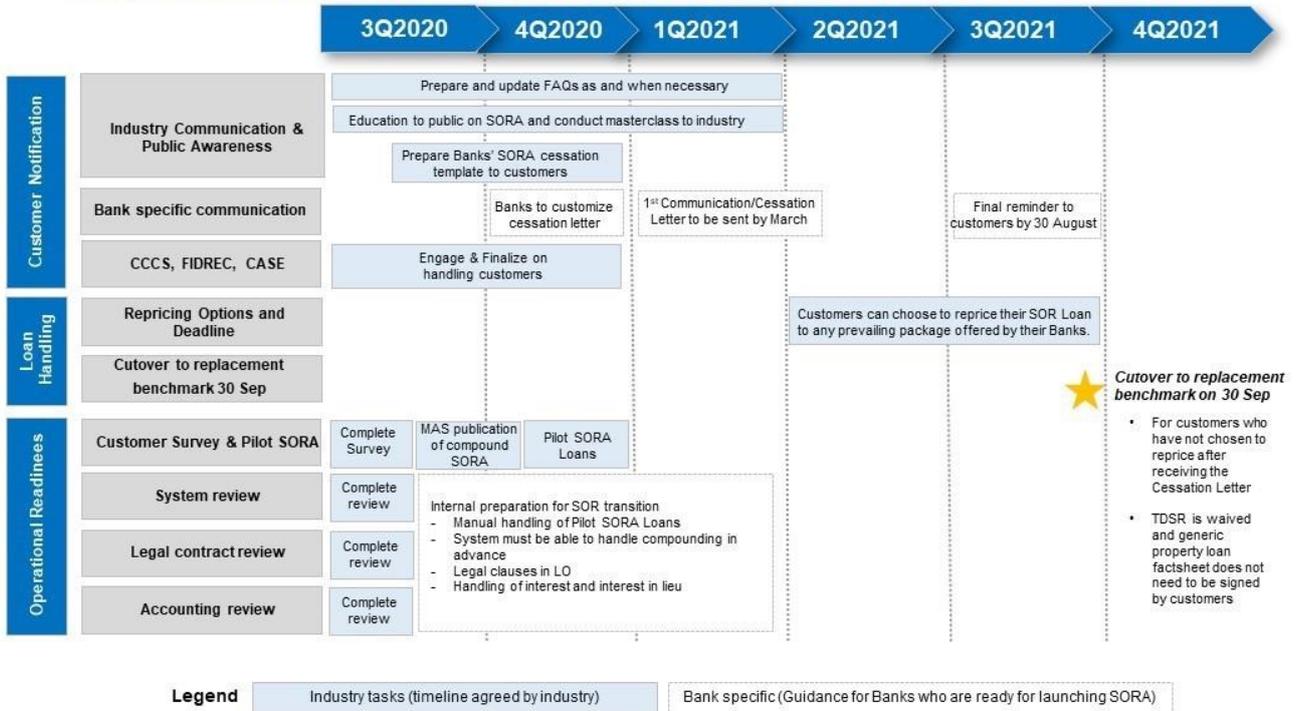
On the transition date, you will receive an interest rate change advice with the revised monthly instalment amount and the effective date of the new instalment amount.

The following is an illustration of the monthly instalments for a \$100,000 loan at various interest rates. For other loan amounts, the projections can be multiplied accordingly. E.g. if your loan amount is \$200,000, multiply the instalment amounts by 2.

Loan Tenure	Monthly Instalment for every \$100,000 at the following interest rates						
	1.00% p.a.	1.50% p.a.	2.00% p.a.	2.50% p.a.	3.00% p.a.	4.00% p.a.	5.00% p.a.
25 years	\$377	\$400	\$424	\$449	\$474	\$528	\$585
20 years	\$460	\$483	\$506	\$530	\$555	\$606	\$660
15 years	\$598	\$621	\$644	\$667	\$691	\$740	\$791
10 years	\$876	\$898	\$920	\$943	\$966	\$1,012	\$1,061
5 years	\$1,709	\$1,731	\$1,753	\$1,775	\$1,797	\$1,842	\$1,887

Appendix C – (Retail Loans) Proposed timeline for SOR to SORA Transition

SOR to SORA Transition of Retail Loans - Proposed indicative timeline for industry-wide exercise



Note: This is a proposed timeline. The specific dates cited herein such as the cutover date of 30 September 2021 etc, may be adjusted by FIs in practice, taking into account their operational and other requirements. In adjusting the cutover date of 30 September 2021 etc, FIs should concomitantly adjust other related dates accordingly e.g. the date for sending a final reminder to customers, so as to give 30 days' prior notice as set out in the ABS Code of Consumer Banking Practice.