Update to the SORA Market Compendium:

Transition from SOR to SORA

(version updated as of 17 November 2021)

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1. General Introduction

This chapter gives an overview of the background to the transition to SORA as one of the key interest rate benchmarks for Singapore dollar financial products.

1.1 What is an interest rate benchmark

An interest rate represents the time value of money or the cost 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 published rates that are publicly accessible. They are typically determined by referencing 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 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 needs to be periodically reviewed and improved to ensure their robustness and sustainability.

In July 2013, the International Organization of Securities Commissions (the "**IOSCO**") published the Principles for Financial Benchmarks ("**IOSCO Principles**")[1], which sets out 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 benchmarks[2] set out in the Securities and Futures Act, Chapter 289 of Singapore (the "**SFA**").

[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:

In order 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 safeguard the integrity of and confidence in 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 report[3] 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 transaction 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 or will no longer be representative of the underlying market and economic reality they are intended to measure.

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 2019[5] (the "**Consultation**") recommending SORA as the most suitable and robust key interest rate benchmark to replace

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(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

(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>.

SOR in the Singapore dollar interest rate markets. Concurrently, the Monetary Authority of Singapore (the "**MAS**") established an industry-led Steering Committee for SOR & SIBOR 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 (among others) an orderly industry-wide transition from SOR to SORA. The SC-STS had further published a response paper on 19 March 2020[6] (the "**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 *FCA announcement on cessation or loss of representativeness of LIBOR settings*

On 4 December 2020, ICE Benchmark Administration ("**IBA**") published a consultation on specific dates for the cessation of all 35 tenor settings of LIBOR in the five currencies – US dollars, sterling, euro, Japanese yen and Swiss franc. The consultation closed on 25 January 2021 and IBA issued its consultation response on 5 March 2021[7]. This was accompanied by statements from the FCA[8] and the International Swaps and Derivatives Association, Inc. ("**ISDA**")[9].

The statements confirmed that all LIBOR settings will either cease to be provided by any administrator or no longer be representative and such representativeness will not be restored:

(a) immediately after 31 December 2021, in the case of all sterling, euro, Swiss franc and Japanese yen settings, and the 1-week and 2-month US dollar settings; and

(b) immediately after 30 June 2023, in the case of the remaining US dollar settings[10].

The FCA also provided guidance regarding the potential publication of "synthetic" LIBOR rates, with strict restrictions limiting the use of such rates to tough legacy applications[11]. In particular, the UK FCA stated that it would consult in Q2 2021, on using its proposed new powers to require IBA to continue the publication on a "synthetic" basis, the 1-month, 3-month and 6-month sterling LIBOR settings, and for one additional year beyond 31 December 2021, the 1-month, 3-month and 6-month Japanese yen LIBOR settings. The case for requiring the continued publication of the 1-month, 3-month and 6-month USD LIBOR settings on a "synthetic" basis would be considered separately. The FCA stressed that any "synthetic" LIBOR would no longer be representative of the underlying market and economic reality that the setting was intended to measure. Hence, "synthetic" LIBOR would not be permitted for use in new contracts and would only be allowed for use in tough legacy contracts. The FCA would also consult in Q2 2021 on the types of tough legacy contracts which would be permitted to use "synthetic" LIBOR. The UK and US authorities have both also provided clear guidance on

[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>.
[7] See IBA's Feedback Statement on Consultation on Potential Cessation (5 March 2021) <https://www.theice.com/publicdocs/ICE_LIBOR_feedback_statement_on_consultation_on_potential_cessation.pdf>.
[8] See FCA's Announcements on the End of LIBOR (5 March 2021) <https://www.fca.org.uk/news/pressreleases/announcements-end-libor>.
[9] See ISDA's Statement on UK FCA LIBOR Announcement (5 March 2021) <https://www.isda.org/2021/03/05/isda-statement-on-uk-fca-libor-announcement/>.
[10] Overnight, 1-month, 3-month, 6-month and 12-month.
[11] Synthetic LIBOR: A forward looking term rate comprising the relevant term RFR plus a fixed adjustment spread aligned with the spreads in ISDA's IBOR fallbacks.

limiting the usage of USD LIBOR beyond end-2021. While USD LIBOR would be available till mid-2023, this is to allow more time for the transition of legacy contracts while the use of LIBOR in new contracts should cease as soon as possible. The UK FCA highlighted plans to consult, in 2Q 2021, on legislation to prohibit some or all new use of LIBOR after end-2021[12]. Meanwhile, the US authorities had highlighted in their November 2020 communications that entering into new contracts that use USD LIBOR as a reference rate after 31 December 2021 would create safety and soundness risks, and warrant closer examination of bank practices[13]. The US agencies encouraged banks to cease entering into new contracts that use USD LIBOR as a reference rate as soon as practicable and latest by 31 December 2021. New contracts entered into before 31 December 2021 should either utilise a reference rate other than LIBOR or have robust fallback language.

1.2.3 *Impact of FCA announcement on SOR cessation*

The implications of these announcements for SOR transition are as follows:

(a) SOR, which relies on USD LIBOR in its computation, will similarly be discontinued immediately after 30 June 2023 across all tenor settings[14].

(b) A global consensus – in US, UK and elsewhere – is emerging regarding the need to cease usage of soon-to-be discontinued or no longer representative IBOR benchmarks in new contracts as soon as possible. The SC-STS has provided similar guidance on ceasing the use of SOR in new cash market contracts and new derivatives contracts (see section 1.2.7 below).

1.2.4 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 2005[15]. 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. 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 SORA[16] with tenors of 1-month, 3-months and 6-months, and a SORA Index[17] to serve as reference points for market participants on a

[12] See FCA's Response to IBA's Proposed Consultation on Intention to Cease USD LIBOR (30 November 2020) <https://www.fca.org.uk/news/statements/fca-response-iba-proposed-consultation-intention-cease-us-dollarlibor>.
[13] See US Authorities' Joint Statement on LIBOR Transition (30 November 2020) <https://www.federalreserve.gov/newsevents/pressreleases/files/bcreg20201130a1.pdf>.
[14] Namely the overnight, 1-month, 3-month and 6-month tenor settings.
[15] 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.
[16] 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>.
[17] 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 1.0000000000 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.

daily basis[18].

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 Principles[19], affirming that its administration of SORA meets international standards relating to benchmarks administration.

1.2.5 *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 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 rate[20].

(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 an overnight rate does not incorporate a term liquidity premium, while the short (overnight) 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

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[18] 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 a reader's 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.

[19] 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>.

[20] 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.

to replace SOR.

1.2.6 Why SORA is the preferred benchmark

First, it is an interest rate benchmark that is based fully 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[21]. 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 tables set out in **Appendix A** and **Appendix B** illustrate, based on some historical data on SORA, SOR and the Singapore Interbank Offered Rate ("**SIBOR**"), that 3-month and 6-month compounded average SORA would be more stable than 3-month and 6-month term SOR respectively.

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 Rate[22] ("**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 other major LIBOR currencies, which are similarly shifting to risk-free interest rate benchmarks.

1.2.7 *Roadmaps and timelines of transition process*

The SC-STS was established by the MAS to oversee the industry-wide interest rate benchmark transition from SIBOR and 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-STS 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).

In line with the global direction to cease usage of USD LIBOR in new cash market contracts, and with the swift progress made by the domestic financial industry in 2020 to establish a strong foundation for the adoption of SORA derivatives and cash market products, the SC-STS had

[21] See MAS webpage on SORA interest rate benchmark <https://www.mas.gov.sg/monetary-policy/sora>
[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.

recommended the timelines for shifting new cash market use away from SOR and into SORA[23]:

(a) By 28 February 2021, Domestic-Systemically Important Banks ("**D-SIBs**") would offer a full-suite of SORA-based products to their customers, while banks which are not D-SIBs ("**Non-DSIBs**") were to follow suit by 30 April 2021.

(b) By 30 April 2021, all financial institutions and their customers would cease usage of SOR in new loans and securities that mature after 31 December 2021.

(c) By 30 September 2021, all financial institutions and their customers would cease usage of SOR in new derivatives contracts[24].

To address the risks arising from SOR's impending discontinuation, and to coordinate the industry wide shift from SOR to SORA, the SC-STS had also recommended the following industry timelines for the wind-down of SOR exposures[25]:

(a) By 30 September 2021, banks should reduce to 20 per cent. of their gross SOR derivatives exposures with other financial institutions[26].

(b) By 31 December 2022, banks should aim to substantially reduce their SOR exposures (both cash and derivative) to corporates to 20 per cent of their outstanding exposures as at 31 December 2019[27]. All contracts that continue to reference SOR as at 31 December 2022 should minimally incorporate appropriate contractual fallbacks.

The SC-STS is now focused on three key pillars of work, as set out in its transition roadmap, which covers the following areas: (i) SORA as the de facto interest rate benchmark, (ii) facilitating legacy transition and (iii) supporting customer transition. 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 <u>SIBOR transition</u>

On 11 December 2020, the ABS-SFEMC and SC-STS published a joint industry response to feedback received from the July 2020 consultation on SIBOR Reform and the Future

[23] In response to queries from market participants, the SC-STS has also set out further implementation guidance on how banks could approach limited situations where SOR loans have been signed or agreed on before end-April 2021, but where disbursements may occur only after end-April 2021. The SC-STS' further clarifications and implementation guidance for such scenarios is set out in Annex A to the SC-STS Report titled, "SC-STS Timelines to Cease Issuance of SOR and SIBOR-Linked Financial Products" published on 31 March 2021 and updated on 5 August 2021 (the "**March 2021 Report**") <https://www.abs.org.sg/docs/library/timelines-to-cease-issuance-of-sor-derivatives-and-sibor-linked-financial-products-version-1-1.pdf>.

[24] The end-September 2021 timeline takes into consideration the need to provide market participants with sufficient advance notice to prepare for these changes, and is aligned with SC-STS' targets for banks to wind-down SOR derivatives exposures to 20% by end-September 2021. Recognising that market participants would still need to undertake SOR derivatives transactions to risk manage legacy positions and facilitate transition from SOR to SORA, the requirement to cease new transactions will exclude SOR derivatives transactions for risk management of and transition from legacy SOR positions. Annex B to the March 2021 SC-STS Report sets out details of the exemptions.

[25] See SC-STS Report, "Recommendations for Transition of Legacy SOR Contracts" (29 July 2021) (the "**July 2021 Report**") <https://abs.org.sg/docs/library/sc-sts-recommendations-for-transition-of-legacy-sor-contracts.pdf>.

[26] The numerator refers to all SOR derivatives exposures (including transactions that have had their last SOR fixing set on or before 30 September 2021). The denominator refers to a bank's outstanding SOR derivatives exposures as at 31 December 2019.

[27] For avoidance of doubt, the numerator for this 20 per cent. target refers to all SOR cash and derivatives exposures to corporates, including contracts where fallback language to Fallback Rate (SOR) has been incorporated. The denominator refers to all outstanding SOR cash and derivative exposures to corporates as at 31 December 2019, regardless of maturity dates.

Landscape for SGD Interest Rate Benchmarks[28]. The response paper highlighted the following:

(a) Broad public support for the proposal to discontinue SIBOR and shift towards a SORA-centred interest rate benchmark landscape, which would provide more robust and transparent loan market pricing for borrowers, and more efficient risk management for lenders.

(b) Plans to discontinue all remaining tenors of SIBOR in a few years[29].

On 31 March 2021, the SC-STS further published a report[30] recommending that financial institutions and their customers cease usage of SIBOR in new contracts by 30 September 2021. This recommendation takes into consideration significant progress in the adoption of SORA loans by retail and small and medium-sized enterprises ("**SME**") segments, which are the key users of SIBOR currently. Of note, as of April 2021, the D-SIBs' gross exposures of SORA cash market products grew to approximately S$4.2 billion, across a range of retail and institutional products. SORA retail loans have, in particular, reached almost a third of the volume of SOR retail loans. Several hundred bilateral corporate (including SMEs) loans and some syndicated SORA loans have also been originated. The SC-STS and ABS launched a public education campaign in 4Q 2021 to increase public awareness and to support wider adoption of retail SORA products.

The cessation of SIBOR usage in new contracts would help mitigate further build up in the stock of legacy SIBOR contracts, and support the transition towards SORA usage in new financial products in 2021. It is also consistent with the preparation for the discontinuation of the less widely used 6-month SIBOR by March 2022, and the widely used 1-month and 3-month SIBOR benchmarks by end-2024.

1.4 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).

Do note that the current version of this Compendium only addresses the transition of SOR to SORA and does not address the transition of SIBOR to SORA at this juncture.

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[28] See ABS-SFEMC and SC-STS Joint Response to Feedback on SIBOR Reform and the Future Landscape for SGD Interest Rate Benchmarks (11 December 2020) <https://www.abs.org.sg/docs/library/response-to-feedbacksibor-reform-and-the-future-landscape-for-sgd-interest-rate-benchmarks.pdf>.

[29] Following the 5 March 2021 IBA announcement (which would result in SOR discontinuation only in mid-2023), ABS Co, as administrator of SOR and SIBOR, has updated the methodological fallback for 6-month SOR to remove reliance on 6-month SIBOR to allow 6-month SIBOR to be discontinued separately from 6-month SOR. With this in place, the SC-STS confirmed that 6-month SIBOR will be discontinued on 31 March 2022, as originally intended. See ABS-SFEMC and SC-STS Media Release dated 31 March 2021 outlining intentions to delink 6-month SIBOR discontinuation from 6-month SOR discontinuation if SOR discontinuation is delayed, to allow for 6-month SIBOR discontinuation in 2022 as intended <https://abs.org.sg/docs/library/key-financial-industry-committees-set-outtimelines-for-sibor-discontinuation.pdf>.

[30] See the March 2021 Report <https://www.abs.org.sg/docs/library/timelines-to-cease-issuance-of-sor-derivatives-and-sibor-linked-financial-products-version-1-1.pdf>.

2. Derivatives

2.1 Current usage of SOR in derivatives transactions

Derivatives[31] 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. 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.

Under the "*Timelines to Cease Issuance of SOR and SIBOR-Linked Financial Products*"[32] document first published by the SC-STS on 31 March 2021 and last updated on 5 August 2021, financial institutions and their customers should cease usage of SOR in new derivatives transactions by end-September 2021 (subject to certain exemptions in Annex B of the document for risk management of and transition from legacy SOR positions). Accordingly, market participants should reference SORA in their Singapore dollar derivatives transactions as soon as possible.

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 Supplement 62 to the 2006 ISDA Definitions[33] that defines the self-compounding Floating Rate Option[34] of "SGD-SORA-COMPOUND". The definition of "SGD-SORA Compound" was updated on 6 July 2021 by Supplement 77 to the 2006 ISDA Definitions[35], which also sets out updated definitions of other self-compounding Floating Rate Options for RFRs. 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

[31] In this Compendium, "derivatives" refers to over-the-counter derivatives transactions.
[32] See the March 2021 Report <https://abs.org.sg/docs/library/timelines-to-cease-issuance-of-sor-derivatives-and-sibor-linked-financial-products-version-1-1.pdf>.
[33] 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/>.
[34] 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. 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", "USD-SOFR-COMPOUND", "EUR-EuroSTR-COMPOUND" and "THB-THOR-COMPOUND". The calculation method for SGD-SORA-COMPOUND is consistent with the calculation method for these other self-compounding RFR Floating Rate Options.
[35] Supplement number 77 to the 2006 ISDA Definitions, published on 6 July 2021 and available on the ISDA website at <https://www.isda.org/book/supplements-to-the-2006-isda-definitions/>.

the principal borrowed as well as the accumulated unpaid interest.

On 13 May 2021, ISDA published Supplements 74 and 75 to the 2006 ISDA Definitions[36]. While SGD-SORA-Compound provides a self-compounding Floating Rate Option for use with Payment Delay, Supplements 74 and 75 introduce a modular approach to allow market participants to document derivatives transactions referencing the relevant overnight RFRs (including SORA) by tailoring a compounding or averaging method to match the relevant cash product. Supplement 74 introduces twelve new Floating Rate Options for overnight RFRs (including "SGD-SORA"). Supplement 75 contains new provisions and confirmation templates that allow market participants to select the relevant method (i.e. Lookback, Observation Period Shift, Lockout, OIS Compounding and Payment Delay) to compound or average the relevant overnight RFRs. The new compounding/averaging provisions in Supplements 74 and 75 enable market participants to align more closely with RFR conventions that have been developed in cash markets. Market participants entering into SORA derivatives transactions to hedge exposures under cash market products may therefore prefer to document their SORA derivatives transactions using this modular approach (rather than using the self-compounding SGD-SORA-COMPOUND).

On 11 June 2021, ISDA published the 2021 ISDA Interest Rate Derivatives Definitions (the "**2021 ISDA Definitions**")[37], which will replace the 2006 ISDA Definitions. The 2021 ISDA Definitions were implemented on 4 October 2021. ISDA has stated that while market participants can continue to use the 2006 ISDA Definitions, ISDA will no longer update them following implementation of the 2021 ISDA Definitions.

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 definition of "SGD-SORA-COMPOUND" and Supplements 74 and 75) or the 2021 ISDA Definitions as part of the ISDA Master Agreement governing the SORA derivatives transaction or the confirmation for the particular SORA derivatives transaction. Market participants are encouraged to use the 2021 ISDA Definitions rather than the 2006 ISDA Definitions, in accordance with market practice.

SC-STS template confirmations

For standard derivatives transactions, the SC-STS has published template confirmations, based on the exhibits to the 2006 ISDA Definitions, for the following types of derivatives transactions[38]:

(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 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

[36] Supplements numbers 74 and 75 to the 2006 ISDA Definitions, published on 13 May 2021 and available on the ISDA website at <https://www.isda.org/book/supplements-to-the-2006-isda-definitions/>.
[37] See the ISDA website at <https://www.isda.org/2021/04/19/introduction-to-the-2021-isda-interest-rate-derivatives-definitions/> for an introduction to the 2021 ISDA Definitions.
[38] The template confirmations are available on the ABS website at <https://www.abs.org.sg/benchmark-rates/publications> under "Contract Templates".

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.

<u>An alternative which is expected to be more widely used is for users to book SOR-SORA Basis Swaps as two separate transactions</u> – 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.

For SORA derivatives transactions with tenor of less than one year, the market convention is for a single payment date at the end of the tenor. For SORA derivatives transactions with tenor equal to one year or longer, the market convention is that the payments will be semi-annual.

Non-linear SORA derivatives

Market participants who wish to transact non-linear SORA derivatives may consider adopting the relevant templates in the exhibits to the 2006 ISDA Definitions. For example, Exhibit II-B to the 2006 ISDA Definitions provides the base template for cap, floor and collar derivatives transactions.

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 did 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 had undertaken work[39], 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 the RFRs identified by the relevant private/public sector national working groups.

Fallback Rate (SOR) as the Contractual Fallback in bilateral SOR derivatives transactions

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 rate[40].

On 23 October 2020, ISDA launched a supplement to its 2006 ISDA Definitions (the "**ISDA IBOR Fallbacks Supplement**")[41] that amended 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)[42]. 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 SOFR[43] plus a spread adjustment[44]). The calculation methodology for Fallback Rate (SOR) is published on the website of ABS Benchmarks Administration Co Pte Ltd ("**ABS Co**")[45]. The fallback for SOR will be triggered if there is a permanent discontinuation of SOR[46] 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 published[47].

ISDA concurrently published an **IBOR Fallbacks Protocol**[48] 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

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[39] 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/>.

[40] See the letter by SC-STS 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>.

[41] 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/>.

[42] See definition of "Fallback Rate (SOR)" in the ISDA IBOR Fallbacks Supplement.

[43] 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).

[44] 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.

[45] See the ABS Co website at <https://www.abs.org.sg/benchmark-rates/publications>.

[46] See sub-paragraphs (i) and (ii) of the definition of "Index Cessation Event" in the ISDA IBOR Fallbacks Supplement.

[47] See sub-paragraph (iii) of the definition of "Index Cessation Event" in the ISDA IBOR Fallbacks Supplement. The Applicable Rate, in respect of a Swap Transaction, for the purposes SGD-SOR-VWAP, is USD LIBOR.

[48] 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 <http://assets.isda.org/media/3062e7b4/3cfa460a-pdf/>.

the protocol and without further negotiation with counterparties[49].

Market participants who are party to existing SOR derivatives transactions whose maturity date extends 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 or becomes no longer representative.

Market participants should also note that the ISDA IBOR Fallbacks Protocol covers a limited set of agreements other than ISDA Master Agreements[50]. Accordingly, where a market participant signs up to 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 Protocol[51]. 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 transactions[52].

Market participants entering into new SOR transactions documented under an ISDA Master Agreement should incorporate the 2006 ISDA Definitions (which include the ISDA IBOR Fallbacks Supplement effective from 25 January 2021) or the 2021 ISDA Definitions 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.

Index Cessation Event

On 5 March 2021, the FCA made an announcement on the future cessation and loss of representativeness of LIBOR benchmarks[53]. ISDA also published a guidance[54] related to the FCA announcement confirming that an Index Cessation Event has occurred with respect to all thirty-five LIBOR settings on 5 March 2021. Accordingly, spread adjustments have been fixed by Bloomberg on 5 March 2021 with regards to all thirty-five LIBOR settings, including overnight, 1-month, 3-month and 6-month USD LIBOR (being the USD LIBOR tenors used as

[49] See the ISDA website at <https://www.isda.org/protocols/protocols-overview/> for more information on ISDA protocols.
[50] See definition of "Protocol Covered Documents" in the ISDA IBOR Fallbacks Protocol.
[51] "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)".
[52] See the ISDA website at <http://assets.isda.org/media/79487fdd/>.
[53] See the FCA website at <https://www.fca.org.uk/publication/documents/future-cessation-loss-representativeness-libor-benchmarks.pdf>.
[54] See the ISDA website at <https://www.isda.org/a/dIFTE/ISDA-Guidance-on-FCA-announcement_LIBOR-Future-Cessation-and-Non-Representativeness-April-Update.pdf>.

inputs to calculate SOR).

Fallback Rate (SOR) incorporates the USD LIBOR spread adjustments through the use of Fallback Rate (SOFR) in its computation. With the fixing of USD LIBOR spread adjustments, Fallback Rate (SOR) values published by ABS Co on Bloomberg and Refinitiv are no longer on an indicative/"what-if" basis since 5 March 2021. Under the ISDA IBOR Fallbacks Supplement, Fallback Rate (SOR) will apply instead of SOR with effect from the first date on which SOR is required for any determination occurring on or after the first London Banking Day on or after 1 July 2023 (which will be the Index Cessation Effective Date in respect of USD LIBOR for the purposes of SOR).

Active transition to SORA

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 has adopted SORA as the benchmark replacement rate for SOR. Notwithstanding that the SOR cessation date has now been extended to mid-2023, the SC-STS has announced in the "*Timelines to Cease Issuance of SOR and SIBOR-Linked Financial Products*" document that it will retain the original end-2024 end-date for Fallback Rate (SOR). 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 entering into offsetting basis swaps.

Implications of impending SOR cessation for cleared SOR derivatives

With regards to cleared derivatives, LCH has stated[55] that it will proceed with the automatic conversion of outstanding CHF, EUR, JPY and GBP LIBOR contracts into corresponding RFR-based contracts in December 2021. Specifically this would involve terminating and rebooking outstanding LIBOR contracts as corresponding RFR-based contracts at (or before) the discontinuation of the relevant LIBOR benchmark. LIBOR references (e.g. USD LIBOR) would be replaced by the relevant compounded RFR (e.g. compounded SOFR) plus a non-compounded spread adjustment in the LIBOR leg of contracts. Cash compensation would be applied to neutralise residual valuation differences.[56] LCH intends to charge fallback fees (from 30 June 2021) and a conversion fee for those contracts which remain outstanding at conversion event. Other clearing houses (e.g. CME, EUREX for EONIA contracts) have also consulted on a broadly similar approach.

While LCH has not yet announced automatic conversion for SOR contracts, the clearing houses' responsibilities to ensure that cleared contracts must remain liquid and can be unwound safely in the event of a member default would also be relevant to centrally-cleared SOR derivatives contracts, increasingly more so as SOR derivatives' liquidity gradually declines in the coming year. Market participants should be aware that if their cleared SOR contracts are converted to SORA-based contracts, while their non-cleared SOR derivatives still rely on

[55] See the LCH website at <https://www.lch.com/membership/ltd-membership/ltd-member-updates/supplementary-statement-lchs-solution-outstanding>.
[56] See the LCH website at <https://www.lch.com/membership/ltd-membership/ltd-member-updates/summary-lchs-consultation-its-solution-outstanding-0>.

Fallback Rate (SOR), this may produce a bifurcation in their books.

Hence, SC-STS has recommended[57] that market participants should seek to proactively transition SOR derivatives contracts to a SORA reference before such an event. This is the only way for market participants to take control of outcomes affecting their respective institution's balance sheet.

[57] See the March 2021 Report <https://abs.org.sg/docs/library/timelines-to-cease-issuance-of-sor-derivatives-and-sibor-linked-financial-products-version-1-1.pdf>.

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.

Moreover, SOR has also been used to determine the interest rate at the point of pricing of fixed rate securities (including for determination of initial coupon for resettable fixed rate securities).

For clarity, distinction will be made between the following where the context of the description requires in this chapter:

(i) SOR administered by ABS currently, for tenors of overnight, 1 month, 3 months and 6 months. This will be referred to as "**SOR**" in the rest of this chapter; and

(ii) the fixed leg of SOR interest rate swap rates commonly obtained from screen rates such as Page TPIS on the monitor of Bloomberg Agency under the caption "*Tullett Prebon – Rates – Interest Rate Swaps – Asia Pac – SGD*". This is an implied interest rate for tenors of more than 1 year commonly used by market participants to price fixed rate securities (using the "Ask" side). This will be referred to as "**SOR IRS**" in the rest of this chapter.

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 are 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 IRS 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 or SOR IRS in legacy products. Below is a general summary of the hierarchy seen in determining the applicable SOR or SOR IRS:

(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 or SOR IRS will be the SOR or SOR IRS 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 *Fixed rate securities*

SOR IRS has been used as the reference rate in determining the interest rate at the point of pricing of fixed rate securities (including resettable fixed rate securities). Depending on the target investor base and the credit of the issuer, this determination is either carried out on a spread basis or an absolute yield basis.

Where interest rate is determined on a spread basis, investors indicate their interest in an offering by placing bids based on a desired spread over SOR IRS. The spread at which the securities are priced at (typically referred to as the "re-offer spread") will then be added to the SOR IRS for the tenor of the securities at the point of pricing to obtain the interest rate for the securities to be issued (or, for the case of resettable fixed rate securities, the interest rate up to the first reset date).

Where interest rate is determined on an absolute yield basis, investors indicate their interest in an offering by placing bids based on a desired yield. The SOR IRS corresponding to the tenor of the securities at the point of pricing will be deducted from the yield (or interest rate) at which the securities are priced to obtain the implied re-offer spread for the securities. In some occasions, this re-offer spread would then be used to determine the redemption price for securities with "make-whole" redemption provisions, or to determine the reset fixed interest rate for resettable fixed rate securities.

Securities may also be priced based on a combination of "re-offered spread" and absolute yield basis.

3.1.5 *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 section 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.

3.1.6 *Amendment of terms and conditions of securities*

In order to amend the terms and conditions of SOR or SOR IRS referencing securities, the relevant issuer will need to seek consent from securityholders via a consent solicitation exercise. Broadly, a consent solicitation exercise comprises the following steps:

(a) Planning and Preparation

The issuer should approach its professional advisors to determine the structure of the exercise and prepare the necessary documentation. This would involve considering the terms and conditions of the securities to determine (i) the notice requirements to convene a meeting of securityholders, (ii) the quorum requirements for a meeting of securityholders to be properly constituted, (iii) the consent thresholds for the proposal being presented to securityholders to be approved and (iv) any other requirements or restrictions that the issuer needs to take into consideration in order to amend the terms and conditions of the relevant securities. This step may normally take up to four weeks though a longer period may sometimes be required.

(b) Serving of Notice of Meeting of Securityholders

Once the documentation is finalised, notice is given to securityholders that a meeting of securityholders is being convened. The notice will set out, among other things, details of the meeting being convened, the proposal being made by the issuer and steps to be taken by securityholders to vote on the proposal. Depending on the terms and conditions of the securities, the notice period may take about 3 weeks though in some cases, a longer notice period is required by the terms and conditions of the securities.

(c) Meeting of Securityholders

The meeting of securityholders is held on the date and at the venue specified in the notice of meeting. There are three possible outcomes:

(i) If the quorum requirements are not met, the meeting is not properly convened and the issuer may consider adjourning the meeting where a lower quorum requirement may apply. The issuer will typically need to serve a notice of adjourned meeting. The detailed requirements for holding an adjourned meeting are set out in the terms and conditions of the securities.

(ii) If the quorum requirements and consent thresholds are met, the issuer may proceed to amend the terms and conditions of the securities.

(iii) If the quorum requirements are met but the consent thresholds are not met, the issuer should discuss with its professional advisors on the next steps.

It is important that issuers take note of the timelines for the transition set out in the Recommendations for Transition of Legacy SOR Contracts[58] published by SC-STS on 29 July 2021. The relevant recommendations are reproduced below for easy reference:

> "Recommendation 13: Issuers of FRNs that mature after 30 June 2023 should take action well before 31 December 2021 to prepare for SOR discontinuation, including where necessary to implement a consent solicitation process. As this process could take several months, issuers are recommended to commence action as soon as practicable.
>
> Recommendation 14: Issuers of resettable fixed rate securities that have a reset after 31December 2021 relying on SOR IRS rates should consider their options carefully, including to consider undertaking a consent solicitation process well before 31 December 2021. As this process could take several months, issuers are recommended to commence action as soon as practicable."

It is also important that issuers seek advice from their professional advisors. The terms and conditions of the securities as well as the governing law of securities will have a direct impact on whether and if so, how a consent solicitation exercise can be conducted. The above steps are meant to serve as a high-level guide without consideration being given to the terms and conditions of any securities or any governing law.

3.2 Transition period

From the end of 2019, some issuers of securities referencing SOR or SOR IRS had began to adjust fallback provisions for SOR-referencing securities to reflect the announcement made by

[58] See the ABS Co website at <https://abs.org.sg/docs/library/sc-sts-recommendations-for-transition-of-legacy-sor-contracts.pdf>.

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 or SOR IRS 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 subsequence 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) [Identified 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.

"**Identified SORA**" means the forward-looking term rate for the applicable Corresponding Tenor based on SORA that has been (i) selected or recommended by the Relevant Nominating Body, or (ii) 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;

"**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; and

"**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."

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) Identified 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 Identified SORA, a forward-looking rate, to be the replacement rate for SOR, which is also a forward-looking rate, in the first instance. Parties may consider alternative hierarchy or waterfall to suit their needs or reflect further market development.

Furthermore, for floating rate securities currently using official SOR fixings administered by ABS as the Original Reference Rate, it is anticipated that only Identified SORA selected or recommended by the Relevant Nominating Body (i.e. official fixings), if any, should be used as the Benchmark Replacement for the Original Reference Rate. For resettable fixed rate securities, in line with current market practice where there does not exist official fixings beyond 12-months for SOR, a screen page or broker page, as determined by the Independent Adviser or the Issuer having given due consideration to any industry-accepted market practice (including, for example, using SORA-OIS for the Corresponding Tenor) can be used as the Benchmark Replacement for the Original Reference Rate.

Finally, it should also be noted 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 <u>New products</u>

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 forward-looking term rate based on SORA that has been selected or recommended by the Relevant Nominating Body, nor is there any certainty on when sufficient market activity would develop to produce an IOSCO-compliant forward-looking term rate based on SORA. In the absence of an IOSCO-compliant forward-looking term rate based on SORA 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, especially for floating rate securities. 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 smoothened 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.

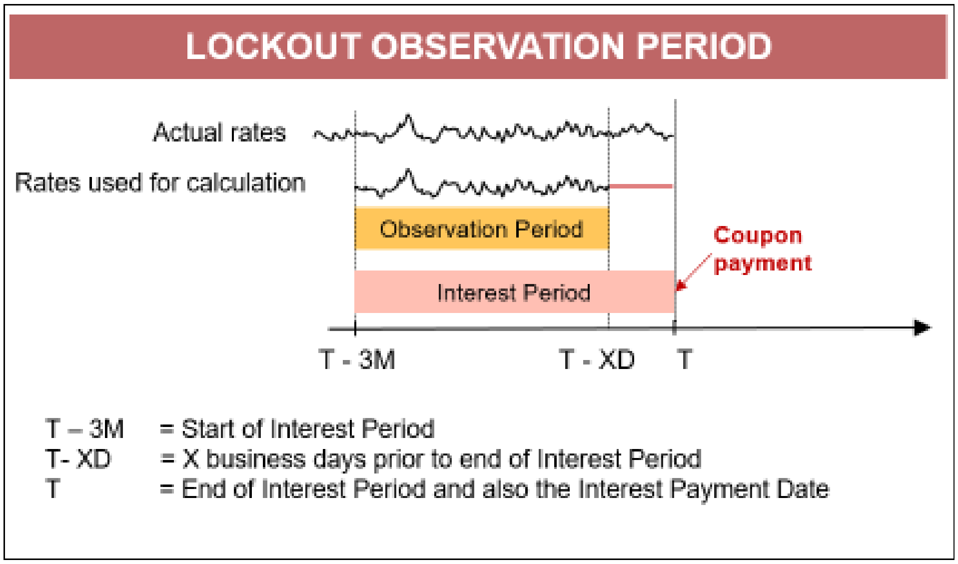
The above options are not exhaustive and the methods of determining Observation Period are expected to evolve over time. It is also to be noted that any option selected will be subject to the actual workings of the paying agents and clearing systems such as The Central Depository (Pte) Limited. Market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



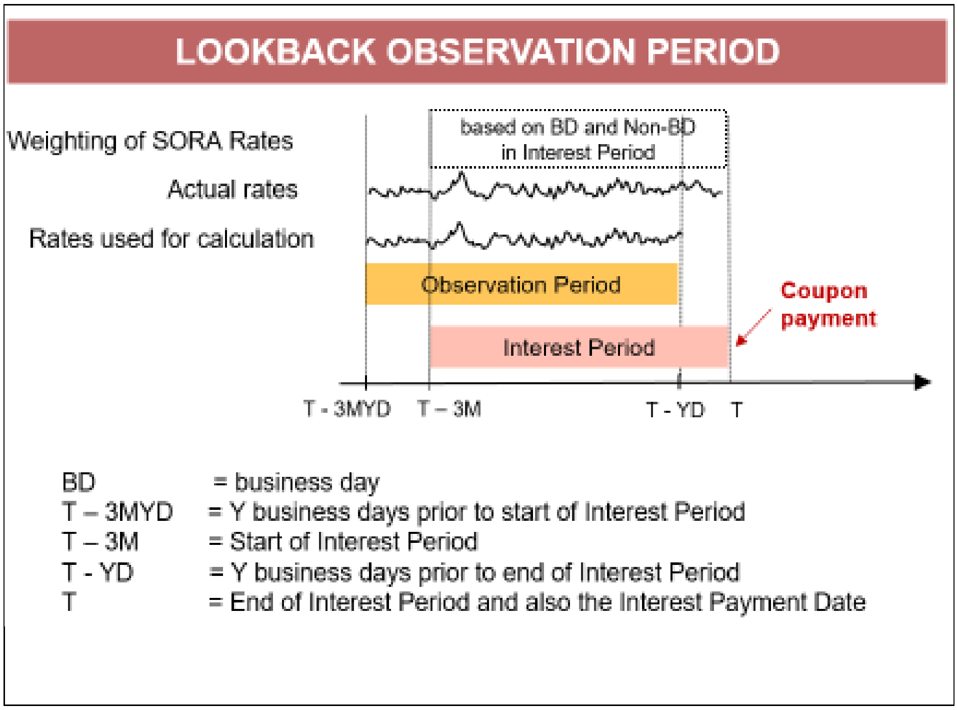
(b) Lookback Observation Period

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

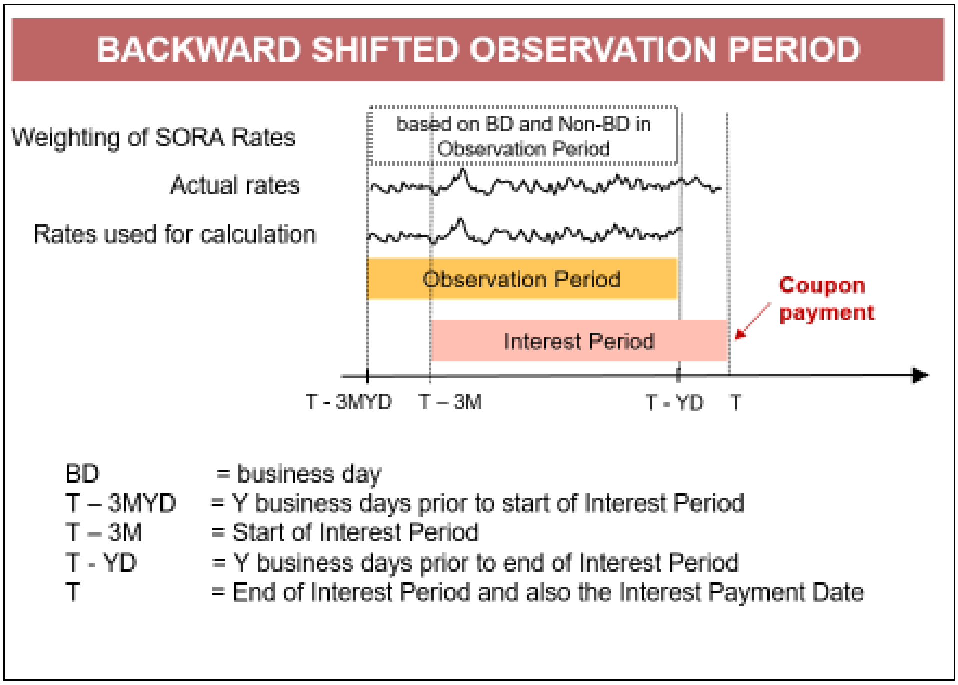
This option is very similar to the Lookback Observation Period option described above except that the weightings for each SORA rate in the compounding formula is based on the number of business days and non-business in the relevant Observation Period (instead of the relevant interest period). Because 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 Index[59] 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.

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

[59] Please refer to footnote 16 above.

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

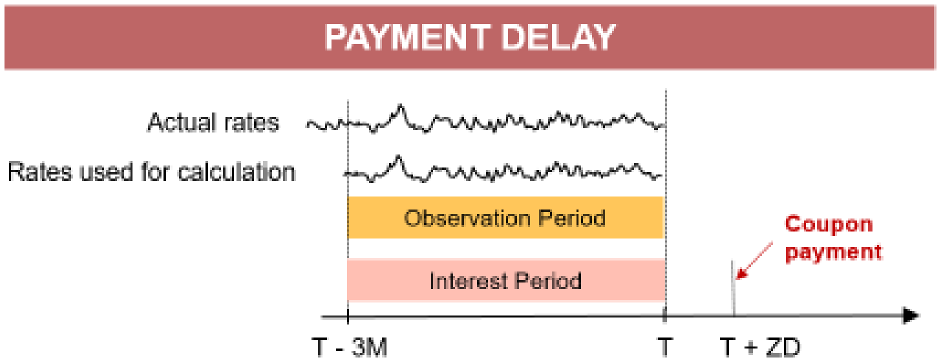


(d) Payment Delay

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:



T – 3M = Start of Interest Period
T = End of Interest Period
T + ZD = Z business days after end of Interest Period and also the Interest Payment Date

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 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;

"$\mathbf{d_o}$", 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 the Singapore Business Day immediately following the Rate Cut-off Date;

"$\mathbf{n_i}$", 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";

"$\mathbf{SORA_i}$" means, in respect of any Singapore Business Day "i" 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 [•] 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);

"**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;

"$\mathbf{n_i}$", 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

"$\mathbf{SORA_i}$" 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;

"**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 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-STS 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 section 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.

3.3.6 *Fixed rate securities*

It is expected that the method of pricing fixed rate securities where SORA is the relevant benchmark will be the same as the method described in section 3.1.4 where SOR is the relevant benchmark, save that references to SOR IRS would instead be read as references to SORA-OIS as quoted on a commonly agreed screen page or broker page in the absence of any official fixings for the required tenor.

3.3.7 *SORA-referencing resettable fixed rate securities*

The interest rate for SORA-referencing resettable fixed rate securities at the time of pricing is expected to be determined in a similar manner to section 3.3.6.

On the reset date, the reset fixed interest rate would be the aggregate of SORA-OIS at the relevant time and an agreed spread together with a step-up margin (if applicable).

The recommended definitions of Reset Rate of Interest, SORA-OIS and Screen Page are set out below (assuming a Bloomberg screen page is used for determination of SORA-OIS).

"**Reset Rate of Interest**" means SORA-OIS or such other Relevant Rate to be specified in the applicable Pricing Supplement with respect to the relevant Reset Date plus the Initial Spread (as specified in the applicable Pricing Supplement) plus the Step-Up Margin (if applicable, as specified in the applicable Pricing Supplement); and

"**SORA-OIS**" means the rate per annum which appears on the Screen Page for a period equal to the duration of the Reset Period specified in the applicable Pricing Supplement at the close of business on the second business day prior to the relevant Reset Date.

"**Screen Page**" means the ["OTC SGD OIS"] page on [Bloomberg under "BGN" panel and the column headed "Ask"][60] (or such other substitute page thereof or if there is no substitute page, the screen page which is the generally accepted page used by market participants at that time as determined by an independent financial institution (which is appointed by the Issuer and notified to the Calculation Agent)).

[60] The Bloomberg screen page has been suggested following its usage in deals referencing SORA-OIS. Market participants may choose to use another service provider or reference page for the determination of SORA-OIS.

4. Corporate Loans

4.1 Legacy corporate loans

In Singapore, as in many other advanced 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.

In the Singapore dollar loans market, floating rate loans had earlier either been 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 *Stopping new usage of SOR for corporate loans*

As mentioned in the Introduction chapter, in line with the global direction to cease usage of USD LIBOR in new cash market contracts, the SC-STS remains committed to earlier announced timelines for shifting new cash market use away from SOR into SORA. Specifically, SC-STS has recommended that by 30 April 2021, all financial institutions would have ceased usage of SOR in new loans and securities that mature after 31 December 2021.

In addition, by 31 December 2022, banks should aim to substantially reduce their SOR exposures (both cash and derivative) to corporates to 20 per cent of their outstanding exposures as at 31 December 2019[61]. All contracts that continue to reference SOR as at 31 December 2022 should minimally incorporate appropriate contractual fallbacks.

In response to queries from market participants, the SC-STS has also set out further implementation guidance on how banks could approach limited situations where SOR loans have been signed or agreed on or before end-April 2021, but where disbursements may only occur after end-April 2021[62].

4.1.2 *Effect of transition on legacy corporate loans*

As 1-month, 3-month and 6-month USD LIBOR will no longer be representative after 30 June 2023, SOR, which relies on USD LIBOR in its computation, will no longer be published when such USD LIBOR settings are discontinued, or cease to be representative. In typical loan documentation referencing SOR (in particular, documentation based on the Asia-Pacific Loan Market Association ("**APLMA**") templates), the cessation of the publication of SOR may trigger certain fallback provisions (which may fall within the "*Unavailability of Screen Rate*" provisions in recent APLMA templates). Such provisions often contain a waterfall of alternative methods to approximate the relevant benchmark (such as using interpolation, historic data or reference banks), before ultimately defaulting to the determination of interest on a cost of funds basis.

[61] See the July 2021 Report <https://abs.org.sg/docs/library/sc-sts-recommendations-for-transition-of-legacy-sor-contracts.pdf>. For avoidance of doubt, the numerator for this 20 per cent. target refers to all SOR loans and derivatives to corporates, including contracts where fallback language to Fallback Rate (SOR) has been incorporated. The denominator refers to all outstanding SOR loans and derivatives to corporates as at 31 December 2019, regardless of maturity dates.

[62] Please refer to Annex B to the March 2021 SC-STS Report. See <https://www.abs.org.sg/docs/library/timelines-to-cease-issuance-of-sor-derivatives-and-sibor-linked-financial-products.pdf>.

Readers should examine the provisions of the loan documentation in question to determine if this is indeed the case.

4.2 Active transition of SOR to SORA

4.2.1 Customer engagement letters

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, corporates should proactively take steps to transition their legacy SOR loans to SORA to avoid having to rely on the unavailability of rates mechanisms in their contracts permanently or, if not feasible, to minimally include specific contractual fallbacks to allow for more sustainable operations post-cessation of SOR.

To support such transition, the SC-STS had on 21 July 2021 provided customer engagement letter templates for banks, to engage and encourage corporates to actively transition their legacy SOR loans by switching directly to SORA. In particular, the SC-STS had recommended that banks and customers should use market-determined rates in the SOR-SORA basis swap market to reprice outstanding SOR loans to SORA. This is a transparent and fair approach for converting SOR loans to SORA. Liquidity in the SOR-SORA basis swap market is expected to be good in the near term, but will taper off as the number of customers with SOR loans dwindle. Hence, the SC-STS strongly recommends that customers who wish to convert their loans to such reference rates do so before 31 December 2021.

Borrowers that “wait and see” run the risk of converting their loans later at a less transparent, and potentially higher, price. SOR loans could also become more challenging to risk-manage and hedge in 2022 as the SOR derivatives market becomes less liquid.

4.2.2 Syndicated / club loans

As syndicated or club loans involve two or more lenders, additional considerations may be required for the transition as compared to a bilateral loan. Depending on the provisions of the loan documentation (such as whether there are express replacement of screen rate provisions incorporated which specify the necessary consent requirements for replacing SOR with SORA), the consent of the borrower and/or the Majority Lenders (or even all Lenders) may be required to effect the transition. As most banks have already formulated their own internal policies and guidelines as to how to implement SORA in loans (which may not be the same positions taken across different banks), the borrowers and lenders may also need to find an acceptable middle ground approach that the bank group is able to operationalise and obtain any necessary approvals for.

A borrower under a syndicated or club loan may have also entered into an associated hedge in order to hedge their floating interest rate exposure, which will then require the borrower to take steps to ensure that such hedge transitions at the same time and at the same rate as the underlying loans in order to minimise any basis risk. The degree to which such hedge and the underlying loan needs to match is ultimately to be determined by the borrower and its advisors.

For the above reasons, borrowers of syndicated or club loans are therefore encouraged to engage with their banks in a timely manner to enable the principals to address any issues or complications which may arise.

4.3 Direct transition to SORA / New products

As of 30 April 2021, all banks and financial institutions have ceased usage of SOR in new loans and started offering new SORA-based loans.

To support the development of the commercial SORA loan market, the SC-STS had previously released some industry-wide recommendations on SORA loan market conventions and fallbacks. These conventions have been updated in this Compendium to include options that the SC-STS understands are being used in the market over the past months, and to better align with the options recommended by the Sterling RFR WG for SONIA and/or the ARRC for SOFR. These conventions may continue to 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 SORA[63], 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.

A key consideration identified by banks is 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 formulating the first steps towards making the changes to the products and processes required to originate SORA-referencing loans. Readers should, however, note that these recommendations are published in order to assist market participants, who have been awaiting directions on the preferred methodology prior to commencing the development of their standard product offerings. These recommendations are not binding or mandatory, or even the sole options available to borrowers and/or lenders. It is recognised that, in certain transactions or client-specific circumstances for a lender or borrower (or group of lenders or borrowers), variations to

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

the methodology, rate or convention(s) may be more appropriate or convenient.

(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 globally[64] 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 section 4.3.1(e) below for the comparison between these two approaches).

(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. A more detailed proposed drafting guide is set out in **Appendix C**.

No.	**Item**	**Indicative terms and commentary**
1.	Interest Basis	Reference Rate + 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). *See row 12 of this table for the definition of Margin.* *See row 16 of this table for the definition of Reference Rate.*
2.	Credit Adjustment Spread	To be agreed between lender and borrower. *Please refer to section 4.3.1(d) below for considerations on whether a credit adjustment spread should be used.*
3.	Mechanism to provide borrower with advance notice of payment (i.e. either Lookback with Observation Shift or Lookback without	Either: (a) 5 Business Day Lookback with Observation Shift; OR

[64] 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".

	Observation Shift)	(b) 5 Business Day Lookback without Observation Shift. *Please refer to section 4.3.1(e) below for considerations for lenders and borrowers to choose between (a) and (b) above.* *See row 12 of this table for the definition of Business Day.*
4.	Interest Period	**[•]** months or any other period agreed between the borrower and the lender. [No Interest Period shall be longer than **[•]** months.]
5.	Lookback Period	Five Business Days.
6.	Interest Determination Date	The Business Day which follows the day which is the Lookback Period prior to the last day of the Interest Period.
7.	Daily SORA	For any Business Day, SORA for that Business Day, 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), rounded to four decimal places [and if the aggregate of that rate [and the applicable Credit Adjustment Spread] is less than zero, the Daily Rate shall be deemed to be such a rate that the aggregate of the Daily SORA [and the applicable Credit Adjustment Spread] shall be deemed to be zero]. *See row 8 below on the implementation of interest rate floors.*
8.	Interest Rate Floors	If applicable, to be applied on the applicable Daily SORA. ***<u>Note</u>:*** *The SC-STS recommends that the interest rate floor be calculated daily (rather than at the end of an interest period) since loans accrue interest daily.* *In any case, if an interest rate floor is used, readers should note that they will not be able to use the historic compounded rates published by the MAS (i.e. 1-month Compounded SORA, 3-month Compounded SORA and 6-month Compounded SORA or the SORA Index), as the daily rates that are compounded to calculate these MAS published rates are not floored.*
9.	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[65], the mechanism to

[65] See Republication Policy section of Singapore Overnight Rate Average ("SORA") Key Features and Calculation Methodology, published by the MAS on 5 August 2020, and available at <https://www.mas.gov.sg/-/media/MAS/SORA/Methodology-document>.

		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.
10.	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.
11.	Day Count Fraction	Actual / 365 (Fixed).
12.	Margin	The margin should be added to the compounded rate in the interest calculation provision, but the margin itself should not be compounded.
13.	Cost of funds *(relevant where market disruption or cost of funds provisions are included)*	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.
14.	Business Day	Any day other than a Saturday, Sunday, public holiday or bank holiday in Singapore.
15.	Governing Law	Singapore.
16.	Reference Rate	<u>Option 1: Cumulative Compounded Rate ("**CCR**")</u> Means, in relation to any loan: (a) [the aggregate of:] (i) the Compounded Daily SORA for the Interest Period of that loan[; and (ii) the applicable Credit Adjustment Spread]; or (b) as otherwise determined pursuant to Clause **[•]** (*Fallback language for extended unavailability or permanent cessation*). *See row 2 above on the options for use of a Credit Adjustment Spread.* *Choose the words in purple if "Lookback without Observation*

		Shift" is used OR *choose the words in red if "Lookback with Observation Shift" is used:* "**Compounded Daily SORA**" for any Interest Period is [the percentage rate per annum (rounded to four decimal places) calculated as set out below] OR [the "**Observation Period CCRR**" for the Observation Period relating to that Interest Period, where: the "**Observation Period**" relating to an Interest Period is the period from and including the day falling the applicable Lookback Period prior to the first day of that Interest Period and ending on, but excluding, the day falling the applicable Lookback Period prior to the last day of that Interest Period; and the "**Observation Period CCRR**" for the Observation Period relating to any Interest Period for a Compounded Rate Loan is the percentage rate per annum (rounded to four decimal places) calculated as set out below]: $$\left[\prod_{i=1}^{d_0}\left(1+\frac{DailyRate_{i-LP}\times n_i}{dcc}\right)-1\right]\times\frac{dcc}{d}$$ where: "**d_0**" means the number of Business Days in the Interest Period; "**i**" means a series of whole numbers from one to d_0, each representing the relevant Business Day in chronological order in the Interest Period; "**$DailyRate_{i-LP}$**" means, for any Business Day "**i**" in the Interest Period, the Daily SORA for the Business Day which is the applicable Lookback Period prior to that Business Day "**i**"; "**n_i**" means, for any Business Day "**i**" in the Interest Period, the number of calendar days from, and including, that Business Day "**i**" up to, but excluding, the following Business Day; "**dcc**" means 365 or, in any case where market practice in the Relevant Market is to use a different number for quoting the number of days in a year, that number; "**Relevant Market**" means the Singapore Dollars wholesale market; and "**d**" means the number of calendar days in the Interest Period. OR

$$\left[\prod_{i=1}^{d_0}\left(1+\frac{DailyRate_i \times n_i}{dcc}\right)-1\right]\times\frac{dcc}{d}$$

where:

"$\mathbf{d_0}$" means the number of Business Days in the Observation Period;

"**i**" means a series of whole numbers from one to d_0, each representing the relevant Business Day in chronological order in the Observation Period;

"$\mathbf{DailyRate_i}$" means, for any Business Day "**i**" in the Observation Period, the Daily SORA for that Business Day "**i**";

"$\mathbf{n_i}$" means, for any Business Day "**i**" in the Observation Period, the number of calendar days from, and including, that Business Day "**i**" up to, but excluding, the following Business Day;

"**dcc**" means 365 or, in any case where market practice in the Relevant Market is to use a different number for quoting the number of days in a year, that number;

"**Relevant Market**" means the Singapore Dollars wholesale market; and

"**d**" means the number of calendar days in the Observation Period.

<u>Option 2: Non-cumulative Compounded Rate ("**NCCR**")</u>

Means, in relation to any loan:

(a) in relation to any Business Day during the Interest Period of that loan, the percentage rate per annum which is [the aggregate of:]

 (i) the Daily Non-Cumulative Compounded Daily SORA for that Business Day[; and

 (ii) the applicable Credit Adjustment Spread]; or

(b) as otherwise determined pursuant to Clause **[•]** (*Fallback* language *for extended unavailability or permanent cessation*).]

Choose the words in purple if "Lookback without Observation Shift" is used OR *choose the words in red if "Lookback with Observation Shift" is used:*

The "**Daily Non-Cumulative Compounded SORA**" for any

		Business Day "i" during an Interest Period is the percentage rate per annum (without rounding, to the extent reasonably practicable for the Agent (or such other party responsible for the calculation of the Rate of Interest), taking into account the capabilities of any software used for that purpose) calculated as set out below: $[(UCCDR_i - UCCDR_{i-1}) \times \frac{dcc}{n_i}]$ OR $[(UCCDR_i - UCCDR_{i-1}) \times \frac{dcc}{IPn_i}]$ where: "**UCCDR$_i$**" means the Unannualised Cumulative Compounded Daily Rate for that Business Day "**i**"; "**UCCDR$_{i-1}$**" means, in relation to that Business Day "**i**", the Unannualised Cumulative Compounded Daily Rate for the immediately preceding Business Day (if any) during that Interest Period; "**dcc**" means 365 or, in any case where market practice in the Relevant Market is to use a different number for quoting the number of days in a year, that number; "**Relevant Market**" means the Singapore Dollars wholesale market; ["**n$_i$**" means the number of calendar days from, and including, that Business Day "**i**" up to, but excluding, the following Business Day; and] OR ["**IPn$_i$**" means the number of calendar days from, and including, that Business Day "**i**" up to, but excluding, the following Business Day; and] the "**Unannualised Cumulative Compounded Daily Rate**" for any Business Day (the "**Cumulated Business Day**") during that Interest Period is the result of the below calculation (without rounding, to the extent reasonably practicable for the Finance Party performing the calculation, taking into account the capabilities of any software used for that purpose) calculated as set out below: $[ACCDR \times \frac{tn_i}{dcc}]$

		OR $[ACCDR \times \frac{tIPn_i}{dcc}]$ where: "**ACCDR**" means the Annualised Cumulative Compounded Daily Rate for that Cumulated Business Day; ["**tn_i**" means the number of calendar days from, and including, the first day of the Cumulation Period to, but excluding, the Business Day which immediately follows the last day of the Cumulation Period;] OR ["**$tIPn_i$**" means the number of calendar days from, and including, the first day of the IP Cumulation Period to, but excluding, the Business Day which immediately follows the last day of the IP Cumulation Period;] ["**Cumulation Period**" means the period from, and including, the first Business Day of that Interest Period to, and including, that Cumulated Business Day;] OR ["**IP Cumulation Period**" means the period from, and including, the first Business Day of that Interest Period to, and including, that Cumulated Business Day;] "**dcc**" has the meaning given to that term above; and [the "**Annualised Cumulative Compounded Daily Rate**" for that Cumulated Business Day is the percentage rate per annum (rounded to four decimal places) calculated as set out below: $$\left[\prod_{i=1}^{d_0}\left(1+\frac{DailyRate_{i-LP} \times n_i}{dcc}\right)-1\right] \times \frac{dcc}{tn_i}$$ where: "**d_0**" means the number of Business Days in the Cumulation Period; "**Cumulation Period**" has the meaning ascribed to it above; "**i**" means a series of whole numbers from one to d_0, each representing the relevant Business Day in chronological order in the Cumulation Period;

		"**DailyRate$_{i-LP}$**" means, for any Business Day "**i**" in the Cumulation Period, the Daily SORA for the Business Day which is the applicable Lookback Period prior to that Business Day "**i**"; "**n$_i$**" means, for any Business Day "**i**" in the Cumulation Period, the number of calendar days from, and including, that Business Day "**i**" up to, but excluding, the following Business Day; "**dcc**" has the meaning given to that term above; and "**tn$_i$**" has the meaning given to that term above.] OR [the "**Annualised Cumulative Compounded Daily Rate**" for that Cumulated Business Day during that Interest Period is the percentage rate per annum (rounded to four decimal places) calculated as set out below: $$\left[\prod_{i=1}^{d_0}\left(1+\frac{DailyRate_i \times n_i}{dcc}\right)-1\right]\times\frac{dcc}{tn_i}$$ where: "**d$_0$**" means the number of Business Days in the OP Cumulation Period; "**OP Cumulation Period**" means the period from, and including, the Corresponding OP Day for the first day of the IP Cumulation Period to, and including, the Corresponding OP Day for the last day of the IP Cumulation Period; "**Corresponding OP Day**" means, in relation to any Business Day "**bd**" during that Interest Period, the Business Day which: (a) is in the Observation Period; and (b) falls the applicable Lookback Period prior to that Business Day "**bd**"; "**Observation Period**" means the period from and including the day falling the applicable Lookback Period prior to the first day of that Interest Period and ending on, but excluding, the day falling the applicable Lookback Period prior to the last day of that Interest Period; "**IP Cumulation Period**" has the meaning given to that term above; "**i**" means a series of whole numbers from one to d$_0$, each representing the relevant Business Day in

		chronological order in the OP Cumulation Period; "**$DailyRate_i$**" means, for any Business Day "**i**" in the OP Cumulation Period, the Daily SORA for that Business Day "**i**"; "**n_i**" means, for any Business Day "**i**" in the OP Cumulation Period, the number of calendar days from, and including, that Business Day "**i**" up to, but excluding, the following Business Day; "**dcc**" has the meaning given to that term above; and "**tn_i**" means the number of calendar days from, and including, the first day of the OP Cumulation Period to, but excluding, the Business Day which immediately follows the last day of the OP Cumulation Period.] *Please refer to section 4.3.1(f) below for considerations for lenders and borrowers to choose between options 1 and 2 above.*
17.	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.
18.	Benchmark Discontinuation Event	Means, in relation to Daily SORA, either: (a) Daily SORA is not published for 5 consecutive Business Days or more; or (b) the MAS issues a public statement that includes one or more of the following: (i) the MAS has ceased or will cease to publish Daily SORA permanently or indefinitely; or (ii) the Benchmark Administrator has ceased to provide Daily SORA permanently or indefinitely. ***<u>Note</u>:*** *The definition of Benchmark Discontinuation Event in Supplement number 62 to the 2006 ISDA Definitions*[66] *is different. Borrowers whose loans are hedged with an Interest Rate Swap may wish to consider aligning the definitions.*

[66] 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/>.

19.	Fallback language for extended unavailability or permanent cessation	If a Benchmark Discontinuation Event has occurred and is continuing, the applicable Reference Rate shall be replaced with: (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; OR (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; OR (c) The lender's cost of funds.
20.	Rounding conventions	Interest rate calculations for SORA to be rounded (and not truncated) to 4 decimal places (being the same number of decimal places to which SORA is published). Interest payment amounts for SORA to be rounded to 2 decimal places. ***Note:*** *To ensure that the total accrued interest amount calculated using the CCR and the NCCR methods are always the same, it is recommended as follows*[67]*:* *(i) the cumulative compounded rate to be rounded on a daily basis;* *(ii) the non-cumulative compounded rate derived from the daily cumulative compounded rate not to be rounded;* *(iii) the daily compounded SORA interest component calculated using the non-cumulative rate not to be rounded (so that the total accrued interest calculated as the sum of these daily compounded SORA interest components does not carry forward rounded amounts); and* *(iv) the amount of total accrued interest (i.e. the compounded SORA + Credit Adjustment Spread (if applicable) + Margin) to be rounded to 2 decimal places.*

[67] Notwithstanding the above, in practice, readers should note that systems used by banks to compute such amount using CCR versus NCCR methodologies may have differing capabilities in respect of certain steps in the computation (e.g. limitations in rounding at certain steps), which may result in minute differences between the results derived from the CCR versus the NCC methodologies.

21.	Prepayments	Proportional accrued interest to be paid at the time of prepayment on any amounts of principal prepaid. ***<u>Note</u>:*** *If principal is paid down without any accompanying interest being paid down at the same time, this can affect the accuracy of compounded calculations and be operationally complex.*
22.	Distribution of Interest	"Pro-rata" method of distributing interest across syndicated lenders, i.e. interest paid by the borrower for any given day would be earned by a lender based on its pro-rata share of the principal amount of the loan owned for that day. ***<u>Note</u>:*** *Using this method, if a lender sells out of a loan completely, they are owed interest based on the time they held part of the loan but do not earn further interest after they leave, regardless of the fact that they will not be paid until the end of the interest period. If a new lender buys into a loan during the interest period, their interest is calculated using the compounded rate as of that day in the interest period (and will not start to compound separately from the date they buy) i.e. non-cumulative compounded rate for that day can be used.*

(d) Row 2: Credit Adjustment Spread

Lenders and borrowers should consider whether the inclusion of a credit adjustment spread within the calculation of the Reference Rate is appropriate in the context of their transaction. Where the contract includes a rate switch mechanism whereby the existing SOR benchmark rate is switched to SORA upon a specified date, it would be appropriate to include a credit adjustment spread as a means to address the issue of potential transfer of economic value due to the change in use of a term rate to a compounded near-risk free rate. However for new SORA loans, parties can consider including the credit adjustment spread directly into the Margin instead.

(e) Row 3: 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.

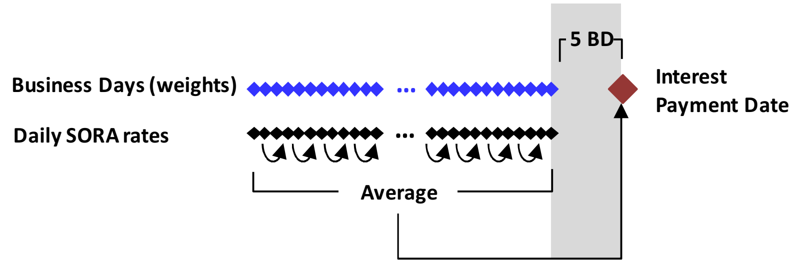


Figure A. Lookback with Observation Shift

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 Index[68] published by the MAS, which may be used then to calculate the relevant Compounded Daily SORA (as defined in this document) for the contract.

- **Some incremental alignment with standard interdealer interest rate swaps.** Because the standard market convention for interest settlement of Overnight Index Swaps (OIS) weighs the daily SORA readings according to the number of days in the observation period, a Lookback with Observation Shift convention could allow for some incrementally closer alignment of the calculation of the amount of interest payments on the loan and the interest rate swap[69].

- It has also been noted as a "viable and robust" approach by the Sterling RFR WG.

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

[68] Please refer to footnote 16 above.
[69] Note that other mismatches may remain. For example: (1) the days on which the SORA readings are taken could differ slightly, given that the respective observation periods may start and end on slightly different days; and (2) there could be slight cashflow mismatches given the differing days that interest payments are made. Please refer to section 2.3 regarding ISDA Supplements 74 and 75, which introduce a modular approach to allow market participants to tailor the calculation method to match the relevant cash product.

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.

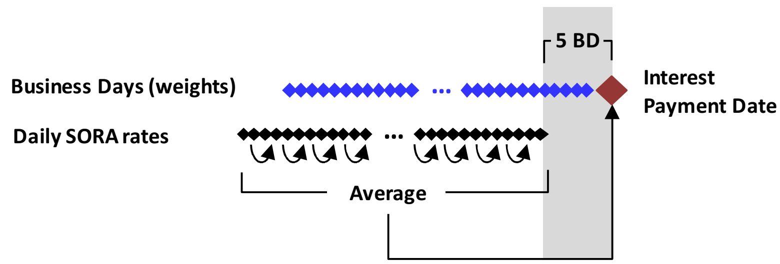


Figure B. Lookback without Observation Shift

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

- **Inability for parties to cross-check internal computation of interest rate against central bank-published rates/indices.** 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 does not permit the use of central bank-published rates and indices (i.e. the SORA Index) (which rely on different reference points) for the purpose of cross-checking a lender's or borrower's own internal interest calculations. Some borrowers may therefore find this approach more difficult to operationalise.

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”[70].

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 elsewhere[71].

(f) Row 16: CCR vs NCCR

The SC-STS recommends that the two possible methodologies for computing interest are equally practicable and the implementation choice is left to the market participants. Readers should note that in any case, the total accrued interest amount calculated using the CCR and the NCCR methods are expected to be the same[72].

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

(1) CCR

The CCR method allows calculation of interest for the whole period using a single compounded rate, by calculating the compounded rate from the start of the relevant interest period and applying it cumulatively to each subsequent Business Day in the interest period up to and

[70] 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>

[71] 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 (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>.

[72] This is assuming that a consistent rounding methodology is applied per row 20 above. Do also note that systems used by banks to compute using the CCR versus the NCCR methodologies may have differing capabilities for certain steps in the computation (for example, limitations in rounding at certain steps), which may result in minute differences between the results derived from the CCR versus the NCCR methodologies.

including to the final day in the period.

Pros

- **Computationally simpler.** The CCR method is computationally simpler than the NCCR method, which requires additional calculation steps to derive the daily compounded rate.

- **Identical to method applied by central banks to calculate published rates.** The CCR method is applied by central banks to compute published compounded rates, such as the SORA Index, or 3-month Compounded SORA. Accordingly, these published rates could be used to check compounding calculations performed by a third-party using the CCR method, such as a facility agent.

- **Identical to method applied by derivative market participants to calculate derivative interest payments.** The CCR method may be preferred if the borrower is entering into derivative hedges, since the market convention for SORA derivatives is to compute SORA using a CCR method.

Cons

- **Harder to operationalise intra-period events, such as prepayments or loan trading.** As this method calculates a single compounded rate from the beginning of the interest period, it may be harder to operationalise intra-period events, such as prepayments, or where the loan is expected to be traded, for example, for syndicated loans. Where such intra-period events occur, an additional CCR computation will have to be carried out to calculate the interest accrued for the partial interest period, for example, the period from the start date of the interest period up to the date on which the loan is prepaid.

Borrowers and lenders may consider applying the CCR method, if (A) they want to use compounded rates published by central banks to check compounding calculations, (B) they want loan interest payments to be calculated in an identical way as the interest payments on derivatives that hedge these loans, and/or (C) they are comfortable with performing additional computations when intra-period events occur.

(2) NCCR

The NCCR method is a daily compounded rate derived from CCR i.e., CCR as of current day minus CCR as of the prior banking day. This generates a daily compounded rate which helps to easily calculate daily interest using a compounded rate for that day or days (usually it will be for one day, but on Fridays it will be three days, or more if the next Monday is a public holiday).

Pros

- **Aligned with global default recommendations.** This approach is the default recommendation of the Sterling RFR WG and may therefore be more 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.** The NCCR method may be preferred for loans where prepayment is expected, or where the loan is expected to be traded (e.g. syndicated loans), given the need for calculation of daily interest accruals to support distribution of interest impacted by such intra-period activities.

- **Supported by major loan system vendors.** The NCCR method is supported by many major loan system vendors.

Cons

- **Computationally more complex.** The NCCR method is computationally more complex than the CCR method because it requires two compounding calculations to be performed in order to arrive at each daily non-cumulative compounded rate.

- **Sensitive to software limitations.** The NCCR method requires that intermediate calculation outputs **not** be rounded. Therefore, the method is sensitive to the capabilities of software to preserve an appropriate number of decimal places at each step of the calculation. Due to these potential rounding differences, the cumulative interest calculated using the NCCR method could have minor differences with that calculated using the CCR method[73].

Borrowers and lenders may want to consider applying the NCCR method if they would like to align with recommended conventions for global currencies such as GBP, or if they expect loan prepayment or trading.

4.3.2 *Provide option for SMEs to convert to a compounded-in-advance SORA*

For SMEs, the Recommendations for Transition of Legacy SOR Contracts issued by SC-STS on 29 July 2021[74] provide that “For SMEs that require advanced payment certainty, banks should provide an option to convert to referencing compounded-in-advance SORA in order to meet customer needs” (Recommendation 12). For such SMEs, banks may also consider adopting a transition approach that is similar to what is outlined in Section 5 on Retail Loans.

4.4 Implementation of fallbacks for legacy SOR loans

As highlighted above, banks and customers should seek to actively convert their legacy SOR loans to SORA. For residual legacy corporate SOR loans that are unable to transition by 4Q2022, the SC-STS recommends for banks and customers to put in place robust contractual fallbacks to address the imminent risks of SOR discontinuation.

4.4.1 *Fallback Rate (SOR) and other legacy SOR fallbacks*

(a) SOR fallback rates

[73] This is also discussed in footnote 248 of the Loan Market Association’s recommended form of Multicurrency Term and Revolving Facilities Agreement Incorporating Rate Switch Provisions (last versions published on 28 May 2021).
[74] See July 2021 Report <https://abs.org.sg/docs/library/sc-sts-recommendations-for-transition-of-legacy-sor-contracts.pdf>.

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

(i) the Fallback Rate (SOR)[75];

(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

(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-June 2023. 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)[76]. As the construct of Fallback Rate (SOR) is similar to SOR, its use as a contractual fallback would reduce the risk of value transfer[77].

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. This may mean that other operational changes to the terms of the

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

[76] 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.

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

loan will need to be agreed between the lenders and the borrower.

(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 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 discontinuation of SOR. The SC-STS considers the trigger for this to be the date of the relevant cessation (in the case of paragraphs (i) or (ii) below) or non-representativeness (in the case of paragraph (iii) below) has occurred, following the occurrence of one of the following three events:

(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. The SC-STS had announced in the March 2021 SC-STS Report[78] that despite the extension of timing for the loss of representativeness of the 1-month, 3-month and 6-month USD LIBOR settings to 30 June 2023, it is of the view that a Fallback Rate (SOR) publication period of 3 years from such extended cessation date is unnecessary and that it will retain the original 31 December 2024 end-date for Fallback Rate (SOR).

Banks and customers who plan to rely on Fallback Rate (SOR) beyond 31 December 2024 should be aware of the risks and issues arising from this approach. Specifically, Fallback Rate (SOR) will discontinue immediately after 31 December 2024. Based on the SOR fallback provisions recommended by the SC-STS, the replacement rate for Fallback Rate (SOR) is "a rate recommended by the MAS, or a committee officially endorsed or convened by the MAS". Banks and customers should be aware that there is no assurance that such a rate will be similar to either Fallback Rate (SOR) or SORA. Therefore, loans that rely on Fallback Rate (SOR) beyond 31 December 2024 will face an uncertain commercial outlook.

In addition, banks and customers could incur additional legal costs from having to amend loan and related security/operational agreements to use a different benchmark when Fallback Rate (SOR) discontinues.

Market participants are therefore encouraged to transition to SORA where possible, to benefit from the continued ability to hedge via the derivatives markets, and to reduce the operational risks of relying on fallbacks for a large number of contracts.

(d) Indicative terms for Fallback Rate (SOR) Bilateral and Syndicated loans

A brief summary table for the indicative terms for Fallback Rate (SOR) bilateral and syndicated loans is set out below.

No.	**Item**	**Indicative terms and commentary**
1.	Interest Basis	Reference Rate + Margin.

[78] See the March 2021 Report <https://www.abs.org.sg/docs/library/timelines-to-cease-issuance-of-sor-derivatives-and-sibor-linked-financial-products-version-1-1.pdf>.

		Fallback Rate (SOR) is the primary fallback rate for legacy SOR corporate loans that will subsist post-cessation of SOR after end-June 2023. *See row 10 of this table for the definition of Margin.* *See row 14 of this table for the definition of Reference Rate.*
2.	Mechanism to provide borrower with advance notice of payment	5 Business Day Lookback. ***Note:*** *Borrowers whose loans are hedged with an interest rate swap may want to mirror the convention applied in the ISDA protocol so that both the loan and interest rate swap will reference the same definitions after SOR discontinuation.*
3.	Interest Period	**[•]** months or any other period agreed between the borrower and the lender. No Interest Period shall be longer than **[•]** months.
4.	Lookback Period	Five Business Days.
5.	Interest Determination Date	The Business Day which follows the day which is the Lookback Period prior to the last day of the Interest Period.
6.	Relevant Screen Page	Refinitiv – FBKSORFIX, Bloomberg – ABSI. *As referenced in the Calculation Methodology for Fallback Rate (SOR) published by ABS Co on 7 August 2020.*
7.	Publication Timing	Fallback Rate (SOR) will be published in arrears, for every Original SOR Rate Record Day, prior to or at 9.15 a.m. NYT (9.15 p.m. or 10.15 p.m. SGT). *An Original SOR Rate Record Day is:* • *every Singapore, London and New York Business Day on which an Overnight SOR would have been published with respect to an Overnight Fallback Rate (SOR); and* • *every Singapore and London Business Day on which a 1-month, 3-month and 6-month SOR would have been published with respect to 1-month, 3-month and 6-month Fallback Rates (SOR).*
8.	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.
9.	Day Count Fraction	Actual / 365 (Fixed).
10.	Margin	The margin should be added to the reference rate in the interest calculation provision.
11.	Cost of funds *(relevant where market disruption or cost of funds provisions are included)*	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.
12.	Business Day	Any day other than a Saturday, Sunday, public holiday or bank holiday in Singapore.
13.	Governing Law	Singapore.
14.	Reference Rate	Means, in relation to any loan: (a) the Fallback Rate (SOR), as published on the Relevant Screen Page; or (b) as otherwise determined pursuant to Clause **[•]** (*Interest calculation if no Fallback Rate (SOR)*)[, and if, in either case, that rate is zero, the Reference Rate shall be deemed to be zero].
15.	Temporary Unavailability of Rate Event and fallback	Means, the Fallback Rate (SOR) 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 Fallback Rate (SOR).
16.	Reference Rate Discontinuation Event	Means, in relation to Fallback Rate (SOR), either: (a) Fallback Rate (SOR) is not published for 5 consecutive Business Days or more; or

		(b) the MAS or ABS Co (as the Reference Rate Administrator) issues a public statement that the Reference Rate Administrator has ceased or will cease to publish Fallback Rate (SOR) permanently or indefinitely.
17.	Fallback language for permanent cessation	If a Reference Rate Discontinuation Event has occurred and is continuing, the applicable Reference Rate shall be replaced with: (a) the aggregate sum of (i) the Recommended Fallback Rate, plus (ii) a related Benchmark Replacement Adjustment; OR (b) the aggregate sum of (i) the Agreed Fallback Rate, plus (ii) a related Benchmark Replacement Adjustment; OR The lender's cost of funds. *Please refer to section 4.4.1 above for a more detailed description of the Recommended Fallback Rate, the Agreed Fallback Rate and the Benchmark Replacement Adjustment.*

4.4.2 *Rate switch mechanism / Replacement of Screen Rate clause*

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

One option that parties may wish to consider is to make a one-off amendment to the terms of an underlying SOR corporate loan, introducing pre-agreed conversion terms that effect a direct transition. This provides the benefit of certainty, since the transition is automatic upon the occurrence of one or more specified events, without the need to enter into further amendment documentation. In this regard, readers may wish to note that the LMA has published several recommended form templates[79] incorporating "rate switch provisions" (the "**Rate Switch Provisions**") to provide for such a direct transition. Nevertheless, it should be noted that the Rate Switch Provisions have been prepared based on certain chosen market conventions that are prevailing in respect of SONIA. As such, parties may wish to consider modifications to the Rate Switch Provisions for consistency with applicable or relevant market conventions for SORA or Fallback Rate (SOR), before incorporating such provisions into existing SOR corporate loan documentation.

Some loan agreements still rely on a "Replacement of Screen Rate Clause" (the "**RSR**

[79] See, for example, the document entitled "Multicurrency Terms and Revolving Facilities Agreement Incorporating Rate Switch Provisions (Lookback With Observation Shift)", a similarly titled document providing for a "without observation shift" option as well as the respective accompanying commentary (all available through the LMA website at <https://lma.eu.com>).

Clause"), which was first published by the LMA on 21 December 2018[80] and has since been incorporated into the LMA facility agreement templates and the APLMA facility agreement templates (latest templates as of 6 May 2021). 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 available[81], primarily by lowering the thresholds for consent required to make such transition. Other optional features include a "snooze-you-lose" clause disenfranchising lenders failing to respond by a specified deadline. Nevertheless, the RSR Clause is less preferred since it does not contain any operative provision providing for the transition to SORA or Fallback Rate (SORA). This means that a further round of negotiations and discussions will be required to agree such provisions, leading to uncertainty should an agreement not be reached.

[80] 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.

[81] 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.

5. Consumer Products

5.1 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 was previously one of the interest rate benchmarks used in retail loans. Most financial institutions ("**FIs**") in Singapore have 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, there have been several key developments in Singapore towards the adoption of SORA in retail loans.

5.2.1 *Discontinuation of SOR*

On 5 March 2021, the FCA released a statement confirming, inter alia, that 1-month, 3-month and 6-month USD LIBOR would no longer be representative immediately after 30 June 2023. As SOR relies on USD LIBOR in its computation, the SC-STS confirmed on 31 March 2021[82] that all published tenors of SOR, which are 1-month, 3-month and 6-month, will similarly be discontinued immediately after 30 June 2023.

5.2.2 *SORA-centred approach*

In October 2020, the SC-STS set out market guidance for FIs to cease the use of SOR in all new loans, by end-April 2021.

In December 2020, the ABS-SFEMC and SC-STS published a joint industry response to feedback received from the July 2020 joint industry consultation on SIBOR reform, which recommended the discontinuation of SIBOR in three to four years, potentially by 2024. The response paper highlighted plans to discontinue all remaining tenors of SIBOR, starting with the 6-month SIBOR likely in 2022, and the 1-month and 3-month SIBOR by end-2024.

On 31 March 2021[83], SC-STS:

(a) confirmed that 6-month SIBOR will be discontinued on 31 March 2022; and

[82] See the March 2021 Report <https://www.abs.org.sg/docs/library/timelines-to-cease-issuance-of-sor-derivatives-and-sibor-linked-financial-products-version-1-1.pdf>.
[83] See the March 2021 Report <https://www.abs.org.sg/docs/library/timelines-to-cease-issuance-of-sor-derivatives-and-sibor-linked-financial-products-version-1-1.pdf>.

(b) further introduced new timelines, including for FIs to cease the use of SIBOR in all new retail loans, by end-September 2021.

These strategic initiatives have given added impetus to the transition to SORA as the main interest rate benchmark for consumer products.

Most D-SIBs have been offering SORA-based property loans to their customers since February 2021. Non-DSIBs have been offering such products since end-April 2021.

The MAS strongly supports the industry-recommended SORA-centred approach, noting that this shift would enhance the overall functionality and efficiency of SGD interest rate markets. For banks, compared with managing both SOR and SIBOR 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.

5.2.3 *MAS's publication of Compounded SORA Indices*

Since August 2020, the MAS has started the publication of the Compounded SORA in tenors of 1-month, 3-months and 6-months, and a SORA Index[84] that facilitates the 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.

The 1-month, 3-months and 6-months Compounded SORA rates published by the MAS are respectively computed as the compounded average of daily SORA readings over the preceding 1-month, 3-month and 6-month period before the publication date of each such Compounded SORA rate.

The Compounded SORA rates are therefore compatible for use in structuring products which reference the "compounding in advance" methodology, in order to give customers advance notice of the "all-in" interest rate and certainty of loan repayment amounts at the start of each rate reset date on their loans. Banks' current retail offerings of SORA-based property loans reference the MAS-published Compounded SORA rates.

5.2.4 *Use of Compounded-in-advance SORA conventions in retail loans*

Presently, most SORA retail loans in the market compute interest based on the MAS-published 1-month or 3-month Compounded SORA rate. The interest payable on a 1-month or 3-month Compounded SORA loan may thus be calculated based on an aggregate of:

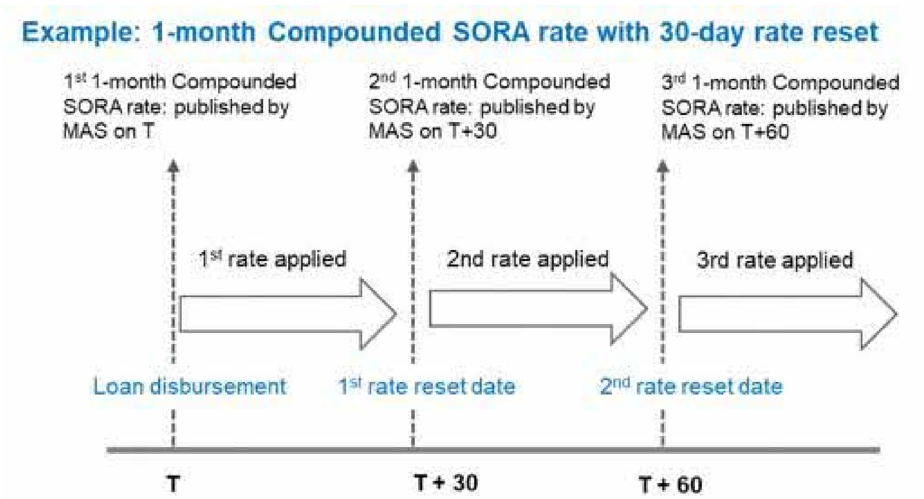
(a) the margin i.e. customer spread; and

(b) the 1-month or 3-month Compounded SORA rate published sometime before the first disbursement, and each subsequent rate reset date, of the loan.

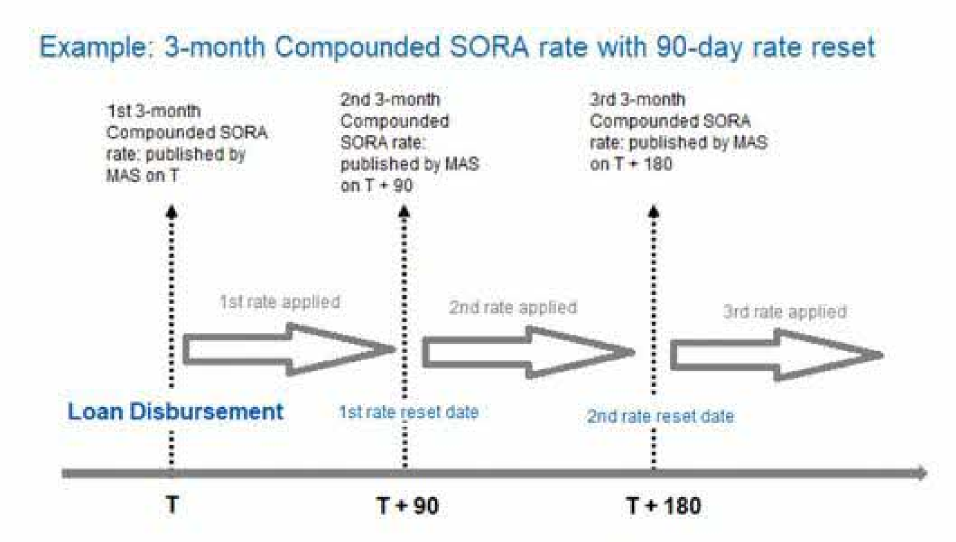
[84] Please refer to footnote 16 above.

Compounding in advance provides retail customers with notice in advance of the applicable interest rate and the monthly instalment payable for the coming period. Customers will be informed of the first disbursement of the loan, and thereafter, on each rate reset date, of the SORA-based interest rate to be paid for the coming period until the next rate reset date. The monthly instalments payable for that period will then be payable on each of the instalment payment dates applicable to the loan. Giving customers notice in advance of the amount of instalments can certainly help them better plan their finances.

Below are examples of how the 1-month Compounded SORA rate and 3-month Compounded SORA rate are calculated for a loan package with a 30-day rate reset and a 90-day rate reset respectively.



Day "T" in the above example refers to the date of loan disbursement or acceptance of letter of offer, etc. according to each bank's internal processes. Banks may also apply a 1-month Compounded SORA rate from a prior 30-day period which is not immediately preceding day "T" and each rate reset date, according to each bank's internal processes.



Day "T" in the above example refers to the date of loan disbursement or acceptance of letter of offer, etc. according to each bank's internal processes. Banks may also apply a 3-month Compounded SORA rate from a prior 90-day period which is not immediately preceding day "T" and each rate reset date, according to each bank's internal processes.

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

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.	All eligible transactions provided by identified reporting banks in Singapore.
Administrator	ABS Co.	MAS
	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	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.

	accordance with above formula.	For example, in the case of a 1-month Compounded SORA as at 1 October, the compounded SORA rate would be calculated from 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.
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 <u>SC-STS recommendations on the transition of legacy SOR retail loans</u>

To address the risks arising from SOR's impending discontinuation and to coordinate the industry wide shift from SOR to SORA, the SC-STS published on 29 July 2021[85] a set of 17 recommendations on the transition of legacy SOR contracts, covering derivatives, bonds, corporate loans and retail loans. Recommendations 15 to 17 set out an appropriate transition approach for retail customers.

There are three key elements to support a simple, efficient and orderly retail transition:

Recommendation 15: Banks should inform and provide options to retail customers to voluntarily convert their legacy SOR loans as soon as possible and no later than 31 October 2022. Banks should explain clearly to customers the actions that will be taken to convert SOR loans to SORA if voluntary conversion is not undertaken, so as to ensure that loans are not

[85] See July 2021 Report <https://abs.org.sg/docs/library/sc-sts-recommendations-for-transition-of-legacy-sor-contracts.pdf>.

disrupted by eventual SOR discontinuation after 30 June 2023.

Recommendation 16: Banks should make available to customers with legacy SOR exposures a SORA Conversion Package at no additional fee or lock-in.

Recommendation 17: Banks should allow customers to reprice to any prevailing package offered by the bank if customers wish to do so. SIBOR loans should not be offered, given industry direction to stop new use of SIBOR after 30 September 2021.

5.3.1 *SC-STS' Recommendation of the SORA Conversion Package*

The SORA Conversion Package switches a customer's existing SOR loan to a comparable SORA loan.

It is structured into three components comprising:

(a) 3-month Compounded SORA;

(b) customer's existing SOR margin; and

(c) Adjustment Spread (Retail).

5.3.2 *3-month Compounded SORA*

The SORA Conversion Package will be tied to the 3-month Compounded SORA. The 3-month Compounded SORA is the most commonly offered tenor setting for SORA loan packages. It is computed by taking the compounded average of daily SORA over the preceding three months. The averaging effect of compounded SORA evens out rate volatility, providing for more stable rates.

3-month Compounded SORA is calculated, administered and published by MAS at https://eservices.mas.gov.sg/statistics/dir/DomesticInterestRates.aspx.

5.3.3 *Customer's existing SOR margin*

Banks will carry over a customer's existing SOR margin (as a component of the all-in interest rate) in the SORA Conversion Package, so as to switch the customer's existing SOR loan to a comparable SORA loan. A customer's existing SOR margin may be tiered as per the terms and conditions ("**T&Cs**") of each customer's SOR loan.

5.3.4 *Publication of Adjustment Spread (Retail) by ABS Co*

Legacy transition from SOR to SORA is expected to accelerate from 4Q2021 and in 2022, as FIs seek to actively transition customers out of SOR retail loans.

To facilitate industry transition efforts, ABS Co has started publication of an adjustment spread which is to be applied to convert SOR retail loans to SORA (the "**Adjustment Spread (Retail)**"). The Adjustment Spread (Retail) reflects the average difference between SOR and Compounded SORA-in-advance over a period of three months before each publication date. It is published on the first business day of every month commencing from 1 September 2021 until 1 September 2022, at the link https://abs.org.sg/benchmark-rates/publications.

As the SORA Conversion Package uses the 3-month Compounded SORA, ABS Co publishes three Adjustment Spread (Retail) rates each month to convert retail loans from 1-month SOR to 3-month Compounded SORA, 3-month SOR to 3-month Compounded SORA and 6-month SOR to 3-month Compounded SORA. These Adjustment Spread (Retail) rates will apply to all SOR loans that are converted to the SORA Conversion Package in a given month[86].

SOR	=> SORA Compounded Tenor in SCP		
1M SOR	1M SORA	3M SORA	6M SORA
3M SOR	1M SORA	3M SORA	6M SORA
6M SOR	1M SORA	3M SORA	6M SORA

Why 3-month Tenor for SORA Conversion Package ("SCP") only?

1. 3M SOR most common & largest portfolio. 3M SORA offered by most banks.
2. More stable than 1-month SORA, less lagged than 6-month SORA.
3. **Ease of operations** – 3-box matrix = Facilitate mass conversion.
4. **Ease of communication** – single landing point = simplified communication across all impacted customers.

The calculation methodology for Adjustment Spread (Retail) provides that the computed adjustment spread value will be floored at zero if it is negative for the month.

The "Calculation Methodology for Adjustment Spread (Retail)" document is published at https://abs.org.sg/benchmark-rates/publications.

5.3.5 *The SORA Conversion Package*

The SORA Conversion Package should be made available by banks to customers with an existing SOR loan, upon the commencement of Phase 1 of the SOR to SORA transition. Please refer to section 5.4 below and **Appendix D** for the Retail Transition Timeline.

The SORA Conversion Package will be availed in two ways: (1) by way of a customer's choice during Phase 1 of the retail transition; or (2) if a customer does not make any choice by the end of Phase 1, by way of a bank-facilitated cutover in Phase 2 of the retail transition.

In line with the SC-STS' recommendation of the SORA Conversion Package, banks should offer customers the SORA Conversion Package on the following basis:

- it is to made available by banks to all customers with an existing SOR loan;
- it should have no additional fee or lock-in period;
- it should switch the interest rate benchmark of a customer's existing SOR loan to 3-month Compounded SORA[87];
- it should retain the existing margin on a customer's SOR loan;
- it should apply the Adjustment Spread (Retail) published by ABS Co in the month of contract agreement[88];
- it should not require re-computation of the Total Debt Servicing Ratio (TDSR); and
- it should offer a free switch to any prevailing package offered by the bank to its customers ("**Other Prevailing Package(s)**"), provided that such request is made no later than 30 June 2023.

[86] For example, the Adjustment Spread (Retail) published on 1 September 2021 will be applied to all SOR loans that are converted to the SORA Conversion Package in the month of contract agreement between a borrower and its financing bank. Determination of the month of contract agreement is subject to the respective bank's internal processes. It may be the date of application (start or completion of documents submission), date of acceptance of supplementary letter of offer (SLO), date of SLO issuance, etc. according to each bank's internal processes. Borrowers are advised to check with their bank on the date of application of the Adjustment Spread (Retail) in the bank's SORA Conversion Package.
[87] Determination of the 3-month Compounded SORA value will be subject to respective banks' internal processes. It may be the date of conversion, first business day of the month of contract agreement, etc. Borrowers are advised to check with their bank.
[88] Please refer to footnote 86 above.

Banks should also explain clearly to customers key aspects regarding the SORA Conversion Packages, such as the following:

- The applicable Adjustment Spread (Retail) in the month of contract agreement, according to its internal processes[89].
- **After the loan conversion, the Adjustment Spread (Retail) will apply for the remaining tenure of the relevant loan (from loan conversion to loan maturity) without any further adjustment. This is notwithstanding that the Adjustment Spread (Retail) published by the ABS Co in subsequent months may move higher or lower due to fluctuations that are inherent in floating interest rates.**
- **A customer's future interest payments will fluctuate depending on the path of the 3-month SORA Compounded Rate, due to it being a floating reference rate. Customers who are not prepared to be subject to the fluctuations inherent in floating interest rates may consider switching to a fixed rate loan package.**

Please see section 5.5.3 for a more detailed list of information for banks to communicate to customers with legacy SOR loans.

Customers are encouraged to contact their banks for details of their SORA Conversion Package and Other Prevailing Package(s), so as to consider available options for switching out of their SOR loans early.

1. SCP will carry over the **original customer spread on SOR** (i.e. the Existing SOR margin of 0.8% in above example).
2. SCP will include an **Adjustment Spread (Retail)** to bridge the basis difference between SOR and 3M SORA.
3. Adjustment Spread (Retail) in SCP remains till loan maturity. Banks may reflect a combined spread (Existing SOR margin + Adjustment Spread (Retail)) in the contract.
4. **Only 3M SORA compounded-in-advance** offered in SCP.

5.4 Transition approach for conversion of legacy SOR loans

To support a coordinated, orderly transition across the legacy SOR loan portfolios of FIs, the MAS will not consider an FI's offering of replacement loan packages to affected borrowers as a refinancing of property loans (i.e., the property rules in the MAS Notices 632, 632A and 645 will not apply).

The proposed industry transition approach comprises two Phases:

Phase 1: A period of active voluntary conversion commencing as soon as possible and ending no later than 31 October 2022.

Phase 2: A bank-facilitated conversion for residual legacy SOR loans to an appropriate SORA-based package by no later than 31 October 2022.

[89] Please refer to footnote 86 above.

Please refer to **Appendix D** for the Retail Transition Timeline for a diagrammatic snapshot of these two Phases.

5.4.1 *Phase 1 - Active voluntary transition of legacy SOR loans commencing as soon as possible and ending no later than 31 October 2022*

<u>Customer Engagement Letter</u>

Phase 1 will start upon customers' receipt of an invitation letter (termed by the industry as the "**Customer Engagement Letter**") from banks where they have an existing SOR loan. The Customer Engagement Letter encourages customers with legacy SOR loans to proactively contact their financing banks to transition out of their SOR loans, as these banks will offer customers the choice of:

(a) switching to the SORA Conversion Package, which is offered only to existing SOR customers; or

(b) repricing to Other Prevailing Packages(s) i.e. any other loan packages that the bank may be offering to new customers.

Key differences in the features of the SORA Conversion Package and Other Prevailing Package(s) offered by SOR customers' financing banks are summarised in this table:

	SORA Conversion Package	**Other Prevailing Package(s)**
Offered to	Customers with existing SOR legacy loans.	Customers with existing SOR legacy loans and eligible new customers.
Reference Rate	3-month Compounded SORA.	Floating or fixed rates, as per bank's T&Cs.
All-in interest rate	Comprises 3 components: - Interest rate benchmark: <u>3-month Compounded SORA-in-advance</u> - <u>Existing SOR margin</u> + - *<u>Adjustment Spread (Retail)</u> *The Adjustment Spread (Retail) applies from loan conversion to loan maturity without any further adjustment.	<u>Floating Rate Packages</u> Comprises 2 components: - <u>Margin</u> + <u>applicable interest rate benchmark, as per bank's T&Cs</u> Margin is as per bank's T&Cs and is hence different from a SOR customer's existing SOR margin. <u>Fixed Rate or Bank Managed Rate Packages</u> Comprises the fixed rate, for fixed rate packages or the bank managed rate, for packages with bank managed rates during

		the commitment period. After the commitment period, a margin + applicable interest rate benchmark, as per bank's T&Cs may apply.
Tiered interest rate	The existing SOR margin may be tiered as per each customer's SOR loan T&Cs.	As per bank's T&Cs.
Lock-in	No lock-in period should be imposed.	As per bank's T&Cs, prepayment fee, penalty for redemption and cancellation fee on any part of the facility which is not drawn.
Administrative and Conversion Fees	No administrative or conversion fee is payable.	Administrative and conversion fees are waived for SOR customers who are repricing into Other Prevailing Package(s) within the same bank. Administrative and conversion fees for any subsequent repricing or refinancing are as per bank's T&Cs.
Property Loan Factsheet	The Property Loan Factsheet treatment specified in MAS Notice 632A for banks (and its equivalent for other FIs) will not apply in the Phase 1 active voluntary transition to the SORA Conversion Package and in the Phase 2 bank-facilitated cutover to the final SORA Conversion Package in October 2022. Instead, FIs can provide an abridged Property Loan Factsheet, which require no signature from customers. Templates of the abridged Property Loan Factsheets have been made available to FIs in September 2021.	Property Loan Factsheet as specified in MAS Notice 632A applies.
Re-computation of Total Debt Servicing Ratio (TDSR) /	No if within same FI.	No if within same FI.

Mortgage Servicing Ratio (MSR) for HDB properties	Other MSR and/or TDSR exemptions may be applicable when refinancing at other FIs.	Other MSR and/or TDSR exemptions may be applicable when refinancing at other FIs.
1 free switch	No administrative or conversion fee is payable and there is no re-computation of TDSR, to convert to Other Prevailing Packages(s), provided that such request is made no later than 30 June 2023.	As per bank's T&Cs.

Other accompanying restructuring requests by customers electing for the SORA Conversion Package or Other Prevailing Package(s) will be subject to the bank's prevailing fees and charges, as applicable.

Customers may also refinance their loan(s) with another FI, subject to prevailing property loan rules (e.g. loan-to-value limits, TDSR).

5.4.2 *Phase 2 – A bank-facilitated conversion for residual legacy SOR loans to an appropriate SORA-based package by no later than 31 October 2022*

For customers who do not take the opportunity to voluntarily reprice, convert or refinance their SOR loans, the SC-STS is considering a bank-facilitated cutover of all residual legacy SOR loans to the SORA Conversion Package in Phase 2.

The bank-facilitated conversion is envisaged to entail the mass conversion of all residual legacy SOR loans to a final SORA Conversion Package, starting from 1 October 2022. Banks should give customers at least six months of notice of the intended cutover date to provide time for customers to review their choices[90].

This final SORA Conversion Package will apply the Adjustment Spread (Retail) as at 1 September 2022, so as to enable banks to give remaining customers with legacy SOR loans 30 days' notice that:

(i) **<u>the Adjustment Spread (Retail) as at 1 September 2022</u>** will apply upon conversion of their SOR loans to the SORA Conversion Package in October 2022; and

(ii) **<u>the Adjustment Spread (Retail) as at 1 September 2022</u>** will apply until loan maturity without further adjustment.

<u>There will, as such, be no further publication of the Adjustment Spread (Retail) after September 2022.</u>

Banks will apply the 3-month Compounded SORA rate on the effective date of their final SORA Conversion Package, as per the respective bank's internal processes. Monthly instalments will be calculated at the "all-in" interest rate of the SORA Conversion Package from the effective date.

[90] See page 31 of the July 2021 Report <https://abs.org.sg/docs/library/sc-sts-recommendations-for-transition-of-legacy-sor-contracts.pdf>.

More details will be provided to the industry in due time.

5.4.3 *The SORA Conversion Package may be extended to SMEs at banks' discretion*

For SMEs, readers should refer to the Recommendations for Transition of Legacy SOR Contracts issued by SC-STS on 29 July 2021[91], in particular:

Recommendation 12: For Small and Medium-size Enterprises (SMEs) that require advanced payment certainty, banks should provide an option to convert to referencing compounded-in-advance SORA in order to meet customer needs.

5.4.4 *SIBOR loans are not to be offered*

Given industry direction to stop new use of SIBOR after 30 September 2021, banks will not be offering new SIBOR loans or may have ceased offering new SIBOR loans.

5.4.5 *SIBOR to SORA transition approach*

The SIBOR to SORA transition approach may not necessarily be the same or similar to the SOR to SORA transition approach.

Further guidance will be provided to the industry in due time.

Banks with 6-month SIBOR loans which need to be transitioned by 31 March 2022 are to notify customers to actively transition their 6-month SIBOR loans and of the action(s) that banks will take should they not do so.

5.4.6 *Action by customers with SIBOR loans*

Whilst the SOR to SORA transition approach does not extend to customers with SIBOR loans, such customers may, in the ordinary course, consider repricing or refinancing their loans (in particular, where they are no longer subject to any lock-in on their current SIBOR loans).

5.5 Fair Dealing Principles[92]

FIs should be cognisant of applying fair dealing principles, including the Guidelines on Fair Dealing – Board and Senior Management Responsibilities for Delivering Fair Dealing Outcomes to Customers published by the MAS, in transitioning retail customers with legacy SOR loans extending beyond mid-2023 away from SOR. These fair dealing principles include:

5.5.1 *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. To facilitate the industry-wide transition exercise, templates of the Customer Engagement Letter and Frequently Asked Questions have been made

[91] See July 2021 Report <<https://abs.org.sg/docs/library/sc-sts-recommendations-for-transition-of-legacy-sor-contracts.pdf>, in particular, Recommendation 12.
[92] Customers to note that the approach discussed in this paragraph 5.5 is only applicable for the transition of SOR to SORA and may not necessarily apply for the transition from SIBOR to SORA.

available to FIs in September 2021 for adoption. A public education campaign driven by the industry has commenced in September 2021.

5.5.2 *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 Conversion 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 timeline to cease offering of new SIBOR loans after end September 2021[93], customers who are considering to switch out of their SOR-linked loans will not be offered any SIBOR loan, to avoid the need to make another transition out of SIBOR subsequently.

Other factors for customers 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.

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

Industry-wide, FIs should encourage their customers with legacy SOR loans to take active steps to convert their SOR-linked loans to one using an alternative reference rate. This exercise will start with sending out the Customer Engagement Letter in 4Q2021.

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

FIs should also provide clear explanations on how the SOR to SORA transition would impact customers. Customers should also be encouraged to act early by contacting their FIs, to ensure that they have enough time to select a package that suits their needs.

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

(a) For customers transitioning to the SORA Conversion Package, the applicable Adjustment Spread (Retail) will be the Adjustment Spread (Retail) in the application month or effective date as decided by the banks. **After the loan conversion, the Adjustment Spread (Retail) will apply for the remaining tenure of the relevant loan (from loan conversion to loan maturity) without any further adjustment**. **This is notwithstanding that the Adjustment Spread (Retail) published by the ABS Co in subsequent**

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[93] 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. Please refer to the ABS-SFEMC and SC-STS Media Release (31 March 2021) <https://abs.org.sg/docs/library/key-financial-industry-committees-set-outtimelines-for-sibor-discontinuation.pdf>.

months may move higher or lower due to fluctuations that are inherent in floating interest rates.

(b) **For customers transitioning to the SORA Conversion Package, future interest payments would fluctuate from month to month depending on the path of the 3-month SORA Compounded Rate, due to it being a floating reference rate.**

Customers who are not prepared to be subject to the fluctuations inherent in floating interest rates may consider switching to a fixed rate loan package.

(c) Customers with legacy SOR loans who have:

(i) repriced to any Other Prevailing Package with their existing banks; or

(ii) refinanced their loan(s) with another FI,

are no longer considered as an "existing SOR customer" and will not thereafter, be eligible to take up any SORA Conversion Package and will not consequently be included in the mass conversion to the final SORA Conversion Package in October 2022.

(d) The MAS will not consider an FI's offering of replacement loan packages to its borrowers as part of this industry-wide exercise as a case of refinancing under the property loan rules. As such:

(i) The property loan rules under MAS Notice 645[94] for banks (and its equivalent for other FIs[95]) for refinancing of property loans, such as the computation of MSR for HDB properties and TDSR for refinancing of investment property loans, will not apply.

(ii) The property loan rules under MAS Notice 632[96] for banks for residential property loans will not apply.

(iii) The Property Loan Factsheet treatment specified in MAS Notice 632A[97] for banks (and its equivalent for other FIs[98]) will not apply in the Phase 1 active voluntary transition to the SORA Conversion Package and in the Phase 2 bank-facilitated cutover to the final SORA Conversion Package in October 2022. However, FIs should provide an abridged Property Loan Factsheet, which require no signature from customers. Templates of the abridged Property Loan Factsheets have been made available to FIs in September 2021.

(iv) Should the borrower choose to refinance the facility with another FI, or

[94] 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>.

[95] 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).

[96] See Monetary Authority of Singapore, "Notice 632 Residential Property Loans" <https://www.mas.gov.sg/-/media/MAS/Notices/PDF/2020-04-06-Notice-632_LTV.pdf>.

[97] 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>.

[98] 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).

subsequently refinance his or her loan package, the borrower will be subject to the prevailing property loan rules (e.g. LTV limits, TDSR).

(e) There will be no fee charged for converting from SOR to the SORA Conversion Package. Other accompanying restructuring requests will be subject to the FI's prevailing fees and charges, as applicable.

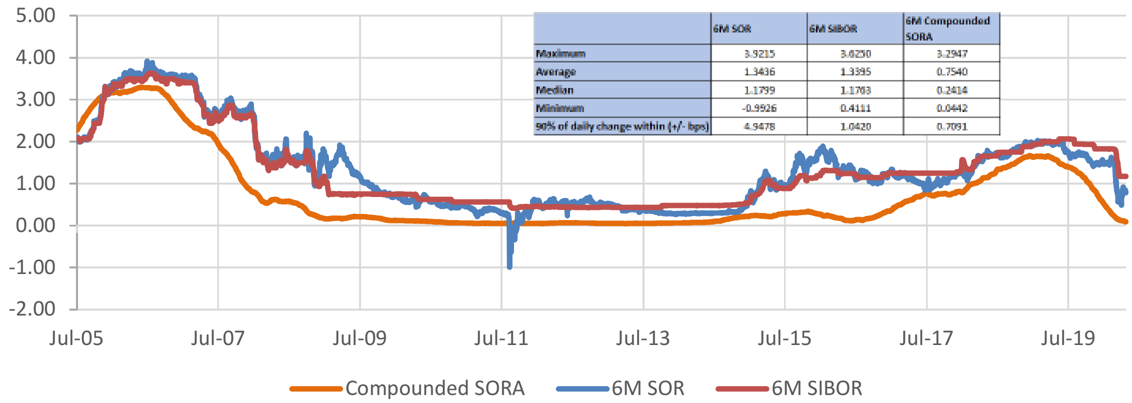
Given that some customers may choose to reprice to Other Prevailing Package(s) with their banks to benefit from lower all-in rates, and such Prevailing Package(s) are adopted by customers on an elective basis, no different than other instances of repricing, banks may subject customers to prevailing fees and terms and conditions for such repricing, including a lock-in period.

Customers impacted by the bank-facilitated cutover to the final SORA Conversion Package in October 2022 will be allowed to opt for a one-time repricing thereafter. There is no administrative or conversion fee payable and there is no re-computation of TDSR, to convert to Other Prevailing Packages(s), provided such request is made no later than 30 June 2023.

5.6 Investment products

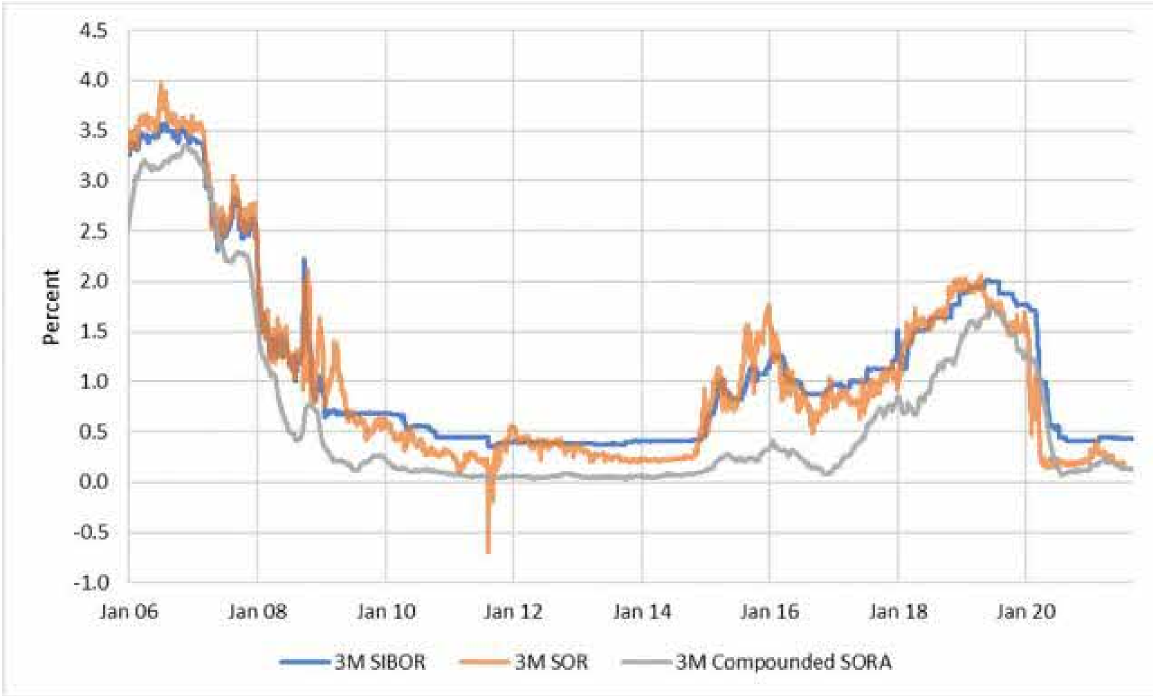
Retail investment products such as structured notes that reference SOR will also be affected by the transition from SOR to SORA. Distributors of such investment products (for example, FIs) should seek clarity from the product issuers on the replacement reference rate and methodology.

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



	6M SOR	6M SIBOR	6M Compounded SORA
Maximum	3.9215	3.6250	3.2947
Average	1.3436	1.3395	0.7540
Median	1.1799	1.1763	0.2414
Minimum	-0.9926	0.4111	0.0442
90% of daily change within (+/- bps)	4.9478	1.0420	0.7091

Appendix B – (General Introduction) Illustration of historical three-month term SOR, three-month term SIBOR and three-month compounded SORA



	3M SIBOR	3M SOR	3M Compounded SORA
Maximum (%)	3.5625	3.9682	3.3490
Average (%)	1.1646	1.1118	0.7278
Median (%)	0.8732	0.8035	0.2252
Minimum (%)	0.3442	-0.6987	0.0362
Observations between October 2005 to September 2021.			

Appendix C – (Corporate Loans) SORA Drafting Guide

This Drafting Guide is designed to work in conjunction with each of the LMA recommended forms of multicurrency term and revolving facilities agreement incorporating rate switch provisions (lookback with/ without observation shift) published on 28 May 2021 (the relevant form being the "**LMA Facilities Agreement**").

The options and guidance contained in the LMA Facilities Agreement continue to apply to the extent applicable to SORA based on the recommendations by the SC-STS set out in section 4.3 (although please note that the recommendations by the SC-STS are by no means exhaustive of all the issues and considerations that market participants may have and market participants should include additional provisions or adapt the SC-STS recommendations as needed for their specific purposes). Readers should however note that the LMA Facilities Agreement is an English law document that has been drafted using an NCCR formula and taking into account the recommendations by the Sterling RFR WG for SONIA, and may therefore not be fully applicable to SORA, particularly if a CCR formula is chosen.

In addition, do note that the purpose of this Drafting Guide is to introduce proposed drafting applicable to SORA and loans denominated in Singapore Dollars only, and is not intended to amend or propose any conventions or drafting changes applicable to other interest rate benchmarks and currencies.

References to clause numbers in this Drafting Guide are to those in the LMA Facilities Agreement. Terms otherwise undefined in this Drafting Guide shall have the meaning ascribed to them in the LMA Facilities Agreement.

There are five Annexures to this Drafting Guide:

(a) <u>Annexure 1 (Compounded Rate Terms)</u>

   (1) Part 1 (*Compounded Rate Terms – Singapore Dollars*) is to be inserted into Schedule 15 (*Compounded Rate Terms*) of the LMA Facilities Agreement.

   (2) Part 2 (*Drafting Amendments to the LMA Facilities Agreement*) sets out suggested amendments to the LMA Facilities Agreement in relation to loans denominated in Singapore Dollars, depending on which definition of "Daily Rate" is opted for in the Compounded Rate Terms and whether the CCR or the NCCR approach is adopted for SORA.

(b) <u>Annexure 2 (CCR Formula for SORA – Without Observation Shift)</u>

   This Annexure sets out the CCR formula for SORA where the "**<u>without</u>** observation shift methodology" is selected.

(c) <u>Annexure 3 (CCR Formula for SORA – With Observation Shift)</u>

   This Annexure sets out the CCR formula for SORA where the "**<u>with</u>** observation shift methodology" is selected.

(d) <u>Annexure 4 (NCCR Formula for SORA – Without Observation Shift)</u>

   This Annexure sets out the NCCR formula for SORA where the "**<u>without</u>** observation shift methodology" is selected.

(e) Annexure 5 (NCCR Formula for SORA – With Observation Shift)

This Annexure sets out the NCCR formula for SORA where the "**with** observation shift" methodology is selected.

ANNEXURE 1
(COMPOUNDED RATE TERMS)

[Drafting Note: Insert into Schedule 15 (*Compounded Rate Terms*) of the LMA Facilities Agreement.]

PART 1: COMPOUNDED RATE TERMS

SINGAPORE DOLLARS

CURRENCY:	Singapore Dollars.

Cost of funds as a fallback

Cost of funds [will]/ [will not] apply as a fallback.

Definitions

Additional Business Days:	An RFR Banking Day.
[Backstop Rate Switch Date:]	[[•].]
Break Costs:	[*None specified*] / [•]
Business Day Conventions (definition of "Month" and Clause 10.3 (*Non-Business Days*)):	(a) If any period is expressed to accrue by reference to a Month or any number of Months then, in respect of the last Month of that period: (i) subject to paragraph (iii) below, if the numerically corresponding day is not a Business Day, that period shall end on the next Business Day in that calendar month in which that period is to end if there is one, or if there is not, on the immediately preceding Business Day; (ii) if there is no numerically corresponding day in the calendar month in which that period is to end, that period shall end on the last Business Day in that calendar month; and (iii) if an Interest Period begins on the last Business Day of a calendar month, that Interest Period shall end on the last Business Day in the calendar month in which that Interest Period is to end.

	(b) If an Interest Period would otherwise end on a day which is not a Business Day, that Interest Period will instead end on the next Business Day in that calendar month (if there is one) or the preceding Business Day (if there is not).
[Credit Adjustment Spread:]	[[*None specified*] / [•].]
Daily Rate:	The "**Daily Rate**" for any RFR Banking Day is: (a) the RFR for that RFR Banking Day; or (b) if the RFR is not available for at least one, but no more than four consecutive RFR Banking Days, the last available published RFR, rounded, in either case, to four decimal places and if, in either case, <Insert if there is no Credit Adjustment Spread> [that rate is less than zero, the Daily Rate shall be deemed to be zero.] / <Insert if there is a Credit Adjustment Spread> [the aggregate of that rate and the applicable Credit Adjustment Spread is less than zero, the Daily Rate shall be deemed to be such a rate that the aggregate of the Daily Rate and the applicable Credit Adjustment Spread is zero.]
Lookback Period:	Five RFR Banking Days.
Market Disruption Rate:	[*None specified*] / [•]
Relevant Market:	The Singapore Dollars wholesale market.
Reporting Day:	The Business Day which follows the day which is the applicable Lookback Period prior to the last day of the Interest Period.
RFR:	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).
RFR Banking Day:	Any day other than a Saturday, Sunday, public holiday or bank holiday in Singapore.

Interest Periods

Length of Interest Period in absence of selection (paragraph (c) of Clause 10.1 (*Selection of Interest Periods*)):	[•] months.
Periods capable of selection as Interest Periods (paragraph (d) of Clause 10.1 (*Selection of Interest Periods*)):	[•] months or any other period agreed between the borrower and the lender. [No Interest Period shall be longer than **[•]** months.]

Reporting Times

[Deadline for Lenders to report market disruption in accordance with Clause 11.4 (*Market disruption*)	[[•]]
[Deadline for Lenders to report their cost of funds in accordance with Clause 11.5 (*Cost of funds*)	[Close of business on the date falling [•] Business Days after the Reporting Day for the relevant Loan (or, if earlier, on the date falling [•] Business Days before the date on which interest is due to be paid in respect of the Interest Period for that Loan).]

PART 2 : PROPOSED DRAFTING AMENDMENTS TO THE LMA FACILITIES AGREEMENT[99]

Clause Reference to the LMA Facilities Agreement	Amendments
Definition of “Compounded Reference Rate”	*If **CCR** formula is chosen for SORA:* "**Compounded Reference Rate**" means:~~,~~ (a) in relation to any RFR Banking Day during the Interest Period of a Compounded Rate Loan denominated in any currency other than Singapore Dollars, the percentage rate per annum which is the aggregate of: (i) the Daily Non-Cumulative Compounded RFR Rate for that RFR Banking Day; and (ii) the applicable Credit Adjustment Spread; and (b) in relation to ~~any RFR Banking Day during the Interest Period of~~ a Compounded Rate Loan denominated in Singapore Dollars, the percentage rate per annum which is the aggregate of: (i) the ~~Daily Non-~~Cumulative Compounded RFR Rate for the Interest Period of that Compounded Rate Loan~~that RFR Banking Day~~; and (ii) the applicable Credit Adjustment Spread, or otherwise as determined pursuant to Clause [11.3A] (*SORA fallback language for extended unavailability or permanent cessation*). *If **NCCR** formula is chosen for SORA:* "**Compounded Reference Rate**" means, in relation to any RFR Banking Day during the Interest Period of a Compounded Rate Loan, the percentage rate per annum which is the aggregate of: (a) the Daily Non-Cumulative Compounded RFR Rate for that RFR Banking Day; and (b) the applicable Credit Adjustment Spread, or, in the case of a Compounded Rate Loan denominated in Singapore Dollars, otherwise as determined pursuant to Clause [11.3A] (*SORA fallback language for extended unavailability or permanent cessation*).

[99] The changes proposed in this Part 2 are not exhaustive of all the amendments that market participants may require to be made to the LMA Facilities Agreement. Readers should consult their banks and/or legal counsels on whether the above proposed drafting changes make sense for their specific loans, any other changes that are required in order to reflect their chosen conventions. This is particularly so if a CCR formula is chosen (as the LMA Facilities Agreement is drafted on the basis that an NCCR formula will be adopted).
As mentioned above, do note that the changes proposed in this Part 2 are only intended to introduce proposed drafting for SORA and loans denominated in Singapore Dollars. No conventions, drafting changes have been, or are intended to be, introduced for any other interest rate benchmarks and currencies.

Clause 9.2 of the LMA Facilities Agreement	***If CCR formula is chosen for SORA:*** (a) The rate of interest on each Compounded Rate Loan denominated in any currency other than Singapore Dollars for any day during an Interest Period is the percentage rate per annum which is the aggregate of the applicable: (i) Margin; and (ii) Compounded Reference Rate for that day. (b) If any day during an Interest Period for a Compounded Rate Loan denominated in any currency other than Singapore Dollars is not an RFR Banking Day, the rate of interest on that Compounded Rate Loan for that day will be the rate applicable to the immediately preceding RFR Banking Day. (c) The rate of interest on each Compounded Rate Loan denominated in Singapore Dollars for ~~any day during~~ an Interest Period is the percentage rate per annum which is the aggregate of the applicable: (i) Margin; and (ii) Compounded Reference Rate for that Interest Period~~for that day~~. *If NCCR formula is chosen for SORA:* No proposed changes to be made.
*To be inserted as a new Clause 11.3A of the LMA Facilities Agreement	*If either **CCR** OR **NCCR** formula is chosen for SORA:* 11.3A SORA fallback language for extended unavailability or permanent cessation (In the case of any Compounded Rate Loan denominated in Singapore Dollars) if: (a) the applicable RFR is not published for five or more consecutive RFR Banking Days; or (b) if the Monetary Authority of Singapore issues a public statement that includes one or more of the following: (i) the Monetary Authority of Singapore has ceased or will cease to publish that RFR permanently or indefinitely; or (ii) the benchmark administrator of that RFR has ceased to provide that RFR permanently or indefinitely, the applicable Compounded Reference Rate for the relevant Interest Period of that Loan shall be replaced with:

	(A) the replacement reference rate recommended by the Monetary Authority of Singapore (or any successor administrator) and/or a working group or committee sponsored or chaired by, or constituted at the request of, the Monetary Authority of Singapore; or (B) if the replacement reference rate referred to in paragraph (A) above is not available, a replacement reference rate selected by the Agent (acting on the instructions of the [Majority Lenders][100]), and agreed to by the Company, 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; or (C) if the replacement reference rate referred to in paragraph (A) above is not available, and for so long as there is no agreement on the replacement reference rate referred to in paragraph (B) above and "***Cost of funds will apply as a fallback***" is specified in respect of that Loan in the Compounded Rate Terms for that Loan, Clause [11.5] (*Cost of funds*) shall apply to that Loan for that Interest Period.
Clause 32.3 of the LMA Facilities Agreement	*If **CCR** formula is chosen for SORA:* (a) Any interest, commission or fee accruing under a Finance Document will accrue from day to day and the amount of any such interest, commission or fee is calculated: (i) on the basis of the actual number of days elapsed and a year of [360][101] days (or, in any case where the practice in the Relevant Market differs, in accordance with that market practice); and (ii) subject to paragraph (b) below and other than any such interest, commission or fee denominated in Singapore Dollars[102], without rounding. (b) The aggregate amount of any accrued interest, commission or fee which is, or becomes, payable by an Obligor under a Finance Document shall be rounded to 2 decimal places. *If **NCCR** formula is chosen for SORA:* No proposed changes to be made.

[100] Insert the consent level that is appropriate in the context of the composition of the lending group.
[101] To be amended as appropriate, depending on the currencies available. For Singapore Dollars, the day count convention is 365 days but this can be adequately dealt with under the general "catch-all" provision "(or, in any case where the practice in the Relevant Market differs, in accordance with that market practice)" if parties prefer to retain the default day count convention of 360 for other currencies.
[102] This carve-out is included as the Compounded Reference Rate for Singapore Dollars computed using a CCR method would be rounded to four decimal places.

ANNEXURE 2
(CCR FORMULA FOR SORA – WITHOUT OBSERVATION SHIFT)

CUMULATIVE COMPOUNDED RFR RATE (SORA)

[Drafting Note: Insert into Schedule 17 (*Cumulative Compounded RFR Rate*) of the LMA Facilities Agreement if the CCR approach is chosen for SORA and "*Lookback **without** Observation Shift*" is used for SORA. Schedule 16 (*Daily Non-Cumulative Compounded RFR Rate*) will not be used for computing SORA.]

The "**Cumulative Compounded RFR Rate**" for any Interest Period for a Compounded Rate Loan denominated in Singapore Dollars is the percentage rate per annum (rounded to four decimal places) calculated as set out below:

$$\left[\prod_{i=1}^{d_0}\left(1+\frac{DailyRate_{i-LP}\times n_i}{dcc}\right)-1\right]\times\frac{dcc}{d}$$

where:

"$\mathbf{d_0}$" means the number of RFR Banking Days during the Interest Period;

"**i**" means a series of whole numbers from one to d_0, each representing the relevant RFR Banking Day in chronological order during the Interest Period;

"$\mathbf{DailyRate_{i\text{-}LP}}$" means for any RFR Banking Day "**i**" during the Interest Period, the Daily Rate for the RFR Banking Day which is the applicable Lookback Period prior to that RFR Banking Day "**i**";

"$\mathbf{n_i}$" means, for any RFR Banking Day "**i**", the number of calendar days from, and including, that RFR Banking Day "**i**" up to, but excluding, the following RFR Banking Day;

"**dcc**" means 365 or, in any case where market practice in the Relevant Market is to use a different number for quoting the number of days in a year, that number; and

"**d**" means the number of calendar days during that Interest Period.

ANNEXURE 3
(CCR FORMULA FOR SORA – WITH OBSERVATION SHIFT)

CUMULATIVE COMPOUNDED RFR RATE (SORA)

[Drafting Note: Insert into Schedule 17 (*Cumulative Compounded RFR Rate*) of the LMA Facilities Agreement if the CCR approach is chosen for SORA and "*Lookback **with** Observation Shift*" is used for SORA. Schedule 16 (*Daily Non-Cumulative Compounded RFR Rate*) will not be used for computing SORA.]

The "**Cumulative Compounded RFR Rate**" for any Interest Period for a Compounded Rate Loan denominated in Singapore Dollars is the Observation Period CCRR for the Observation Period relating to that Interest Period where:

the "**Observation Period**" relating to an Interest Period for a Compounded Rate Loan denominated in Singapore Dollars is the period from and including the day falling the applicable Lookback Period prior to the first day of that Interest Period and ending on, but excluding, the day falling the applicable Lookback Period prior to the last day of that Interest Period; and

the "**Observation Period CCRR**" for the Observation Period relating to any Interest Period for a Compounded Rate Loan denominated in Singapore Dollars is the percentage rate per annum (rounded to four decimal places) calculated as set out below:

$$\left[\prod_{\mathrm{i}=1}^{\mathrm{d_0}}\left(1+\frac{DailyRate_{\mathrm{i}}\times \mathrm{n_i}}{\mathrm{dcc}}\right)-1\right]\times\frac{\mathrm{dcc}}{\mathrm{d}}$$

where:

"**d_0**" means the number of RFR Banking Days in the Observation Period;

"**i**" means a series of whole numbers from one to d_0, each representing the relevant RFR Banking Day in chronological order in the Observation Period;

"**$DailyRate_i$**" means for any RFR Banking Day "**i**" in the Observation Period, the Daily Rate for that RFR Banking Day "**i**";

"**n_i**" means, for any RFR Banking Day "**i**", the number of calendar days from, and including, that RFR Banking Day "**i**" up to, but excluding, the following RFR Banking Day;

"**dcc**" means 365 or, in any case where market practice in the Relevant Market is to use a different number for quoting the number of days in a year, that number; and

"**d**" means the number of calendar days in that Observation Period.

ANNEXURE 4
(NCCR FORMULA FOR SORA – WITHOUT OBSERVATION SHIFT)

DAILY NON-CUMULATIVE COMPOUNDED RFR RATE (SORA)

[Drafting Note: Insert into Schedule 16 (*Daily Cumulative Compounded RFR Rate*) of the LMA Facilities Agreement if the NCCR approach is chosen for SORA and if "*Lookback **without** Observation Shift*" is used for SORA.]

The "**Daily Non-Cumulative Compounded RFR Rate**" for any RFR Banking Day "**i**" during an Interest Period for a Compounded Rate Loan denominated in Singapore Dollars is the percentage rate per annum (without rounding, to the extent reasonably practicable for the Finance Party performing the calculation, taking into account the capabilities of any software used for that purpose) calculated as set out below:

$$(UCCDR_i - UCCDR_{i-1}) \times \frac{dcc}{n_i}$$

where:

"**UCCDR$_i$**" means the Unannualised Cumulative Compounded Daily Rate for that RFR Banking Day "**i**";

"**UCCDR$_{i-1}$**" means, in relation to that RFR Banking Day "**i**", the Unannualised Cumulative Compounded Daily Rate for the immediately preceding RFR Banking Day (if any) during that Interest Period;

"**dcc**" means 365 or, in any case where market practice in the Relevant Market is to use a different number for quoting the number of days in a year, that number;

"**n$_i$**" means the number of calendar days from, and including, that RFR Banking Day "**i**" up to, but excluding, the following RFR Banking Day; and

the "**Unannualised Cumulative Compounded Daily Rate**" for any RFR Banking Day (the "**Cumulated RFR Banking Day**") during that Interest Period is the result of the below calculation (without rounding, to the extent reasonably practicable for the Finance Party performing the calculation, taking into account the capabilities of any software used for that purpose):

$$ACCDR \times \frac{tn_i}{dcc}$$

where:

"**ACCDR**" means the Annualised Cumulative Compounded Daily Rate for that Cumulated RFR Banking Day;

"**tn$_i$**" means the number of calendar days from, and including, the first day of the Cumulation Period to, but excluding, the RFR Banking Day which immediately follows the last day of the Cumulation Period;

"**Cumulation Period**" means the period from, and including, the first RFR Banking Day of that Interest Period to, and including, that Cumulated RFR Banking Day;

"**dcc**" has the meaning given to that term above; and the "**Annualised Cumulative Compounded Daily Rate**" for that Cumulated RFR Banking Day is the percentage rate per annum (rounded to four decimal places) calculated as set out below:

$$\left[\prod_{i=1}^{d_0}\left(1+\frac{DailyRate_{i-LP}\times n_i}{dcc}\right)-1\right]\times\frac{dcc}{tn_i}$$

where:

"**d_0**" means the number of RFR Banking Days in the Cumulation Period;

"**Cumulation Period**" has the meaning given to that term above;

"**i**" means a series of whole numbers from one to d_0, each representing the relevant RFR Banking Day in chronological order in the Cumulation Period;

"**$DailyRate_{i-LP}$**" means, for any RFR Banking Day "**i**" in the Cumulation Period, the Daily Rate for the RFR Banking Day which is the applicable Lookback Period prior to that RFR Banking Day "**i**";

"**n_i**" means, for any RFR Banking Day "**i**" in the Cumulation Period, the number of calendar days from, and including, that RFR Banking Day "**i**" up to, but excluding, the following RFR Banking Day;

"**dcc**" has the meaning given to that term above; and

"**tn_i**" has the meaning given to that term above.

ANNEXURE 5
(NCCR FORMULA FOR SORA – WITH OBSERVATION SHIFT)

DAILY NON-CUMULATIVE COMPOUNDED RFR RATE (SORA)

[Drafting Note: Insert into Schedule 16 (*Daily Cumulative Compounded RFR Rate*) of the LMA Facilities Agreement if the NCCR approach is chosen for SORA and if "*Lookback **with** Observation Shift*" is used for SORA.]

The "**Daily Non-Cumulative Compounded RFR Rate**" for any RFR Banking Day "**i**" during an Interest Period for a Compounded Rate Loan denominated in Singapore Dollars is the percentage rate per annum (without rounding, to the extent reasonably practicable for the Finance Party performing the calculation, taking into account the capabilities of any software used for that purpose) calculated as set out below:

$$(UCCDR_i - UCCDR_{i-1}) \times \frac{dcc}{IPn_i}$$

where:

"**$UCCDR_i$**" means the Unannualised Cumulative Compounded Daily Rate for that RFR Banking Day "**i**";

"**$UCCDR_{i-1}$**" means, in relation to that RFR Banking Day "**i**", the Unannualised Cumulative Compounded Daily Rate for the immediately preceding RFR Banking Day (if any) during that Interest Period;

"**dcc**" means 365 or, in any case where market practice in the Relevant Market is to use a different number for quoting the number of days in a year, that number;

"**IPn_i**" means the number of calendar days from, and including, that RFR Banking Day "**i**" up to, but excluding, the following RFR Banking Day; and

the "**Unannualised Cumulative Compounded Daily Rate**" for any RFR Banking Day (the "**Cumulated RFR Banking Day**") during that Interest Period is the result of the below calculation (without rounding, to the extent reasonably practicable for the Finance Party performing the calculation, taking into account the capabilities of any software used for that purpose):

$$ACCDR \times \frac{tIPn_i}{dcc}$$

where:

"**ACCDR**" means the Annualised Cumulative Compounded Daily Rate for that Cumulated RFR Banking Day;

"**$tIPn_i$**" means the number of calendar days from, and including, the first day of the IP Cumulation Period to, but excluding, the RFR Banking Day which immediately follows the last day of the IP Cumulation Period;

"**IP Cumulation Period**" means the period from, and including, the first RFR Banking Day of that Interest Period to, and including, that Cumulated RFR Banking Day;

"**dcc**" has the meaning given to that term above; and the "**Annualised Cumulative Compounded Daily Rate**" for that Cumulated RFR Banking Day during that Interest Period is the percentage rate per annum (rounded to four decimal places) calculated as set out below:

$$\left[\prod_{i=1}^{d_0}\left(1+\frac{DailyRate_i \times n_i}{dcc}\right)-1\right]\times\frac{dcc}{tn_i}$$

where:

"**d_0**" means the number of RFR Banking Days in the OP Cumulation Period;

"**OP Cumulation Period**" means the period from, and including, the Corresponding OP Day for the first day of the IP Cumulation Period to, and including, the Corresponding OP Day for the last day of the IP Cumulation Period;

"**Corresponding OP Day**" means, in relation to any RFR Banking Day "**bd**" during that Interest Period, the RFR Banking Day which:

(a) is in the Observation Period; and

(b) falls the applicable Lookback Period prior to that RFR Banking Day "**bd**";

"**Observation Period**" means the period from and including the day falling the applicable Lookback Period prior to the first day of that Interest Period and ending on, but excluding, the day falling the applicable Lookback Period prior to the last day of that Interest Period;

"**IP Cumulation Period**" has the meaning given to that term above;

"**i**" means a series of whole numbers from one to d_0, each representing the relevant RFR Banking Day in chronological order in the OP Cumulation Period;

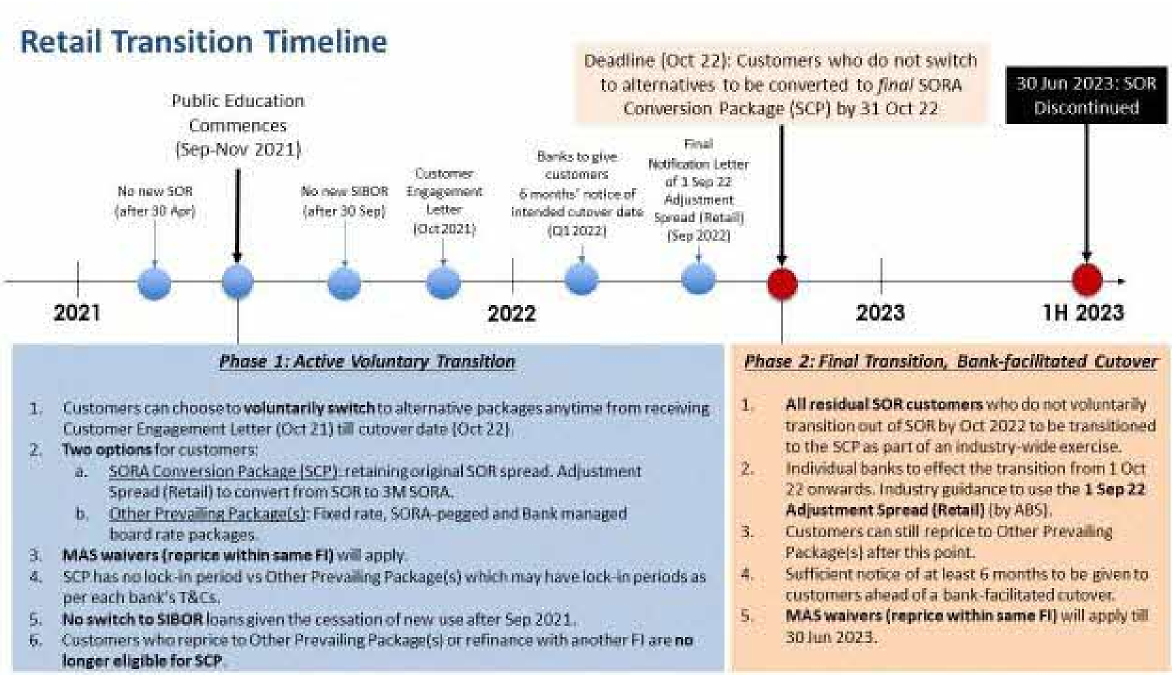
"**$DailyRate_i$**" means, for any RFR Banking Day "**i**" in the OP Cumulation Period, the Daily Rate for that RFR Banking Day "**i**";

"**n_i**" means, for any RFR Banking Day "**i**" in the OP Cumulation Period, the number of calendar days from, and including, that RFR Banking Day "**i**" up to, but excluding, the following RFR Banking Day;

"**dcc**" has the meaning given to that term above; and

"**tn_i**" means the number of calendar days from, and including, the first day of the OP Cumulation Period to, but excluding, the RFR Banking Day which immediately follows the last day of the OP Cumulation Period.

Appendix D – (Consumer Products) Retail Transition Timeline



6. General References / Materials

6.1 LIBOR materials

- IOSCO Final Report, “Principles for Financial Benchmarks” (July 2013) <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf>.
- FSB OSSG Report, “Reforming Major Interest Rate Benchmarks” (22 July 2014) <http://www.fsb.org/wp-content/uploads/r_140722.pdf>.
- ISDA 2020 IBOR Fallbacks Protocol (23 October 2020) <https://www.isda.org/protocol/isda-2020-ibor-fallbacks-protocol/>.
- ISDA 2020 IBOR Fallbacks Protocol FAQs (23 October 2020) <http://assets.isda.org/media/3062e7b4/3cfa460a-pdf/>.
- FCA’s Response to IBA’s Proposed Consultation on Intention to Cease USD LIBOR (30 November 2020) <https://www.fca.org.uk/news/statements/fca-response-iba-proposed-consultation-intention-cease-us-dollarlibor>.
- US Authorities’ Joint Statement on LIBOR Transition (30 November 2020) <https://www.federalreserve.gov/newsevents/pressreleases/files/bcreg20201130a1.pdf>.
- IBA’s Feedback Statement on Consultation on Potential Cessation (5 March 2021) <https://www.theice.com/publicdocs/ICE_LIBOR_feedback_statement_on_consultation_on_potential_cessation.pdf>.
- FCA’s Announcements on the End of LIBOR (5 March 2021) <https://www.fca.org.uk/news/pressreleases/announcements-end-libor>.
- ISDA’s Statement on UK FCA LIBOR Announcement (5 March 2021) <https://www.isda.org/2021/03/05/isda-statement-on-uk-fca-libor-announcement/>.
- FCA’s Announcement on Future Cessation and Loss of Representativeness of the LIBOR Benchmarks (5 March 2021) <https://www.fca.org.uk/publication/documents/future-cessation-loss-representativeness-libor-benchmarks.pdf>.
- ISDA Future Cessation and Non-Representativeness Guidance (5 March 2021) <https://www.isda.org/a/dIFTE/ISDA-Guidance-on-FCA-announcement_LIBOR-Future-Cessation-and-Non-Representativeness-April-Update.pdf>.
- Summary of LCH’s Consultation on its Solution for Outstanding Cleared LIBOR® Contracts (16 February 2021) <https://www.lch.com/membership/ltd-membership/ltd-member-updates/summary-lchs-consultation-its-solution-outstanding-0>.
- LCH Supplementary Statement on LCH’s Solution for Outstanding Cleared LIBOR® Contracts (18 March 2021) <https://www.lch.com/membership/ltd-membership/ltd-member-updates/supplementary-statement-lchs-solution-outstanding>.
- ISDA microsite (Benchmark Reform and Transition from LIBOR) <https://www.isda.org/2020/05/11/benchmark-reform-and-transition-from-libor/>.
- Supplements to the 2006 ISDA Definitions <https://www.isda.org/book/supplements-to-the-2006-isda-definitions/>.
- Bilateral Forms for IBOR Fallbacks <http://assets.isda.org/media/79487fdd/>.
- 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>.
- 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>.

- Alternative Reference Rates Committee Announcement, “AARC Releases Conventions Related to Using SOFR in Arrears for Syndicated Loans” (22 July 2020) <https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2020/ARRC_Press_Release_Syndicated_Loans_Conventions.pdf>.
- Sterling RFR WG’s statement, “Recommendations for SONIA Loan Market Conventions” (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>.

6.2 <u>SOR / SORA materials</u>

- 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>.
- SC-STS Chair’s Letter to ISDA on Enhancing Contractual Robustness for Derivatives Referencing the Singapore Dollar Swap Offer Rate (SOR) (11 December 2019) <https://abs.org.sg/docs/library/item-3---sc-sts-letter-to-isda.pdf>.
- Supplement number 62 to the 2006 ISDA Definitions (3 February 2020) <https://www.isda.org/book/supplements-to-the-2006-isda-definitions/>.
- 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>.
- MAS IOSCO statement, “Singapore Overnight Rate Average (SORA): Statement of Compliance with the IOSCO Principles for Financial Benchmarks” (5 August 2020) <https://www.mas.gov.sg/-/media/MAS/SORA/IOSCO-Statement.pdf?la=en&hash=14AD57BBE559FE6157F4E641481108025E3E37ED>.
- MAS Singapore Overnight Rate Average (“SORA”) Key Features and Calculation Methodology, (5 August 2020) <https://www.mas.gov.sg/-/media/MAS/SORA/Methodology-document>.
- User Guide to Compounded SORA Index, Compounded SORA and MAS Floating Rate Notes (1 September 2020) <www.mas.gov.sg/~/media/MAS/FRN/User-Guide-for-SORA-Index-Compounded-SORA-and-MAS-FRN>.
- SC-STS’s Announcement on SOR Discontinuation and Contractual Fallbacks (1 September 2020) <https://www.abs.org.sg/benchmark-rates/sor-discontinuation-and-contractual-fallbacks>.
- ABS-SFEMC and SC-STS Report, “Joint Response to Feedback on SIBOR Reform and the Future Landscape for SGD Interest Rate Benchmarks” (11 December 2020) <https://www.abs.org.sg/docs/library/response-to-feedbacksibor-reform-and-the-future-landscape-for-sgd-interest-rate-benchmarks.pdf>.
- Business Times report (22 December 2020) <https://www.businesstimes.com.sg/companiesmarkets/ocbc-extended-more-than-s1b-in-sora-linked-home-loans-since-launch>.

  ABS-SFEMC and SC-STS Media Release (31 March 2021) <https://abs.org.sg/docs/library/key-financial-industry-committees-set-outtimelines-for-sibor-discontinuation.pdf>.
- Timelines to Cease Issuance of SOR and SIBOR-Linked Financial Products (31 March 2021) <https://abs.org.sg/docs/library/timelines-to-cease-issuance-of-sor-derivatives-and-sibor-linked-financial-products-version-1-1.pdf>.

- SC-STS Report, “Timelines to Cease Issuance of SOR and SIBOR-Linked Financial Products” (31 March 2021) < https://www.abs.org.sg/docs/library/timelines-to-cease-issuance-of-sor-derivatives-and-sibor-linked-financial-products-version-1-1.pdf>.
- Supplements to the 2006 ISDA Definitions (13 May 2021) <https://www.isda.org/book/supplements-to-the-2006-isda-definitions/>.
- 2021 ISDA Interest Rate Derivatives Definitions (11 June 2021) <https://www.isda.org/2021/04/19/introduction-to-the-2021-isda-interest-rate-derivatives-definitions/> for an introduction to the 2021 ISDA Definitions>.
- SC-STS Report, “Recommendations for Transition of Legacy SOR Contracts” (29 July 2021) <https://www.abs.org.sg/docs/library/media-release-on-sc-sts-recommendations-for-legacy-sor-transition.pdf>.
- SC-STS’ Recommendations for Transition of Legacy SOR Contracts (29 July 2021) <https://abs.org.sg/docs/library/sc-sts-recommendations-for-transition-of-legacy-sor-contracts.pdf>.

6.3 Other useful links / websites

- MAS SORA publications <https://www.mas.gov.sg/monetary-policy/sora>.
- Historic SORA rates <https://eservices.mas.gov.sg/statistics/dir/DomesticInterestRates.aspx>.
- ABS transition roadmap <https://abs.org.sg/benchmark-rates/transition-roadmap>.
- ABS Co website <https://www.abs.org.sg/benchmark-rates/publications>.
- ISDA Protocols <https://www.isda.org/protocols/protocols-overview/>.
- LMA website <https://lma.eu.com>.
- 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>.
- Monetary Authority of Singapore, “Notice 632 Residential Property Loans” <https://www.mas.gov.sg/-/media/MAS/Notices/PDF/2020-04-06-Notice-632_LTV.pdf>.
- 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>.