

# **Governance Framework and Procedures for Determining SGS and MAS Bills Closing Prices**

## Contents

Definitions.....	3
Section 1 – Introduction.....	6
Overview .....	6
Key Features of the Closing Prices Methodology .....	6
Interdealer Market Trading Conventions .....	7
Section 2 - Administration and Calculation .....	7
Roles in Closing Prices Administration and Calculation .....	7
Specific Requirements in Calculation.....	7
Governance Processes .....	8
Section 3 –Methodology.....	9
Closing Prices Calculation Methodology.....	9
Qualifying Data.....	10
Provision of Closing Prices Data.....	10
Exception for Bond or Bill Auctioned Under Half-Day Trading .....	13
Errors in Data Provision or Calculation .....	13
No Undue Influence on Closing Prices .....	13
Penalties.....	13
Section 4 – Submitters’ Code .....	14
Overview .....	14
Principles for Submission .....	14
Section 5 – Contingency Procedures .....	16
Overview .....	16
PD-specific System Failure .....	16
General System Failure .....	16
Publishing the Closing Prices on MAS’ Websites .....	17
Section 6 – Enquiries & Complaints .....	17
General Enquiries and Complaints.....	17
Complaints about the Integrity of the Closing Prices .....	17
Confidentiality and Retention of Complaints .....	18

## Definitions

**Administration:** Includes all stages and processes involved in the production and dissemination of Closing Prices, including:

- (a) Collecting, analysing and processing information or expressions of opinion for the purposes of determining Closing Prices;
- (b) Determining Closing Prices through the application of a formula or any other method of calculating the information or expressions of opinions provided for that purpose in accordance with the Methodology set out by the Administrator; and
- (c) Disseminating Closing Prices, including any review, adjustment and modification to this process.

**Administrator:** The organisation that is responsible for the Closing Prices Administration process, which includes:

- (a) Calculating Closing Prices;
- (b) Determining and applying the calculation methodology; and
- (c) Disseminating the Closing Prices.

**Arm's-length Transaction:** A transaction between two parties that is concluded on terms that are not influenced by a conflict of interest (e.g. those that could arise from a transaction between affiliates).

**Benchmark Bond/Bill:** In the context of an SGS Bond, T-Bill or MAS Bill, the most-recently auctioned security of a particular tenor. For instance, the 4-week benchmark MAS bill is the most-recently auctioned MAS Bill with a 4-week tenor.

**Bona Fide Transactions:** Refers to transactions where the parties submitting the data have executed, or are prepared to execute, and the concluded transactions were Arm's-length Transactions.

**Broker:** A firm approved by MAS to provide broking services in Singapore (i.e. charging a fee or commission to execute buy and sell orders on behalf of market participants). The list of money brokers is set out in MAS' Financial Institutions Directory.

**Calculation Agent:** An entity with delegated responsibility for determining Closing Prices through the application of a formula or any other method of calculating the information or expressions of opinions provided for that purpose, in accordance with the Methodology set out by the Administrator.

**Closing Price(s):** Market mid-price(s) of SGS bonds and yields of T-Bills and MAS Bills around the end of official trading hours (see paragraph 1.6). Closing Prices are expressed as "clean" prices, that is, they do not include accrued interest.

**Contribution:** The provision of executable Dealer-to-client prices of SGS Bonds, T-Bills and MAS Bills by a Primary Dealer to the Administrator/Calculation Agent via the Data Provider, in accordance with this Governance Framework.

**Contributor:** A Primary Dealer that provides Contributions for the determination of Closing Prices.

**Data Provider:** The entities that gather Closing Price data and transmit this data to the Calculation Agent/Administrator. These include the Primary Data Provider (PDP) Bloomberg, and Secondary Data Providers (SDP), the Brokers.

**Dealer-to-client (D2C):** Transactions between a Primary Dealer and its client.

**EBND:** Electronic platform hosted by Bloomberg where Primary Dealers trade with one another.

**Executable Prices:** Bid and ask prices published by Primary Dealers to clients, which the Primary Dealer pledges to transact, for a minimum of S\$5 million, up to the maximum quantity specified in the quote.

**Expert Judgment:** Refers to the exercise of discretion by a Submitter in determining Closing Prices. This includes (but is not limited to) extrapolating values from prior or related transactions, adjusting for factors that might influence the quality of data such as market events or impairment of a buyer or seller's credit quality, or placing greater weightage on firm bids or offers than on a particular concluded transaction where it is appropriate to do so (e.g. stale transacted prices).

**High/Low Prices:** The highest and lowest prices at which benchmark SGS bonds, T-Bills and MAS Bills were transacted between Primary Dealers on EBND or through Brokers during trading hours. Transaction size should be a minimum of S\$5 million for standard settlement (T+1)<sup>1</sup>.

**MAS Bills:** Debt securities issued by the Monetary Authority of Singapore, which pay interest in the form of a discount on its value at maturity.

**MAS' Websites:** In the context of the Closing Prices, the official websites for both SGS (<http://www.sgs.gov.sg/>) and MAS Bills (<http://www.mas.gov.sg/monetary-policy-and-economics/central-bank-operations-and-liquidity-management/mas-bills.aspx>).

**Methodology:** The written procedures as set out in Section 3 to determine Closing Prices.

**Price Adjustment Feature:** A function on the dealer-to-client platforms of Primary Dealers which allow Primary Dealers to adjust executable prices after clients request to trade on them.

**Primary Data Provider (PDP):** Bloomberg

**Primary Dealer (PD):** A financial institution specified in the First Schedule of the Government Securities Regulations. They are appointed by MAS and are required to underwrite auctions, make markets for SGS bonds, T-Bills and MAS Bills and provide Closing Prices in accordance to this Framework.

**Qualifying Data:** Input data for calculation of the Closing Prices, which meet the requirements specified in Section 3.1.

**Secondary Data Providers (SDP):** Brokers

---

<sup>1</sup> An exception is made for trading of new issues of SGS bonds, T-Bills and MAS Bills between their auction date and their issuance date, which settle on their issuance date.

**Singapore Government Security (SGS):** Debt securities issued by the Singapore Government (i.e. SGS bonds and T-Bills collectively).

**SGS Bonds:** Marketable debt securities issued by the Singapore Government under the Government Securities Act, which pay semi-annual fixed-rate coupons.

**Submission:** The provision of prices of SGS bonds, T-Bills and MAS Bills by a Primary Dealer to the Administrator/Calculation Agent based on expert judgement, with reference to relevant market information where available.

**Submitter:** A Primary Dealer that provides information to the Administrator via the Submission method, for determining Closing Prices.

**T-Bills:** Marketable debt securities issued by the Singapore Government under the Local Treasury Bills Act, which pay interest in the form of a discount on its value at maturity.

**Trading Day:** A business day in Singapore in which SGS and MAS Bills can be auctioned off or traded.

## Section 1 – Introduction

### Overview

- 1.1 The Closing Prices provide a daily reference of the value of SGS bonds, T-Bills and MAS Bills around the close of each Trading Day. MAS also accepts these securities as collateral at its facilities (e.g. the MAS Intraday Liquidity Facility, MAS Standing Facility and Enhanced Repo Facility), based on their Closing Prices.
- 1.2 MAS is the Administrator and Calculation Agent for the Closing Prices. In addition to the Closing Prices, MAS also publishes the High/Low Prices daily<sup>2</sup>.
- 1.3 The Closing Prices (and High/Low prices) are published on MAS' Websites, by 5.30pm on full Trading Days. They are published by 12.30pm, if the market is observing a half-day trading period on that particular Trading Day<sup>3</sup>.
- 1.4 For avoidance of doubt, all times specified in this document are with respect to Singapore time, unless otherwise stated. Similarly, all currency units are in Singapore dollars (S\$), unless otherwise stated.

### Key Features of the Closing Prices Methodology

- 1.5 The key features of the Methodology are:
  - (a) **Data sources** – The data sources used in the determination of Closing Prices are as follows:
    - i. Input from each PD provided either via the Contribution<sup>4</sup> or Submission method.
    - ii. Transactions between PDs that take place around the end of the official trading hours.See paragraphs 3.2, 3.5, 3.6 and 3.7 for more details.
  - (b) **Automated transfer of data where possible** – Data from the above sources will be obtained automatically from the Data Providers where possible, minimising the need for manual submission. In the case of PDs that use the Contribution method, the executable prices should be provided on their trading pages on the PDP platform. Random snapshots of such price quotes would be taken by the PDP from such pages within the stipulated time window, and the time at which the prices are taken would not be disclosed to PDs beforehand.
  - (c) **Interpolation for T-Bills and MAS Bills** – The Closing Prices for non-benchmark T-Bills and MAS Bills are derived through interpolation of the Closing Prices for the shortest-dated T-Bill or MAS Bill, the benchmark 4-week, 12-week, 24-week MAS Bills, 1-year T-Bill and any other benchmark bills which may be introduced.

---

<sup>2</sup> If no transactions occur for a particular security, High/Low prices will not be published for that day.

<sup>3</sup> The market observes a half-day trading period (from 9.00am – 11.30am) on Christmas Eve, New Year's Eve and Chinese New Year's Eve.

<sup>4</sup> PDs that wish to use the Contribution method will need to obtain MAS' prior approval.

## Interdealer Market Trading Conventions

- 1.6 The official interdealer trading hours of the SGS and MAS Bills markets are between 9.00am and 11.30am, and 2.00pm and 4.30pm on full Trading Days, with the exception of the eves of Christmas, New Year and Chinese New Year. The market observes a half-day trading period on these Trading Days (i.e. the official trading hours are from 9.00am – 11.30am only).
- 1.7 The standard trade size is \$5 million, with settlement on the day after the trade date (i.e. on T+1). An exception is made for trading of new SGS bonds, T-Bills or MAS Bills between their auction date and their issuance date – these trades settle on their issuance date (i.e. T+3). In the interdealer market, SGS bonds are typically traded on EBND. Interdealer trades are also executed through Brokers.
- 1.8 PDs are specialist intermediaries in the secondary market for SGS and MAS Bills. They are required to make markets for these securities by providing bid and ask prices on demand under all market conditions, to both clients and other PDs. All PDs are required to provide input for the determination of Closing Prices.

## Section 2 - Administration and Calculation

### Roles in Closing Prices Administration and Calculation

- 2.1 MAS is the Administrator and Calculation Agent for the Closing Prices. In undertaking these roles, MAS compiles the input data, computes the Closing Prices and publishes<sup>5</sup> them according to the Methodology.
- 2.2 MAS has put in place the necessary processes and governance measures for the determination of Closing Prices, including the appropriate procedures to deal with contingencies. MAS will also maintain appropriate confidentiality for all information received and used in determining the Closing Prices. MAS will retain all information used in the determination of Closing prices, including any queries and responses relating to data inputs, for a period of five years after initial publication.

### Specific Requirements in Calculation

- 2.3 MAS, in our role as Calculation Agent, will take the following steps:
  - (a) Approve PDs to use the Contribution method. Approval will be given only if PDs are able to demonstrate that their executable prices are robust and reliable. PDs shall do this through an annual attestation;
  - (b) Record any deviations from the Methodology, which could include failure by PDs to provide Closing Prices (e.g. due to system failure or late provision of inputs); and

---

<sup>5</sup> Typically, by 5.30pm on a full Trading Day and by 12.30pm on a half-day trading period on Christmas Eve, New Year's Eve and Chinese New Year's Eve.

- (c) Subject the Closing Prices processes and governance measures to periodic internal audits.

#### 2.4 In capturing data for the determination of Closing Prices:

- a) All relevant data used to determine Closing Prices shall be captured electronically from PDs by Data Providers or MAS, through such mechanism determined by MAS in consultation with PDs and Data Providers<sup>6</sup>;
- b) The time that each data point was captured shall be recorded; and
- c) The Data Providers and MAS shall take reasonable measures to ensure that entity-level data (i.e. of each PD) captured is kept confidential and not shared with any third parties, unless disclosure is required by law or regulation. MAS reserves the right however, to use the data as part of its surveillance and research efforts, and may publish anonymised or aggregated data.

#### 2.5 MAS will publish the High/Low Prices together with the Closing Prices. This information will be obtained from transaction data given by Data Providers.

### Governance Processes

#### 2.6 MAS in undertaking the role as the Administrator of the Closing Prices is subject to the supervision of an Oversight Committee, which is the Markets and Investment Committee of MAS. The Oversight Committee's responsibilities include:

- (a) **Oversight of the Methodology –**
  - i. Conduct periodic review of the Closing Prices definition and the Methodology, taking into account material changes<sup>7</sup> in market conditions;
  - ii. Oversee any changes to the Methodology, including assessing whether the Methodology continues to appropriately measure the value of SGS and MAS Bills; and
  - iii. Ensure that a summary of each review, in which material revisions and changes are made to any aspect of the Closing Prices, is published.
- (b) **Oversight of the integrity of the Closing Prices determination process –**
  - i. Approve procedures and controls for determining and disseminating the Closing Prices;
  - ii. Conduct periodic review of the Submitters' Code;
  - iii. Review and investigate complaints relating to the integrity of the Closing Prices; and
  - iv. Follow up on the implementation of remedial actions highlighted in the results of audits.

---

<sup>6</sup> MAS requires Data Providers that do not have such mechanisms to set this up.

<sup>7</sup> For example, any structural change in market conditions or any other factors that may negatively impact the robustness of the Closing Prices.



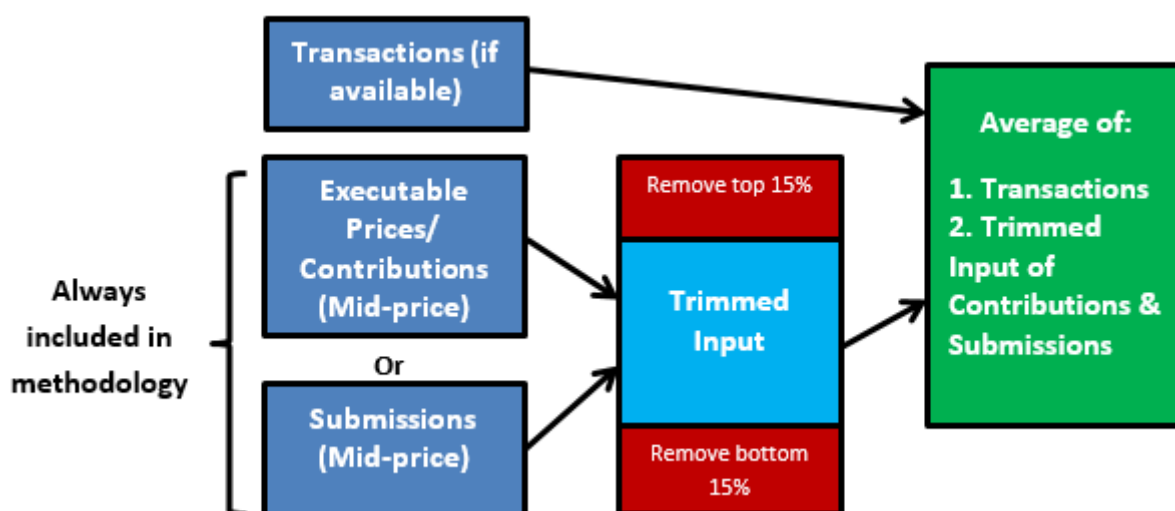
## Section 3 –Methodology

### Closing Prices Calculation Methodology

3.1 Closing Prices for all SGS and MAS Bills are determined using one of the following two approaches:

- a) **Trimmed mean:** This approach is used for all SGS Bonds (i.e. benchmark and non-benchmark), benchmark T-Bills and MAS Bills (i.e. the most-recently auctioned 1-year T-Bill, 4-week, 12-week and 24-week MAS Bills, and any other benchmark bills which may be introduced), and the shortest-dated T-Bill or MAS Bill.

Under this method, the mid-prices<sup>8</sup> for a particular security obtained from Contributions and Submissions are ranked from lowest to highest. The lowest 15% and the highest 15% of all the prices are removed. The remaining 70% is added to qualifying transacted prices (refer to paragraph 3.2) and an average is computed. This average is the Closing Price for that security. The diagram below illustrates this method.



- b) **Interpolation:** This method is used to calculate prices for non-benchmark T-Bills and MAS Bills. Under this method, the Closing Prices for the shortest-dated T-Bill or MAS Bill, benchmark T-Bills and MAS Bills are used as reference points to derive the prices of the non-benchmark bills by interpolation<sup>9</sup>.

<sup>8</sup> As executable price inputs could have varying bid-ask spreads, mid-prices will need to be determined before they are included as inputs under the Contribution method.

<sup>9</sup> Specifically, a cubic hermite spline interpolation is used. The Closing Prices of the shortest-dated T-Bill or MAS Bill, benchmark T-Bills and benchmark MAS Bills are designated as the reference points in the cubic hermite spline algorithm, and the resulting curve is used to derive the corresponding yield prices for the non-benchmark bills.

## Qualifying Data

3.2 Data that meets all the criteria below shall be included in the calculation of the Closing Prices.

Parameters	Transacted Prices	Contributions	Submissions
Trade Type	Outright		
Security Type	All SGS bonds, benchmark T-Bills & MAS Bills		
Size	S\$5 million and above <sup>10</sup>		
Price Source	Prices from transactions dealt through the Data Providers	Executable prices on PDs' Dealer-to-client (D2C) PDP pages that meet the criteria in paragraph 3.6	Prices based on expert judgement of the PDs
Mode of obtaining price inputs	Prices from transactions are sent to MAS by the Data Providers	PDP to take random snapshots of D2C prices on PDs' pages and send them to MAS	PDs to submit prices through eApps, MAS' web-based platform
Time <sup>11</sup>	4.00pm-4.30pm		Submitted prices as at 4:30pm
Settlement	T+1 <sup>12</sup>		

## Provision of Closing Prices Data

3.3 Where there are transactions that meet the criteria described in paragraph 3.2, such **transacted prices** will be included in computation of the Closing Prices.

3.4 As not all SGS and MAS Bills trade each day, PDs' inputs via Contributions or Submissions are necessary to ensure that daily Closing Prices are available for all SGS and MAS Bills. As executable prices provided through Contributions are of a higher quality than Submissions which are based on expert judgement, PDs who provide executable prices on their D2C PDP pages should choose to provide Contributions if they are able to meet the requirements set out in paragraph 3.6(f).

3.5 PDs shall provide their Closing Price inputs for SGS bonds, T-Bills and MAS Bills via Contributions or Submissions. PDs may use a different method between SGS bonds and bills, but the method should be the same across all SGS bonds or bills. PDs will not be able to alternate between different methods on a daily basis. If a PD wishes to change its method of providing Closing Price input, it should notify MAS at [sgddiv@mas.gov.sg](mailto:sgddiv@mas.gov.sg). The time taken to change between methods will depend on whether the PD has put in place the processes required for the change. To

<sup>10</sup> The standard transaction size in the secondary market for SGS and MAS Bills is S\$5 million. Transactions above S\$5 million shall be rounded down to the nearest S\$5 million and treated as multiple transactions of S\$5 million each (e.g. a S\$17 million transaction is rounded down to S\$15 million, and treated as three transactions of S\$5 million each).

<sup>11</sup> PDs shall submit Closing Prices by 5.00pm on a full business day. As the SGS market trades for only half a day on the eves of Christmas, New Year and Chinese New Year, the time window for transacted prices and Contributions shall be made from 11.00am - 11.30am on those days, and Submissions shall be made by 12.00pm.

<sup>12</sup> An exception is made for trading of new issues of SGS bonds, T-Bills and MAS Bills between their auction date and their issuance date, which settle on their issuance date.

change from Submissions to Contributions, PDs must provide an annual attestation and supporting information set out in paragraph 3.6(f).

3.6 A PD that chooses to provide the Closing Prices via the **Contribution** method<sup>13</sup> must meet the following requirements :

- a) PDs must provide executable bid and offer prices on its D2C<sup>14</sup> PDP page for each security. For bills, PDs must, at the minimum, display executable prices for the shortest-dated bill and benchmark bills based on a “basket of Bills” approach. Under this approach, PDs can choose to display executable prices for any bill within each basket. These prices will be inputs to compute the price of the corresponding benchmark bill. For example, PDs can contribute executable prices for any bill that matures 30 days earlier or later than the actual 24-week MAS Bill. This will be used to compute the Closing Price of the 24-week benchmark. The basket width is set out in the table below.

Bill	Basket Width (Days)
Shortest-dated	+7
4-week (1-month)	±7
12-week (3-month)	±15
24-week (6-month)	±30
1-year	±90

- b) Executable prices must be provided at least throughout the official trading hours, as described in paragraph 1.6.
- c) At a random time between 4.00pm and 4.30pm on full Trading Days<sup>15</sup>, the PDP will take a random snapshot of the executable bid and offer prices posted by PDs, and that will be regarded as the PD’s Contribution to the day’s Closing Price. PDs will not know ex-ante when the PDP will take the random snapshot. Another snapshot will also be taken as a back-up, in case there are issues<sup>16</sup> with the first snapshot. The PDP will provide ex-post notification to PDs on the price levels used for the computation of the Closing Prices and the time the snapshot of prices was taken.
- d) PDs which have a function on their D2C platforms to adjust executable prices after clients request to trade on them (“price adjustment feature”) should be transparent regarding its use and provide appropriate disclosures to clients<sup>17</sup>. The price adjustment feature can be used to improve prices for clients and also for risk management purposes, including in the following situations:

<sup>13</sup> The use of the Contribution method is subject to MAS’ approval.

<sup>14</sup> Interdealer spreads need not apply – PDs may choose to provide narrower or wider spreads to clients.

<sup>15</sup> 11.00am and 11.30am on days when the market trades for half a day.

<sup>16</sup> The second snapshot will only be used if the first snapshot fails to capture a price.

<sup>17</sup> These include: (a) the purpose for using the price adjustment feature, (b) explanations regarding whether, and if so how, changes to price in either direction may impact the client’s or the bank’s decision to accept or reject the trade request; (c) the expected or typical period of time for making that decision.

- i. To conduct validity checks to confirm that the transaction details of the request to trade are appropriate from an operational perspective and there is sufficient credit to enter into the transaction;
  - ii. To conduct price checks on whether the price at which the trade request was made remains consistent with the current price, particularly during extraordinary or volatile market conditions;
  - iii. To cater to transactions with parameters that differ from standard trades (e.g. larger deal size or different settlement details); or
  - iv. To update pricing during the adjustment window provided the update is entirely independent of the relevant trade request, as doing so allows PDs to continuously make prices.
- e) Confidential information that arises from a Client's request to trade should be safeguarded<sup>18</sup> and not misused.
- f) PDs must attest<sup>19</sup> to MAS annually that:
  - i. The Contributions are provided in accordance with the Governance Framework;
  - ii. Their executable prices<sup>20</sup> reflect the price levels that they are willing to execute SGS and MAS Bills transactions;
  - iii. Clients and counterparties are able to execute with the PD on the executable prices, which are subject to the guidance provided in this paragraph.

Supporting data on the activity and number of participants on PDs' D2C platforms must also be provided to MAS annually.

3.7 Alternatively, a PD may also provide its Closing Price inputs via the **Submission** method. The PD must meet the following requirements for the Submission method:

- a) PDs shall provide Submissions via MAS' web platform, eApps by 5.00pm<sup>21</sup>.
- b) Each Submission, shall consist of the bid and offer price of a security, based on the PD's expert judgement of the price of the security as at the close of the Trading Day.
- c) PDs must attest to the MAS annually that:
  - i. The Submissions are provided in accordance with the Governance Framework; and

---

<sup>18</sup> Exceptions to sharing of confidential information include: (a) disclosure to parties to the extent necessary for trade settlement; (b) disclosure under Applicable Laws, or as requested by a relevant regulatory or public authority; (c) disclosure to relevant advisors or consultants on condition that they protect the information in the same manner.

<sup>19</sup> PDs that provide indicative prices shall provide annual attestations to demonstrate the robustness of these prices.

<sup>20</sup> For PDs that provide indicative prices, where firm quotes are given in response to clients' requests-for-quotes (RFQs), the attestation would need to demonstrate the robustness of the price inputs used as Contributions for the Closing Prices.

<sup>21</sup> By 12.00pm on days when the market trades for half a day. Exceptions could be made during exceptional events (e.g. IT outages).

- ii. It has in place internal procedures to provide market prices of SGS and MAS Bills at the close of the Trading Day.
- d) PDs shall adhere to the Submitters' Code of Conduct set out in Section 4.

### Exception for Bond or Bill Auctioned Under Half-Day Trading

- 3.8 If an SGS bond, T-Bill or MAS Bill is auctioned on a day with a half-day trading period (see Paragraph 1.6), the Closing Price for that security shall be the price at which it is auctioned<sup>22</sup>.

### Errors in Data Provision or Calculation

- 3.9 Should a PD or Data Provider(s) discover an error in the data it provided for the Closing Prices, the PD or Data Provider(s) shall inform MAS of the error and provide the correct data or price(s) as soon as possible.
- 3.10 Should the error lead to a difference of 2 or more basis points in a security's yield compared to its correct yield, the error shall be deemed "material". MAS shall then republish the Closing Prices for the affected security as soon as possible. MAS shall make an announcement on the applicable MAS' Websites about the erroneous and corrected prices.
- 3.11 Regardless of whether an error is deemed to be material, MAS reserves the right to take disciplinary, contractual or legal action against PDs (refer to paragraph 3.13) or Data Providers for errors in the provision of data for the Closing Prices.

### No Undue Influence on Closing Prices

- 3.12 All market participants should not seek to unduly influence the Closing Prices by engaging in Submissions, Contributions, or transactions for that purpose, or by any other means. This includes, without limitation, deliberately trading in volumes at inappropriate prices in order to influence the calculation, executing a trade with the intent of cancelling it after the close of the time window for computing Closing Prices, or incentivising or colluding to do any of the foregoing. This also includes deliberately withholding *bona fide* trades from a trading window, or from a trading venue, for the purposes of excluding such trades from the computation of Closing Prices. For avoidance of doubt, nothing in this paragraph prevents a *bona fide* trade from being executed under open-market competitive conditions (regardless of size, timing or pricing).

### Penalties

- 3.13 Provision of Closing Prices is an obligation of primary dealership. PDs that do not provide Closing Prices may be liable to penalties under the Government Securities Act and the MAS Act, including possible revocation of PD status.
- 3.14 PDs that do not provide Contributions or Submissions on time (i.e. by 4.00pm for Contributions; 5.00pm for Submissions) will be subject to a financial penalty of S\$1,000 on each of the 3<sup>rd</sup> and subsequent occurrences within a calendar year, in which late or non-provision of prices occur.

---

<sup>22</sup> SGS bond, T-Bill and MAS Bill auctions are uniform-price auctions, conducted at 12.00pm on auction day.

PDs should provide an explanation to MAS on the late or non-provision of prices and MAS will consider its validity.

- 3.15 Should late or non-provision of prices occur due to an issue on the part of the PDP, PDs will not be penalised. The contingency measures laid out from paragraph 5.1 should be adopted instead.
- 3.16 False trading, market-rigging, manipulation of securities markets, and making false/misleading statements to induce the subscription, sale or purchase of securities, or to have the effect of raising, lowering, maintaining or stabilising the market price of securities are offences under the Securities and Futures Act (Part XII). Persons convicted of such offences shall be liable to a fine not exceeding \$250,000 or imprisonment for a term not exceeding seven years or both.

## Section 4 – Submitters’ Code<sup>23</sup>

### Overview

- 4.1 PDs that use the Submission method must meet the requirements in the Submitters’ Code (Code). MAS periodically reviews and, if necessary, updates the Code, and requires PDs to confirm adherence with the Code annually or when it is amended.
- 4.2 As far as possible, Submissions should be anchored by (a) observable, *bona fide*, arms-length transactions in the market; or (b) any other forms of data used as a supplement to transactions that are tied to observable market data. PDs may refer to D2C trades, Broker trades, executable bids and offers, and funding cost, amongst other relevant market information, or exercise expert judgement. These examples are non-exhaustive. Submitters should also ensure the integrity of data submitted to the Calculation Agent.
- 4.3 PDs should ensure that only authorised staff submit inputs for Closing Prices to MAS. PDs should ensure these personnel possess the relevant levels of expertise, and periodically review their suitability for involvement where required.

### Principles for Submission

- 4.4 PDs should abide by the following principles when providing Closing Prices under the Submissions method:
  - a) **Experience, seniority and character.** Staff responsible for Closing Price Submissions and oversight of the Submission process should have appropriate experience and seniority, and adhere to “fit and proper” standards of conduct. Relevant and regular training should be given to staff to ensure they are familiar with the Methodology and process for Closing Price Submissions, and the ethical standards for Submissions. Staff responsible for Closing Price Submissions should be appropriately authorised to report the prices on behalf of the PD. Roles and responsibilities and accountability should be formalised.

---

<sup>23</sup> Parts of this section have been adapted from “The Singapore Guide to Conduct & Market Practices for Treasury Activities” (Blue Book) published by the Singapore Foreign Exchange market Committee (SFEMC).

- b) **Supervision.** There should be adequate supervision over staff responsible for Closing Price Submissions. Different staff should perform “submitter” and “checker” roles before Submission. Staff performing a “checker” function should be of appropriate seniority to challenge the Submissions made. Submissions should be reviewed on an ex-post basis by an independent internal party.
- c) **Management of information.** Appropriate management of information, including historical information on Submissions and trend/exception analysis, should be developed and tabled periodically at relevant risk management committees or forums to ensure oversight of Submissions.
- d) **Record Retention.** Records of the following should be retained for at least 5 years from the date of Submission: (a) submitted data, (b) procedures governing Submissions, (c) names and roles of persons who generate and submit Closing Prices input, (d) relevant communications between submitting parties, (e) any queries received regarding data provided to the Administrator, (f) declaration of conflicts of interests, (g) exposures of individual traders/desks to SGS and MAS Bills in order to facilitate audits, and (h) internal/external audit findings related to remedial actions and progress in implementing them.
- e) **Confidentiality.** Except for supervisors or compliance staff, information relating to Closing Prices must not be sent to any party who is not involved in or responsible for the Closing Prices process.
- f) **Conflicts.** All PDs should maintain policies to identify and minimise conflicts of interest, and take steps to mitigate them if they exist.
- g) **Escalation Process.** PDs should establish a process to identify and escalate Submissions which are suspicious, inappropriate, breaches of the Closing Prices process, or other inappropriate behaviour, whether internal or external. This should include “whistle-blowing” policies. Where appropriate, this information should also be provided to MAS.
- h) **Surveillance of Electronic Communication.** Submitters should implement appropriate surveillance over electronic communications, including relevant communications between submitting parties.
- i) **Audit.** Submitters should subject the Submission process to an internal audit in line with their banks’ audit cycle, but no less than every five years. Any shortcomings should be rectified within a reasonable time period. The audit outcome should be promptly provided to the Administrator upon request.

## Section 5 – Contingency Procedures

### Overview

- 5.1 This section sets out the procedures for calculation and distribution of the Closing Prices in case of a system failure of one or more of the parties involved. These contingency procedures are to facilitate the publication of the Closing Prices by the scheduled time or as soon as practicable, to minimise the disruption to users. Should PDs face any system failures, PDs should inform MAS as soon as practicable.
- 5.2 If a system failure leads to a substantial delay in the publication of the Closing Prices in spite of the contingency procedures, MAS will investigate the causes of the delay and report its findings to the Oversight Committee. If necessary, MAS will recommend or require changes to the Closing Prices process (including the contingency procedures).
- 5.3 The High/Low Prices for the day will continue to be published, except where transacted price inputs are unavailable in the event of a general system failure (see paragraph 5.7).

### PD-specific System Failure

- 5.4 For contingency purposes, a system failure is considered “PD-specific” if up to three PDs are unable to provide Submissions or Contributions to Closing Prices.
- 5.5 In this event, the affected PD shall submit Closing Price inputs to MAS by 5.00pm<sup>24</sup> (in accordance to the Code) via eApps, e-mail ([sgddiv@mas.gov.sg](mailto:sgddiv@mas.gov.sg)), fax (+65 6229 9491) or any other channel prescribed by MAS. If the PD is unable to do so, it shall be deemed not to have provided Closing Prices input for that day. The PD shall investigate the reason for this system failure and report its findings to MAS.
- 5.6 Alternatively, a PD that typically provides Closing Price Contributions may provide their Contributions to MAS in line with paragraph 5.5, without having to comply with the Code for such a scenario. The PD shall include an attestation by the supervisor of the SGS team that the prices provided are the same as its quoted executable D2C prices.

### General System Failure

- 5.7 For contingency purposes, a system failure is considered “general” if more than three PDs are unable to provide Contributions or Submissions via the PDP or eApps to MAS.
- 5.8 In this event, all PDs shall submit their Closing Price inputs to MAS by 5.00pm<sup>25</sup>, via eApps, e-mail, fax or any other channel prescribed by MAS. MAS will apply the trimmed-mean method (see paragraph 3.1a), to determine the Closing Prices of all SGS bonds, benchmark T-Bills and MAS Bills, and the shortest-dated T-Bill or MAS Bill. If transacted prices are not available due to a platform outage, they will not be included as Closing Price inputs. MAS will apply the

---

<sup>24</sup> By 12.00pm on days when the market trades for half a day.

<sup>25</sup> By 12.00pm on days when the market trades for half a day.



interpolation method (see paragraph 3.1b) to all remaining T-Bills and MAS Bills. MAS will then publish that day's Closing Prices on MAS' Websites.

- 5.9 MAS shall investigate the reason for a general system failure and work with stakeholders to ensure that corrective measures are put in place to prevent a recurrence.

### **Publishing the Closing Prices on MAS' Websites**

- 5.10 If MAS is unable to obtain the Closing Price inputs from the Data Providers through the established process, the Data Providers shall provide the Closing Prices to MAS via e-mail or some other format agreed between MAS and the Data Providers. If this contingency measure is relied upon, it is expected that the publication time for Closing Prices will be delayed.
- 5.11 MAS will investigate the reason for any failure to publish the Closing Prices on MAS' Websites. Substantial delays in publications will be investigated by MAS and reported to the Oversight Committee.

## **Section 6 – Enquiries & Complaints**

### **General Enquiries and Complaints**

- 6.1 Enquiries and/or complaints where the integrity of Closing Prices is not compromised should be directed to [sgddiv@mas.gov.sg](mailto:sgddiv@mas.gov.sg) or 6229 9150.

### **Complaints about the Integrity of the Closing Prices**

- 6.2 Complaints **about the integrity of the Closing Prices** may be reported to the Administrator via [webmaster@mas.gov.sg](mailto:webmaster@mas.gov.sg) or 1800 225 8128.

Complainants should provide the following details:

- Name;
- Contact details (e.g. phone number, home/office/email address);
- Alleged misconduct;
- Details of the party or parties involved;
- Time period of misconduct; and
- Supporting evidence (e.g. email, SMS, recordings) of wrongdoing by the person(s) and/or organisation(s) involved.

To discourage frivolous claims, **anonymous reports will not be investigated.**

- 6.3 Complaints will be escalated to the Oversight Committee, where appropriate. MAS will investigate any such reports and take appropriate action against individuals and/or organisations which are found to have engaged in wrongdoing.
- 6.4 If initial investigations show that the report was not made in good faith or that the concern has no basis, investigations shall cease and the basis for cessation will be documented.

### **Confidentiality and Retention of Complaints**

- 6.5 MAS will keep the personal information of complainants confidential, unless disclosure is required by the Court, police or other relevant enforcement agencies conducting related investigations.
- 6.6 All documents relating to a complaint will be retained for a minimum of five years. If a complaint results in a change in the Closing Prices process, an explanation for the change will be provided.