RESPONSE TO

FEEDBACK RECEIVED

November 2018

STRENGTHENING THE PROCESS FOR DETERMINING SGS & MAS BILLS CLOSING PRICES

MAS

Monetary Authority of Singapore

Contents

1   Preface

1.1   On 1 December 2017, MAS issued a consultation paper on strengthening the process for determining Singapore Government Securities ("SGS") and MAS bills closing prices (collectively referred to as "Closing Prices"). The key proposals included the following:

(a) Enhancing the Closing Prices methodology (e.g. by incorporating transacted prices and executable prices, where available);

(b) Improving the governance and controls of the Closing Prices determination process; and

(c) Providing guidance to primary dealers ("PDs") of their obligations in the Closing Prices determination process.

1.2   The consultation closed on 19 January 2018. MAS would like to thank all respondents for their contributions. The list of respondents is in Annex A and the Submissions are in Annex B.

1.3   The respondents are supportive of the proposed framework as they recognise that the changes will enhance the robustness of the Closing Prices. MAS has carefully considered the feedback received and has incorporated them where applicable. Comments that are of wider interest, together with MAS' responses, are set out below.

2   Price Inputs

2.1   The majority of respondents agreed with MAS' proposed Closing Prices inputs and parameters. These included:

a) Using transacted prices, Contributions[1] and Submissions[2] as Closing Price inputs;

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[1] The provision of executable dealer-to-client prices, of SGS Bonds, T-Bills and MAS Bills by a PD to the Administrator/Calculation Agent via the Data Provider, in line with the Governance Framework.

[2] The provision of prices of SGS bonds, T-Bills and MAS Bills by a PD to the Administrator/Calculation Agent based on expert judgement, with reference to relevant market information where available.

b) A time window of 4:00pm – 4:30pm ("Closing Prices window") to gather transacted price inputs; and

c) Using the highest and lowest transacted prices dealt on the electronic inter-dealer platform[3] and through Brokers[4] as the published High/Low price inputs.

Adjusting executable dealer-to-client ("D2C") prices before a transaction

2.2   Some PDs sought clarifications on the ability to adjust executable D2C prices. PDs shared that under their existing trading process, the executable D2C prices could be adjusted after clients clicked to deal on them. This was a risk management measure typically used:

a) when market conditions are volatile; or

b) when the parameters of the specific trade differed from standard parameters.

2.3   Nevertheless, PDs highlighted that most of the time, they would either maintain or improve on executable D2C prices to "win" deals, taking into account client relationships. Constantly adjusting prices unfavourably towards clients would have a negative reputational impact on PDs. Thus, market discipline would help to ensure that these prices are executable.

MAS' Response

2.4   MAS is agreeable to allow executable D2C prices with an adjustment function to be included as Contributions, subject to the guidance set out in Section 3 of the Governance Framework. A PD can provide Contributions only after obtaining MAS' approval, and thereafter, PDs shall provide annual attestations to demonstrate the robustness of their executable prices used as Contributions for Closing Prices.

Indicative D2C prices where clients request-for-quote ("RFQ")

2.5   A few PDs sought clarifications on whether indicative D2C prices which lead to RFQs could be used as Contributions. They shared that they display indicative prices on D2C platforms, which clients can click to RFQ. The PDs would then respond with

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[3] Currently, this refers to the electronic platform hosted by Bloomberg ("EBND") where PDs trade SGS with one another.
[4] There are currently two brokers active in the SGS market – GFI and Tradition.

executable prices that clients can choose to accept, and such prices could differ from the initial indicative prices. Nevertheless, PDs highlighted that the executable prices on such RFQs tend to be equal to or better than the indicative prices most of the time. These PDs asked for the indicative prices provided on such D2C platforms to be treated as Contributions.

MAS' Response

2.6   MAS is agreeable to include the prices on these D2C platforms as part of Contributions. In addition to relying on market discipline, PDs must adhere to the safeguards set out in Section 3 of the Governance Framework and PDs shall provide annual attestations to demonstrate the robustness of the price inputs used as Contributions for the Closing Prices.

Window to provide executable D2C prices

2.7   One respondent suggested that the provision of executable D2C prices be made only during the Closing Prices window.

MAS' Response

2.8   In considering whether PDs qualify to provide Contributions, MAS will consider if the PDs' executable D2C prices are sufficiently representative of the prices that PDs are willing to transact at and are robust throughout trading hours. The provision of executable D2C prices should not be done solely for the purpose of determining Closing Prices.

3   Calculation Methodology – SGS Bonds

3.1   The majority of respondents agreed with MAS' proposed Closing Prices methodology for SGS bonds, including publishing mid-prices instead of the current bid prices.

Trimming of transactions within the methodology

3.2   Most respondents felt that transacted prices should not be trimmed within the methodology, given that they would be higher quality inputs compared to Contributions and Submissions.

MAS' Response

3.3   MAS agrees with this approach and will include all eligible transacted prices (without trimming) in the calculation methodology.

4   Calculation Methodology – T-Bills and MAS Bills

4.1   The majority of respondents agreed with MAS' proposed Closing Prices methodology for both benchmark and non-benchmark bills.

Determining yield of the shortest-dated bill

4.2   In determining the closing yield of the shortest-dated bill, most respondents felt that Submissions or Contributions (i.e. Option 1A) would provide the most representative yield for the shortest-dated bill. Nevertheless, they acknowledged that Contributions would be challenging due to a lack of inventory. Option 1B[5] was deemed to be too volatile and not representative of the end-of-day closing yield as it is determined during MAS' Money Market Operations in the morning. Respondents felt that Option 2[6] would not be representative.

MAS' Response

4.3   Taking into account the feedback received, Option 1A will be the approach to determine the yield of the shortest-dated bill.

Suggestion for Bill Contributions/Submissions

4.4   One respondent suggested leaving bills out from the Contributions/Submissions process given bills' relatively low trading volumes and the potential difficulty in maintaining inventory for all bills. The respondent also suggested increasing the frequency of bill auctions to provide more reference points for bill yields or allowing PDs to provide only executable bid prices for bills.

MAS' Response

4.5   Daily closing bill yields are needed (a) by market participants for end-of-day valuation of their positions; and (b) as inputs for the operation of MAS' facilities (e.g. Intraday Liquidity Facility, Standing Facility, Enhanced Repo Facility). Given that the volume of bill transactions is relatively low, inputs in the form of Contributions and Submissions are essential to determine closing bill yields. Therefore, bills cannot be left out of the Contributions/Submissions process.

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[5] Based on MAS' Standing Facility overnight deposit rate.

[6] Assuming that yields of bills below the 4-week tenor are equal to the yield of the 4-week benchmark bill.

4.6   While increasing the frequency of bill auctions could provide more market-determined reference points for pricing, it could potentially fragment liquidity and increase the operational burden on PDs. Separately, providing only executable bid prices for bills could skew prices lower and affect the robustness of Closing Prices. Given the trade-offs, MAS will not incorporate these suggestions into the Closing Prices framework.

Basket of Bills

4.7   A majority of respondents supported the basket of bills approach, whereby Contributions can be based on a pre-defined basket of bills for the benchmark tenors and the shortest-dated bill. This will be in lieu of Contributions made for each specific bill.

MAS' Response

4.8   MAS will incorporate this option, which will provide greater flexibility in bill inventory management. Post-consultation, MAS identified a basket of bills in consultation with the PDs. The basket-width was calibrated to be sufficiently wide to help PDs better manage bill inventory, while minimising the deviation in yields within each basket. The trimmed mean methodology would also remove outliers within each basket, further reducing yield deviations. The basket set out in Figure 1 below will be incorporated into the Closing Prices framework.

Figure 1: Basket of Bills

Bill	Basket Width (Days)	No. of Bills
Shortest-dated	+7	About 5
4-week (1-month)	±7	About 6
12-week (3-month)	±15	About 5
24-week (6 month)	±30	2-3
1-year	±95	2

5   Attestations

5.1   Most respondents are agreeable with the proposed attestation procedures. Some respondents asked that attestation templates be developed for clarity and consistency across PDs.

MAS' Response

5.2   Post-consultation, MAS developed attestation language in consultation with PDs (refer to paragraphs 3.6 and 3.7 of the Governance Framework). Prior to implementation of the new framework, MAS will engage PDs to determine the types of inputs (Contributions and Submissions) PDs will provide to MAS, and the applicable attestation that each PD needs to provide.

6   Administrator & Calculation Agent

6.1   There was broad preference for MAS to continue to undertake the roles of Administrator and Calculation Agent. Most respondents indicated a preference for the existing set up, where Closing Prices are freely available once published. All respondents were unwilling to pay for immediate access to Closing Prices.

MAS' Response

6.2   MAS acknowledges that commercial viability in the administration and calculation of Closing Prices would be challenging unless fees are charged for access to Closing Prices. Besides commercial viability considerations, MAS has assessed that it would be more cost-effective and synergistic for MAS to retain its roles of Administrator and Calculation Agent for Closing Prices. Therefore, MAS will continue to undertake these roles.

7   Transition

7.1   A majority of respondents supported a phased approach[7], where transition to the new methodology takes place over a period of at least one month. A few respondents requested that sufficient time be provided for PDs to set up their operational and compliance procedures needed under the enhanced framework.

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[7] During this period, transacted prices and Contributions are added progressively, minimizing the likelihood of large shifts in prices due to the change in methodology.

<u>MAS' Response</u>

7.2   MAS will work with PDs to ensure that there is sufficient time provided to prepare for the transition to the enhanced framework. MAS will also update market participants and stakeholders ahead of the transition period and implementation.

MONETARY AUTHORITY OF SINGAPORE

7 November 2018

Annex A

LIST OF RESPONDENTS TO THE CONSULTATION PAPER ON

STRENGTHENING THE PROCESS

FOR DETERMINING SGS & MAS BILLS CLOSING PRICES

1. Barclays Bank PLC, Singapore Branch[8]

2. IHS Markit

3. Mizuho Bank, Ltd, Singapore Branch

Note: This list only includes the names of respondents who did not request that their identities be kept confidential.

In addition, 3 respondents requested confidentiality of their identities, and 10 respondents requested confidentiality of their identities and feedback.

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[8] Barclays requested for their feedback to be kept confidential.

Annex B

SUBMISSIONS FROM RESPONDENTS TO THE CONSULTATION PAPER ON STRENGTHENING THE PROCESS FOR DETERMINING SGS AND MAS BILLS CLOSING PRICES

Note: This list only includes submissions for respondents which did not request confidentiality of their responses.

S/N	Respondents	Responses
1	IHS Markit	**Question 3: MAS seeks comments on the proposed inputs and parameters.** The proposed inputs and parameters on Transacted Prices, Contributions and Submissions are valid factors that take into account price sources, size, settlement and time submitted. An additional input MAS may wish to consider would be interdealer broker quotes relating to instruments that are not traded on a venue/platform. These types of inputs may be useful in providing further market intelligence, but should be considered carefully in the context of the data hierarchy. **Question 4: MAS seeks comments on whether respondents agree with a time window of 4:00pm-4:30pm to gather transacted price inputs. Please provide reasons.** The time window of 4:00pm – 4:30pm to gather transacted price inputs is a reasonable time period, as it offers flexibility for submission and ensures sufficient processing time to deliver computed Closing Prices. **Question 5: MAS seeks comments on whether transactions executed through Brokers should be used as transacted price inputs in calculating Closing Prices, in addition to the interdealer transactions on EBND.** Transactions executed through Brokers (i.e. interdealer broker quotes) should be used as transacted price inputs in calculating Closing Prices, in addition to the interdealer transactions on EBND. This would potentially capture a greater number of transactions, which is in line with MAS' preferred hierarchy. Additional inputs to consider would be firm quotes with sizes, axes/observable dealer

runs, as these are also reflective of PDs' expert judgement on these instruments.

Question 7: MAS seeks comments on the proposal to use the highest and lowest transacted prices on EBND and through Brokers as the published High/Low prices.

The proposal to use the highest and lowest transacted prices on interdealer transactions on EBND, as well as those executed through the Brokers as the published High/Low prices is a reasonable approach.

Question 8: MAS seeks comments on the proposed Closing Prices methodology for SGS bonds.

Based on the proposed Closing Prices methodology for SGS bonds, the preferred approach would be the trimmed-mean methodology illustrated in Exhibit 1 in which the Transacted Prices, Contributions (mid-price) and Submissions (mid-price) are treated equally.
We would propose that MAS retain the practice of publishing bid price as the Closing Price.

Question 9: Based on the proposed methodology, the computed Closing Prices will be mid prices instead of bid prices currently. MAS seeks comments on this proposed change.

The preference is to retain the practice of publishing bid prices, as bid prices are more indicative of executable levels. We would suggest that the computed Closing Prices encompasses Bid, Mid and Ask prices. Interpolating the standard interdealer spread to derive Mid and Ask prices would be acceptable.

Question 10: Under the proposed methodology, transacted prices, Contributions and Submissions will be treated equally when they are "trimmed" (see Exhibit 1 for an example). Under the alternative approach, transacted prices would not be subject to "trimming". Which approach do you prefer? Please provide reasons.

The trimmed-mean methodology in which the Transacted Prices, Contributions (mid-price) and Submissions (mid-price) are treated equally would be the preferred approach, as interdealer broker quotes (reflected as Transacted Prices, Contributions and

Submissions) are key indicators of market activity and hence should be treated equally.

Question 11: MAS seeks comments on the proposed methodology for both benchmark and non-benchmark T-Bills and MAS bills.

The proposed methodology for benchmark and non-benchmark T-Bills and MAS bills is reasonable. The most recently auctioned bills are akin to on-the-run benchmarks – i.e. there is greater liquidity in those instruments when compared to off-the-run benchmarks. It is therefore reasonable to derive yields for less liquid T-Bills and MAS bills by interpolating yields from more liquid ones to create a smooth yield curve.

Question 12: MAS seeks comments on the preferred option (i.e. Option 1A) to determine the yields of Bills maturing before the 4-week benchmark, or suggestions on other possible approaches.

Option 1A is the preferred option as it is most reflective of the prevailing market conditions and does not introduce unnecessary volatility (as interpolation with SF overnight deposit rates would do in Option 1B) or simplify term premium assumptions (as flat-lining would do in Option 2).

Question 13: MAS seeks comments on the proposal for PDs to provide Contributions based on a basket of Bills instead of requiring the yield of a specific benchmark bill.

The proposal for PDs to provide two-way Contributions (i.e. Bid-Ask Price) based on a basket of Bills would be a viable long-term solution, given the insignificance in the duration differences across T-bills and MAS bills due to their short tenors.

Question 14: MAS seeks comments on the number of days or adjacent bills that would be appropriate for defining the basket of Bills.

We have no comments on this point.

Question 15: MAS seeks comments on the proposed attestation procedures.

		Our view is that where a benchmark is based on contributions received directly from market participants (and such contributions are for the specific purpose of calculating a benchmark), those contributors (i.e. the PDs) should be required to annually confirm they have contributed in accordance with a code of conduct. The approach proposed by MAS therefore seems reasonable. **Question 17: Should a third-party administrator/calculation agent be appointed, and free access to Closing Prices is available only after a specified period, what period of delay would be appropriate?** In the event in which a third-party administration and/or calculation agent is appointed, a reasonable expectation of the period of delay post the publication of Closing Prices would be a window period of 15 – 20 minutes to ensure minimal disruption to end-of-day (EOD) closing price delivery. **Question 18: If free access to Closing Prices is only available after 12pm in the next business day, how much would you be willing to pay for immediate access?** Access to Closing Prices should be freely available to all market participants once published. This would foster a more transparent market for SGS bonds, T-bills and MAS bills. Free access to Closing Prices is also commonly practised in other Asian markets. **Question 21: MAS seeks any other comments on the proposed Closing Prices Framework.** There are no further comments on the proposed Closing Prices Framework.
2	Mizuho Bank, Ltd, Singapore Branch	**Question 1: How do you use the Closing Prices and High/Low prices?** We are currently using the daily closing prices for the following: 1. MAS649 - Minimum Liquid Assets Maintenance (MLA): to calculate the daily mark to market value of our SGS and MAS Bills which are all used for MLA. 2. MAS649 Form 2 - Section 5 report: to calculate the mark to market value of our available unencumbered liquid assets as at last business day of the month. 3. For Monthly Revaluation of SGS and MAS Bills, Treasury Operations inputs market price into the Bank's mainframe

systems on the last day of the month by using the previous day closing price.
4. Our Treasury takes the closing prices as a reference rate for SGD SGS and MAS Bill on each specific date.

Question 2: Although this consultation focuses on the Closing Prices, MAS also seeks feedback on whether and how you use intraday SGS and MAS Bill prices, and how you obtain them.

We use intraday SGS and MAS Bill prices for:
1. For End-of-Day MTM valuation:
   A. For evaluating bills (within 1Y at issuance), we build the discount curve using benchmark bills and bonds from Reuters (primary) /Bloomberg (fallback) captured at 4pm.
   B. For evaluating bonds (over 1Y at issuance), we use direct bond prices from Bloomberg (primary) /Reuters (fallback) captured at 4pm.
2. For Intraday Monitoring:
   For evaluating bonds (over 1Y at issuance), we use direct bond prices from Bloomberg (primary) /Reuters (fallback) captured at 8:30 am. (For bills, we use yesterday 4pm discount curve)
3. For Off-Market Check
   We print price/yield information from Bloomberg or Reuters and keep as evidence for purpose of off-market check (whenever necessary).
4. Our Treasury looks at the intraday SGS and MAS Bill prices for reference as one of the market transaction rates, when quoting the Offer/Bid rates internally and in the Interbank market.

Question 12: MAS seeks comments on the preferred option (i.e. Option 1A) to determine the yields of Bills maturing before the 4-week benchmark, or suggestions on other possible approaches.

Option 1A is our preference.

Question 17: Should a third-party administrator/calculation agent be appointed, and free access to Closing Prices is available only after a specified period, what period of delay would be appropriate?

The rates should be released by the morning of next business day.

3	Respondent A	**Question 1: How do you use the Closing Prices and High/Low prices?** Closings prices are used for the marking of our internal books, and to set single yield curve rates. Clients can also place orders to transact at MAS' Closing Prices. We do not actively use High/Low prices. **Question 2: Although this consultation focuses on the Closing Prices, MAS also seeks feedback on whether and how you use intraday SGS and MAS Bill prices, and how you obtain them.** We have no further comment. **Question 3: MAS seeks comments on the proposed inputs and parameters.** We are generally supportive of the proposed input and parameter framework, but would like to seek the MAS' consideration on the following: 1. Contributions approach (for SGS) Dealer-to-client (D2C) pages such as Bloomberg are generally made available to the wider investor group. It is also standard industry practice for these pages to reflect RFQ rather than streaming prices. This is because price discovery in the fixed income space is generally more discrete and discontinuous. It is also observed that given the inter-dealer liquidity dynamics, ticket sizes have a material impact and influence on price quotes. Further, the number of outstanding bonds and hence quoted are significantly higher than the number of bonds which are actively traded at any point in time. In this regard, we seek the MAS' consideration to allow RFQ prices to be treated as executable prices during the last 30 minutes of trading (i.e. the "window" of 4pm to 4:30pm on a normal Trading Day). Primary Dealers (PDs) can then be expected to put in place internal controls to ensure and demonstrate that their published RFQ prices during this window are executable for the standard lot sizes (SGD 5 million). PDs should also be permitted to build controls within the D2C platform to allow it to manage its risks under scenarios such as extreme market volatility or observed repeated instances of undesirable trading patterns from clients.

We also propose that the requirement to provide executable bid and offer prices on the D2C platforms be applied only to the last 30 minutes of trading, rather than throughout the trading hours. As, only transactions during the last 30 minutes of the trading day are reflective of, and taken into consideration for the determination of the day's Closing Prices. Therefore, the quality and executability of prices outside of this window would and should not have a material impact on the Closing Prices.

2. Contributions and Submissions for T-Bills and MAS Bills (collectively, Bills)

We are of the view that it is challenging for PDs to apply the proposed methodology for SGS bonds to Bills including benchmark Bills. The low secondary market trading volumes and the general lack of liquidity in the Bills market make it extremely challenging for PDs to provide meaningful daily Closing Prices. Furthermore, there are also practical difficulties as PDs may not have the required Bill inventory to quote executable offer prices. In that regard, we propose that the MAS remove Bills from the Contribution and Submission requirements. Prices from primary auctions are already generally more reflective of the current market levels. Thus, we seek the MAS' consideration to increase the frequency of primary auctions so as to better enable the market to infer market levels based on the primary auctions.

If the MAS is not agreeable to remove Bills from the Closing Price process, we would propose that the MAS only require PDs to provide executable bids for benchmark Bills during the last 30 minutes of trading, if inventory is not available in the trading book of the PD at that point in time. We note that one drawback with this approach is that, bids can be too conservative and hence not reflective of the market.
Any other approach however, will force PDs to carry an inventory of bills purely to meet closing price obligations, and this may not be prudent from regular client activity or for risk management purposes.

Question 4: MAS seeks comments on whether respondents agree with a time window of 4:00pm-4:30pm to gather transacted price inputs. Please provide reasons.

Yes, we are agreeable to the proposal of setting the time window of 4:00pm - 4:30pm to gather transacted price inputs.

Question 5: MAS seeks comments on whether transactions executed through Brokers should be used as transacted price inputs in calculating Closing Prices, in addition to the interdealer transactions on EBND.

Yes, transactions executed through brokers should also be considered and used as they represent actual trades executed in the market.

Question 6: MAS seeks comments on the modes of obtaining inputs.
We are of the view that the approach of direct grab by the calculation agent from D2C platform (i.e. the Contribution approach) is the best among available alternatives. Brokered secondary market trades may also be directly collected as input from the licensed brokers through emails on standardised formats or any other such mechanism preferred by the brokers and MAS.

Question 7: MAS seeks comments on the proposal to use the highest and lowest transacted prices on EBND and through Brokers as the published High/Low prices.

The MAS may wish to consider whether to discontinue with the practice of publishing High/Low prices. The trade-off is the effort versus the additional transparency that the market derives from such publication. Direct sourcing of High/Low prices from brokers and EBND may be a better approach.

Question 8: MAS seeks comments on the proposed Closing Prices methodology for SGS bonds.

Transacted prices should be only for the period from 4.00pm to 4.30pm. If it is the whole day, it may be inconsistent with the definition of "closing prices". Markets may move widely during the day and it is possible that morning prices dominate and skew the prices away from where markets are actually closing. 5

If taken within this period, then the need for trimming outliers is less compelling. During a short window, the population of transacted prices will itself be small and hence not provide much room for trimming.

Question 9: Based on the proposed methodology, the computed Closing Prices will be mid prices instead of bid prices currently. MAS seeks comments on this proposed change.

We have no issues with shifting to mid prices. Having said that, the MAS should communicate this change in advance to the market so that anyone using these prices for any purpose, may have sufficient time to make appropriate changes to their procedures/systems etc.

Question 10: Under the proposed methodology, transacted prices, Contributions and Submissions will be treated equally when they are "trimmed" (see Exhibit 1 for an example). Under the alternative approach, transacted prices would not be subject to "trimming". Which approach do you prefer? Please provide reasons.

Please refer to our response under Question 8.

Question 11: MAS seeks comments on the proposed methodology for both benchmark and non-benchmark T-Bills and MAS bills.

As mentioned in our response to Question 3, we seek the MAS' consideration to remove Bills (including Benchmark bills) from the Closing Price determination process.

Question 12: MAS seeks comments on the preferred option (i.e. Option 1A) to determine the yields of Bills maturing before the 4-week benchmark, or suggestions on other possible approaches.

Interpolations are best left to individual users. As published prices, a non-transacted interpolation provided by a calculation agent may not add to the overall credibility of the closing prices. So MAS may only publish the 3 or 4 benchmark bills (if at all). 6

Question 13: MAS seeks comments on the proposal for PDs to provide Contributions based on a basket of Bills instead of requiring the yield of a specific benchmark bill.

We believe that providing closing prices on bills where price discovery is not transparent does not add value. It may be more appropriate to either completely leave out the bills or subject only

the benchmark bills to the D2C Contribution process as the best approach.
Please refer to our response under Question 3 on the Contribution approach for bills.

Question 14: MAS seeks comments on the number of days or adjacent bills that would be appropriate for defining the basket of Bills.

Please refer to our response under Question 13.

Question 15: MAS seeks comments on the proposed attestation procedures.

Changing from Contributions to Submissions would require changes to existing processes and controls, such as the requirement to implement pre and post-submission checks. Therefore, we seek the MAS' consideration to provide a longer lead time of three months to allow PDs to implement the required framework should there be a need to switch from Contributions to Submissions.

Question 16: MAS seeks comments on alternative arrangements to undertake the role of administrator and calculation agent. Interested parties may submit preliminary proposals to undertake the roles of administrator and/or calculation agent.

We have no issues with the current administration process or any alternate arrangements. If new agencies or news terminal distributors act as calculation agent, equal access/dissemination of the publication may be made available through multiple media to obviate the need for users to subscribe to a specific news service.

Question 17: Should a third-party administrator/calculation agent be appointed, and free access to Closing Prices is available only after a specified period, what period of delay would be appropriate?

Please refer to our response under Question 18. 7

Question 18: If free access to Closing Prices is only available after 12pm in the next business day, how much would you be willing to pay for immediate access?

PDs whose data is used to generate the submissions should be allowed or provided with free access to the information with no delays. We have no comments on making it a significantly delayed or priced publication for other users.

Question 19: MAS seeks comments on the proposed transition approach and the duration of the transition.

We anticipate that significant efforts (particularly in systems development for the Contributions approach) will be required for PDs to transit to the proposed methodology. For example, PDs will have to work with D2C platform providers such as Bloomberg to build the required controls and record capture specifications to be able to demonstrate that the published prices reflect executable prices during the window. Therefore, we propose an implementation/transition period of at least six (6) months following the issuance of these requirements.

Question 20: MAS seeks comments on the following sections of the Governance Framework document.

Other than sections (e) and (f), we have no further comments on this question.

(a) Definitions

(b) Introduction

(c) Administration and Calculation

(d) Methodology

(e) Submitters' Code

Principles for Submission – Supervision
We agree that there should be adequate supervision over staff responsible for Closing Price submissions. However, we are of the view that it would be onerous to require pre-submission maker-checker control and sign-off on a daily basis. Therefore, we propose to require pre-submission maker-checker sign-off only in

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the exceptional event where the proposed submitted price differs from the submission price under the PD's internal submission

		methodology. Post-submission reviews can serve as a check to ensure that submissions continue to be in accordance with the PD's internal submission methodology.
		Principles for Submission – Audit
		We would like to propose that the requirement for an independent audit can be met through an Internal Audit review.
		(f) Contingency Procedures
		It will be operationally tedious for PDs to implement an equivalent framework to comply with the Submitters' Code for the sole purpose of providing submissions in the event of a PD-specific system failure. Considerable efforts in control set-up and record retrieval are also required if the PD chooses the alternative route of issuing an attestation under paragraph 5.6 of the Governance Framework document. Therefore, we seek the MAS' consideration to exempt affected PDs from the requirement to submit Closing Price inputs in the event of a PD-specific system failure. Closing Prices can be determined based on the Contributions/Submissions by the remaining 10 or more PDs, which would still be sufficiently representative of the Closing Prices for the PD group.
		To prevent any potential abuse of this exemption, PDs who have frequent and ongoing PD specific failures may be called for discussions on whether they should shift to Submissions or if there are any plans to remediate the frequent interruptions.
		(g) Enquiries and Complaints
		Question 21: MAS seeks any other comments on the proposed Closing Prices Framework.
		We have no further comments.
4	Respondent B	**Question 1: How do you use the Closing Prices and High/Low prices?**
		Closing Prices and High/Low prices are not used by the Front Office.
		Closing Prices are used by Product Control for end of day processes. High/Low prices may be used for contextual analysis when Product Control sees unusually large price testing variances, although this is not a data point used regularly.

Question 2: Although this consultation focuses on the Closing Prices, MAS also seeks feedback on whether and how you use intraday SGS and MAS Bill prices, and how you obtain them.

Intraday prices are used only for trading/market making purposes and are obtained from Bloomberg and Brokers.

Question 3: MAS seeks comments on the proposed inputs and parameters.

Respondent B agrees with the proposed inputs and parameters. From a Respondent B perspective, we will continue to submit via the Submissions method.

Question 4: MAS seeks comments on whether respondents agree with a time window of 4:00pm-4:30pm to gather transacted price inputs. Please provide reasons.

Agree, the 4.00pm-4.30pm window is a reasonable window to gather transacted price inputs and the Closing Prices will be a reflection of these trades.

Question 5: MAS seeks comments on whether transactions executed through Brokers should be used as transacted price inputs in calculating Closing Prices, in addition to the interdealer transactions on EBND.

Yes, all bona fide trades should be used as price inputs.

Question 6: MAS seeks comments on the modes of obtaining inputs.

Agree.

Question 7: MAS seeks comments on the proposal to use the highest and lowest transacted prices on EBND and through Brokers as the published High/Low prices.

Agree.

Question 8: MAS seeks comments on the proposed Closing Prices methodology for SGS bonds.

Following our response to Question 5, we feel the alternative approach as described in paragraph 4.5 (Figure 3) is a better methodology as it will take into account all transactions in the market.

Question 9: Based on the proposed methodology, the computed Closing Prices will be mid prices instead of bid prices currently. MAS seeks comments on this proposed change.

Agree

Question 10: Under the proposed methodology, transacted prices, Contributions and Submissions will be treated equally when they are "trimmed" (see Exhibit 1 for an example). Under the alternative approach, transacted prices would not be subject to "trimming". Which approach do you prefer? Please provide reasons.

Per the response in Question 8, Respondent B prefers the alternative approach.

Question 11: MAS seeks comments on the proposed methodology for both benchmark and non-benchmark T-Bills and MAS bills.

Respondent B agrees with the proposal to adopt the SGS methodology for MAS bills. For non-benchmark T-bills, option 1A is the most preferred as option 1B is too volatile and option 2 may result in some information being excluded. Respondent B also has no issues with providing prices for an additional Bill.

Question 12: MAS seeks comments on the preferred option (i.e. Option 1A) to determine the yields of Bills maturing before the 4-week benchmark, or suggestions on other possible approaches.

Refer to response to Question 11.

Question 13: MAS seeks comments on the proposal for PDs to provide Contributions based on a basket of Bills instead of requiring the yield of a specific benchmark bill.

Not applicable, as Respondent B does not submit prices via the Contributions method.

Question 14: MAS seeks comments on the number of days or adjacent bills that would be appropriate for defining the basket of Bills.

Not applicable, as Respondent B does not submit prices via the Contributions method.

Question 15: MAS seeks comments on the proposed attestation procedures.

In line with our comments in Question 20, if it is not the MAS' intention to designate SGS and MAS Bills Closing Prices as financial benchmarks, we think that the annual attestation is too onerous for a non-benchmark.

Question 16: MAS seeks comments on alternative arrangements to undertake the role of administrator and calculation agent. Interested parties may submit preliminary proposals to undertake the roles of administrator and/or calculation agent.

No comments.

Question 17: Should a third-party administrator/calculation agent be appointed, and free access to Closing Prices is available only after a specified period, what period of delay would be appropriate?

No comments.

Question 18: If free access to Closing Prices is only available after 12pm in the next business day, how much would you be willing to pay for immediate access?

Not applicable, as Respondent B does not use the Closing Prices.

Question 19: MAS seeks comments on the proposed transition approach and the duration of the transition.

Respondent B will have no issues with the transition as we will continue via the Submissions method.

Question 20: MAS seeks comments on the following sections of the Governance Framework document.
(a)   Definitions

		(b) **Introduction** **(c)** **Administration and Calculation** **(d)** **Methodology** **(e)** **Submitters' Code** **(f)** **Contingency Procedures** **(g)** **Enquiries and Complaints** SGS and MAS Bills Closing Prices are traded as vanilla securities and there are no derivatives in the interbank market referencing the Closing Prices. Section 4.5 of the Governance Framework document appears to be adapted from Chapter XII of the Blue Book, and in some cases the requirement is more onerous than what has been imposed for benchmarks (e.g. requiring post-submission review by an independent party). If it is not the MAS' intention to designate SGS and MAS Bills Closing Prices as financial benchmarks, we also think that the requirement for an annual independent audit is too onerous for a non-benchmark. Please also clarify if the annual audit requirement can be fulfilled via an internal audit.
5	Respondent C	**Question 1: How do you use the Closing Prices and High/Low prices?** We use the Closing Prices for the daily P&L mark to market whereas High/Low prices are used to gauge the market trends/directions and is for our information only. **Question 2: Although this consultation focuses on the Closing Prices, MAS also seeks feedback on whether and how you use intraday SGS and MAS Bill prices, and how you obtain them.** We use intraday SGS prices from EBND and broker pages as references for market making. We generally do not use the intraday MAS Bill prices as they are hardly traded (i.e. no prices) and hence are not informative. **Question 3: MAS seeks comments on the proposed inputs and parameters.** We agree on the proposed inputs and parameters. **Question 4: MAS seeks comments on whether respondents agree with a time window of 4:00pm – 4:30pm to gather transacted price inputs. Please provide reasons.**

We agree to the time window of 4.00pm - 4.30pm as it provides the option to capture more transactions.

Question 5: MAS seeks comments on whether transactions executed through Brokers should be used as transacted price inputs in calculating Closing Prices, in addition to the interdealer transactions on EBND.

We are of the view that the transaction executed through broker should be used as transacted price inputs in calculating Closing Prices, in addition to the interdealer transactions on EBND.

Question 6: MAS seeks comments on the modes of obtaining inputs.

We agree on the modes of obtaining inputs.

Question 7: MAS seeks comments on the proposal to use the highest and lowest transacted prices on EBND and through Brokers as the published High/Low prices.

We agree to the proposal to use the highest and lowest transacted prices on EBND and through Brokers as the published High/Low prices.

Question 8: MAS seeks comments on the proposed Closing Prices methodology for SGS bonds.

We agree on the proposed Closing Prices methodology for SGS bonds.

Question 9: Based on the proposed methodology, the computed Closing Prices will be mid prices instead of bid prices currently. MAS seeks comments on this proposed change.

We agree to the proposed change.

Question 10: Under the proposed methodology, transacted prices, Contributions and Submissions will be treated equally when they are "trimmed" (see Exhibit 1 for an example). Under the alternative approach, transacted prices would not be subject to "trimming". Which approach do you prefer? Please provide reasons.

We are in favour of the proposed methodology, i.e. treating transacted prices equally and be subjected to trimming as it will not take into consideration of outlier transactions.

Question 11: MAS seeks comments on the proposed methodology for both benchmark and non-benchmark T-Bills and MAS bills.

We agree to the proposed methodology for both benchmark and non-benchmark T-Bills
and MAS bills.

Question 12: MAS seeks comments on the preferred option (i.e. Option 1A) to determine the yields of Bills maturing before the 4 ‐ week benchmark, or suggestions on other possible approaches.

Our comment on Option 1A is that PDs may not hold stock for the shortest maturing bills to provide Contributions. Our preferred option is Option 2 (flat lining).

Question 13: MAS seeks comments on the proposal for PDs to provide Contributions based on a basket of Bills instead of requiring the yield of a specific benchmark bill.

We agree to the proposal for PDs to provide Contributions based on a basket of Bills instead of specific benchmark bill as this provides a more flexibility in the management of inventory of the bills.

Question 14: MAS seeks comments on the number of days or adjacent bills that would be appropriate for defining the basket of Bills.
We propose having two adjacent issues or maturity dates equivalent that can be used as proxy to the benchmark bill issue.

Question 15: MAS seeks comments on the proposed attestation procedures.

We agree to the proposed attestation procedures.

Question 16: MAS seeks comments on alternative arrangements to undertake the role of administrator and calculation agent.

Interested parties may submit preliminary proposals to undertake the roles of administrator and/or calculation agent.

We are of the view that MAS is the best neutral party to take on the role of administrator and calculating agent.

Question 17: Should a third-party administrator/calculation agent be appointed, and free access to Closing Prices is available only after a specified period, what period of delay would be appropriate?

We are of the view that it is not appropriate to appoint third-party administrator for this small and unique market.

Question 18: If free access to Closing Prices is only available after 12pm in the next business day, how much would you be willing to pay for immediate access?

We are of the view that PDs should be given free and immediate access as they are the contributor/submitter. The charges should only be considered for non-PDs.

Question 19: MAS seeks comments on the proposed transition approach and the duration of the transition.

We agree that the gradual transition approach is necessary to ensure prices do not fluctuate wildly due to the change in methodology.

Question 20: MAS seeks comments on the following sections of the Governance Framework document.
(a) Definitions
(b) Introduction

Paragraph 1.8 of the draft Governance Framework document requires PDs to make market for all bills under all market conditions to both clients and other PDs. We would like to propose that the requirement to make market should be only for SGS bonds as PDs may not have stock for all bills.

(c) Administration and Calculation
(d) Methodology /Penalties

Paragraph 3.16 of the draft Governance Framework document imposes a financial penalty on each of 3rd and subsequent occurrence within a calendar year, in which late or non-provision of prices occurs. We would like to highlight that there may be short intervals which the price(s) will blank out between the time that the PD's bid/offer was hit and the time that PD has yet to input the new prices. It should not be interpreted that the PD is not providing the Contribution when the random snapshot of the PDs' D2C page is taken.

(e) Submitters' Code
(f) Contingency Procedures
(g) Enquiries and Complaints

Question 21: MAS seeks any other comments on the proposed Closing Prices Framework.
Please see our comment below: -

1) Under footnote 11 of the Consultation Paper, it is mentioned that a PD can provide executable prices only after obtaining MAS' approval. Please advise on MAS' criteria for approval?

2) Referring to Question 15 above, we would like MAS to provide guidance on supporting data/documents that is required of the PD to provide the attestation so that there is standardisation across the PDs. In addition, we would like to seek clarification on what is the required format/wordings of the attestation.

3) In view of the volatile MAS bills auctions in November/December 2017, we propose a volatility framework for bills, similar to the SGS market-making framework as agreed at the October 2009 SFEMC SGS sub-committee meeting if the PDs are expected to quote a specific spread for bills in the closing prices.

4) If PDs were to contribute bills prices, please advise whether MAS will consider including bills into Enhanced Repo Facility?

Monetary Authority of Singapore