RULES AND MARKET PRACTICES

OF THE

SINGAPORE GOVERNMENT

SECURITIES MARKET

(March 2011)

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SECTION 1 - RULES OF CONDUCT FOR DEALERS

1.1   CONFIDENTIALITY AND INTEGRITY

The preservation of confidentiality and the maintenance of integrity at all times by a dealer is essential for the proper conduct of business in the Government securities market.

      a.   A dealer shall not, in any circumstances, commit any act that constitutes a breach of confidentiality, such as disclosing the name, size of transactions or profits/losses of a client/counterparty to another dealer or a third party.

1.2   MARKET-MAKING PROCEDURES

      a.   All dealers must show a commitment to participate actively as market makers over the long-term.

      b.   Dealers must quote continuous two-way prices in all market conditions.

      c.   Quotes by a dealer are considered firm, unless otherwise stated.

      d.   The party, to whom firm quotes are directed, must either promptly deal at the quoted bid/offer price or inform the dealer making the quotes that he has no interest to deal at those prices.

SECTION 2 – CLIENT'S ORDERS

2.1   ORDERS

A client may deal at the bid and offer prices quoted by a dealer or place an order to buy or to sell a security at the market price or at a price limit within a certain time period.

SECTION 3 - OUTRIGHT TRANSACTIONS

3.1   DEALING PRACTICES

3.1.1   Price Quotations

a.   Government bonds/notes are traded on a price basis but settled on a price "plus accrued" basis. Prices are to be quoted in multiples of S$0.01 for all transactions.

For "when issued" trading on or prior to the auction date, quotations are on a yield basis specified to two decimal places. The prices, based on the transacted yields, are to be expressed to three decimal places.

Similarly, for new issues sold at auctions, bidding for competitive tenders is on a yield basis with bids specified to two decimal places. The prices, based on the successful yield bids, are to be expressed to three decimal places.

b.   Treasury bills are quoted on a rate of discount basis, in percentage terms, expressed to two decimal places. The resultant prices are to be expressed to three decimal places.

3.1.2   "Market Lot" Transactions

The standard "market lot" transaction between dealers shall be S$5,000,000 for current and 'off-the-run' Government notes/bonds and Treasury bills.

3.2   VALUE DATE

3.2.1   Normal Value Date

The normal value date shall be the business day following the transaction date (such trades are referred to as regular trades), unless otherwise specified at the time of dealing.

3.3   BUSINESS HOURS

3.3.1   Regular Trades

The normal business hours for regular trades (next business day settlement) are as follows:-

(i)   9.00 am to 4.30 pm from Mondays to Fridays.

3.3.2   Cash Trades

The normal business hours for cash trades (same day settlement) are as follows:-

(i)   9.00 am to 3.30 pm from Mondays to Fridays.

3.4   CONFIRMATION OF DEALS

3.4.1   Issue Of Sale/When Issue Message by Seller

For interbank transactions, the seller shall create a Sale/When Issue message using the MAS Electronic Payments System (MEPS+) and transmit the message to the buyer via the system. For cash trades, the message shall be sent out immediately so that the transaction can be confirmed before the cut-off time. For regular trades, the message shall be sent out not later than system cut-off time on the trade date.

The message shall include the following information:-

(i)   the seller's code.

(ii)   the buyer's code.

(iii)   the seller's custody code.

(iv)   the buyer's custody code.

(v)   the issue code.

(vi)   the nominal amount of the security sold and the price at which the transaction was effected, coupon interest, if any, and the total proceeds of the transaction.

(vii)   the transaction date and value date of the transaction.

(viii) the message unit reference number.

For transactions between banks and MAS, MAS shall transmit instructions to settle the transactions upon receiving confirmations from the banks via facsimile (62299393). No creation of messages by banks via MEPS+ is required.

3.4.2 Rejection Or Confirmation Of Deals By Buyers

For interbank transactions, the buyer shall on receipt of a Sale/When Issue message from the seller check the details of the transaction. If the details of the transaction are in order, he shall confirm via MEPS+ immediately.

Otherwise, he shall reject the message via MEPS+ and inform the seller of any disagreement, errors or omissions immediately (for cash and other trades). If, for some reason(s), the buyer is unable to inform the seller of any disagreement, errors or omissions immediately for a non-cash trade, the buyer shall do so not later than the next business day following the receipt of the unconfirmed message. For cash trades, the Sale/When Issue message shall be confirmed before the cut-off time; for the non-cash trades, the message shall be confirmed not later than the cut-off time on the value date.

For transactions between banks and MAS, banks should confirm the transaction via facsimile (6229 9393) before the value date for regular trades, and within an hour of the transaction for cash trades.

3.4.3 Amendment Or Cancellation

When a transaction has been rejected by a buyer because of some error, omission or disagreement, both parties shall immediately examine and resolve the matter. Upon resolving the matter, the seller shall create a new Sale/When Issue message and transmit it to the buyer for confirmation.

When an error or omission is discovered after the transaction has been entered into the MEPS+ and confirmed by the buyer, such transaction can be cancelled by either the seller or buyer, subject to the mutual agreement of both parties, and provided the transaction has not been settled yet.

In the event that the dispute cannot be resolved between the two parties concerned, the matter shall be referred to the SGS Market Committee for a final decision, and the costs, if any, shall be borne equally by the two parties involved.

3.4.4   Borrowing/Lending/Transfer Of Securities

For any borrowing/lending of securities (with the exception of repurchase agreements /reverse repurchase agreements), or transfer of securities free of payment, the transferor shall create a Transfer Free of Payment message using the MEPS+ and relay it to the transferee. The transferee shall not be required to confirm the transfer.

3.5   SETTLEMENT

3.5.1   Payment Against Delivery

Unless otherwise mutually agreed to between the buyer and seller, settlement shall be on the basis of payment against delivery of the security transacted.

3.5.2   Settlement Date

The settlement of a transaction shall be effected on the value date of the transaction within the time stipulated by the guidelines, if any, issued by the Association of Banks in Singapore.

3.5.3   Settlement Procedures

All settlement procedures shall also be in accordance with the Operating Rules in Relation to the New MAS Electronic Payment and Book-Entry System (MEPS+), specifically Rule 12 on SGS Transactions and DVP.

3.5.4   Interest Claim Arising From Delay In Settlement

Where the dealer has caused any delay in settlement, the counterparty shall have the right to claim from the dealer the loss of interest, if any, on the net amount of the transactions, calculated in accordance to the latest ABS guidelines on late payment.

In the settlement of an interest claim, both parties involved shall observe the rule of non-profit through undue enrichment.

SECTION 4 - FAILED TRADES

This section applies to failure of outright SGS transactions only.

4.1 BUY-IN NOTICE

4.1.1 If delivery is not made by 4.00pm on the first business day following the fails date (original value date), the buyer **may** issue the seller a buy-in notice by fax. The buyer **does not** give up the right to call a buy-in if the buy-in notice is not issued

4.1.2 A buy-in notice shall be issued before 9.15am on the 2nd business day following fails date.

4.1.3 A pass-on situation exists under either the first or both of the following situations:
• The seller is in turn a buyer of all or part of a corresponding amount of securities from a third party. In this instance, the seller should issue a buy-in notice to the third party immediately upon receipt of the buyer's buy-in notice.

• The buyer is in turn a seller of all or part of a corresponding amount of securities to a third party. In this instance, the buyer should also submit a notice of his intention to execute a buy-in to the party it is scheduled to make delivery to who should then pass this down the chain.

4.1.4 Where a pass-on situation exists, a buy-in notice/notice of buy-in intention shall be issued immediately upon receipt of the previous buy-in notice/notice of buy-in intention. This will allow the buy-in notification to filter through the entire chain.

4.1.5 MAS will act as the buy-in agent. The buy-in date shall be the same day of the buy-in notice, i.e. the 2nd business day following fails date.

4.1.6   A buy-in notice shall be in the following format:

> *We hereby give you notice of our intention to close out the contract between us of which details are given below by means of a buy-in. The date of buy-in shall be (date-same day as buy-in notice). The Monetary Authority of Singapore will act as the buy-in agent.*
>
> *The details of the contract between us are as follows:*
> *trade date:*
> *settlement date:*
> *nominal amount:*
> *security description:*
> *price (clean):*
> *net amount:*
> *delivery details:*
>
> *Please inform us immediately if you have any disagreement.*

4.1.7   Where a pass-on situation exists, the following wording shall be added to the buy-in notice:

> *This is a pass-on situation.*

4.2   DELIVERY OF SECURITIES BEFORE BUY-IN DATE

4.2.1   Where the seller makes delivery (settlement) of the full value of the securities by 4.00pm on the first business day following the fails date, the transaction will be considered to have been closed out without a buy-in. The seller will, however, forgo the interest on the securities that had accrued since the fails date. The same rule will apply down the chain in the case of a pass-on. Settlement will be made based on the original contracted purchase price of the securities agreed on at transaction date.

4.3   BUY-IN EXECUTION

4.3.1   On failure of the seller to effect full delivery by 4.00pm on the first business day following the fails date, and the issuance of a buy-in notice by the buyer, the buyer shall request MAS to purchase on the buy-in day in the market for normal value date i.e value next day delivery, the value of the securities to be bought in. The instruction shall be delivered by fax (fax

no: 62299491) and phone (tel no: 62299151) before 10.00am on the 2nd business day following the fails date.

4.3.2   The buyer shall also inform MAS of the original contracted purchase price of the securities.

4.3.3   On the day of buying-in, MAS shall at 10.15am place a bid with either or both of the voice brokers (PY and AP) for normal value date, for the full amount of the securities to be bought in. MAS shall have the discretion to vary the bid or hit the offers, until the order is done.

4.3.4   MAS will sell the bought-in securities to the buyer at an all-in buy-in price (inclusive of accrued interest, brokerage charges imposed by the voice brokers and a 10 cents commission for bonds and 10bps commission for bills). The buyer may claim any interest that has accrued between the fails date and buy-in date from the seller.

4.4   CONFIRMATION OF BUY-IN EXECUTION

4.4.1   MAS will furnish the buyer with advice of buy-in execution. This will contain the following information:

          Type of Security
          Value date
          Amount
          Clean Price
          Dirty Price

4.4.2   The buyer shall immediately on receipt of advice of execution from MAS, fax a copy of the advice of execution to the seller (and third party buyer as the case may be), and promptly effect the necessary settlement procedures to ensure that the fail/pass on is remedied.

4.4.3   Where a pass-on situation exists, a copy of the buy-in execution confirmation must be passed on through the **entire chain** as evidence of close-out proceedings.

4.4.4   One execution by the nominated buy-in agent will satisfy the total chain.

4.5   BUY-IN SETTLEMENT

4.5.1   The net money differences (taking account of any accrued interest claims on the seller from the buyer) between the original contract and the closed-out contract shall be settled in each case between the buyer and seller

without delay. This also applies in a pass-on situation where the seller is in turn a buyer of securities from a third party.

4.5.2   If the buyer is in turn supposed to deliver the securities to a third party, settlement between the buyer and third party will be on a gross basis and based on the original contracted price. The buyer will forgo any interest accrued between fails date and buy-in value date.

4.6   BUY-IN COMMISSION

4.6.1   MAS will charge a buy-in commission of 10 cents for bonds of the price of the securities which are bought in and 10 bps for bills. This rate will be charged to the buyer who may claim the amount from the defaulting seller or the final defaulting seller in the case of a pass-on.

SECTION 5 - SGS AUCTIONS

5.1   PARTICIPATION IN SGS AUCTIONS

Applications for new book-entry SGS offered at auctions must be submitted through an approved SGS Primary Dealer. On the auction day, Primary Dealers must submit their bids via the SGS electronic applications service (eApps) available on the SGS website by 12.00 noon.

In the event of a general failure or malfunction of the eApps service, applications can be made by manually submitting a completed "Application for Book-Entry Government Securities" form. Manual forms submitted due to a subscriber's system failure will still be accepted, but an administrative fee of S$10.00 (exclusive of goods and services tax chargeable under the Goods and Services Tax Act (Cap. 117A)) per application will be imposed. Non-Primary Dealers should submit this application to any of the SGS Primary Dealers for endorsement. Primary Dealers must submit manual forms to MAS' Finance Department located on the 27th floor of the MAS building by 12.00 noon on the auction day. Manual applications must be accompanied by authorisation in writing, signed by the applicant to authorize the transfer of funds from his specific account with his financial institution to MAS for payment of any government security allotted to his application.

The minimum nominal value for both Treasury bill and Government bond applications is S$1,000 and must be in multiples of S$1,000. Bids for both Treasury Bill and bond auctions are made in terms of yield.

Bids may be submitted on a competitive or non-competitive basis for both Treasury bills and bonds. For non-competitive bids, each Primary Dealer is limited to 1% of the SGS issue on offer. For non-competitive bids, each non-Primary Dealer is limited to S$1 million for Treasury bill auctions and up toS$2 million for bond auctions.

5.2   ALLOCATION OF SGS OFFERED

Non-competitive bids are allotted first. The total amount of non-competitive bids in any SGS auction is capped at 40% of the issue on offer. If the amount exceeds 40% of the issue on offer, the amount of SGS allotted to each noncompetitive bidder will be pro-rated. The balance of the issue is then allotted to competitive applications from the lowest to highest yields expressed in the competitive applications. At the highest accepted bid, the allotment would be on a pro rata basis depending on the total bids submitted at that yield.
Each Primary Dealer would not be allotted more than 30% of the issue size. Each non-Primary Dealer would not be allotted more than 15% of the

issue size. These allocation limits will apply to both Treasury bill and bond auctions, and include the amount alloted through non-competitive bids.

5.3   PRICING OF SGS AT PRIMARY AUCTION

SGS Treasury Bill and Bond auctions are conducted using a uniform-price auction format whereby successful competitive bidders and all noncompetitive bidders will be allotted the securities at a uniform yield, which is the highest accepted yield (also referred to as cut-off yield) of successful competitive bids submitted at the auction. The coupon rates of the newly issued bonds are determined based on the cut-off yield at the auction, rounded down to the nearest one-eighth percent.

5.4   SETTLEMENT OF SGS AT PRIMARY AUCTION

Where the dealer has caused any delay in the settlement of SGS trades at primary auction, the MAS will claim accrued interest on the net amount of the transaction as well as impose a penalty on the delay. The penalty is S$1,000 per day for every day of delay.

SECTION 6 – REPURCHASE AGREEMENTS (REPOS)

6.1   DEFINITIONS

In this section, "buyer" refers to the party who is buying securities under the first leg of a repo and "seller" refers to the party who is selling the securities under the first leg of a repo.

6.2   BUSINESS HOURS

The normal business hours for T+1 settlement are as follows:

(i) 9.00 am to 4.30 pm from Mondays to Fridays

The normal business hours for same day settlement are as follows:

(i) 9.00 am to 3.30 pm from Mondays to Fridays

6.3   STANDARD MARKET LOT TRANSACTION SIZE

The typical market lot size for repo transactions is S$25m. Parties who wish to transact a repo for a different amount should specify the amount when requesting for, or providing, quotes.

6.4   SETTLEMENT

All securities transacted under repos must be delivered. Delivery may be effected by means of the making of appropriate book-entries in the securities account of any book-entry system for settling transactions or in any sub-accounts maintained within such book-entry system.

For repos between banks, both the buyer and seller of securities shall create their respective Repurchase Agreement messages for matching by the System. For value-same-day transactions, the message shall be sent out immediately so that the transaction can be confirmed before the cut-off time. For forward transactions, the message shall be sent out not later than system cut-off time on the trade date. Procedures for rejection/confirmation and amendment/cancellation of deals shall be the same as those for outright transactions.

The Repurchase Agreement message shall include the following information:-

(i)   the seller's code.

(ii)   the buyer's code.

(iii)   the seller's custody code.

(iv)   the buyer's custody code.

(v)   the issue code.

(vi)   the nominal amount of the security sold and the price at which the transaction was effected, coupon interest, if any, and the total proceeds of the transaction.

(vii)   the value date, the date on which securities are first transferred by the seller to the buyer.

(viii) the transaction date.

(ix)   the purchase price, the price at which securities are first transferred by the seller to the buyer. These securities are henceforth called the purchased securities.

(x)   the repurchase date, the date on which the seller is to repurchase the purchased securities from the buyer.

(xi)   the message unit reference number.

For all repos between banks and MAS, MAS shall transmit Swift instructions to settle the transactions only upon receiving confirmations from banks via the Reuters system and facsimile (62299739) under the Open Market Operations, or on the value date upon successful application for the securities through the Enhanced Repo Facility. No creation of messages or confirmation by banks via MEPS+ is required.

For intra-day repos, MAS shall transmit instructions to reverse the transactions at the repayment cut-off time (5.30pm). The bank shall ensure that there are sufficient securities in their SGS-Trade account to settle the first leg of the transaction, and sufficient funds in their RTGS account at the repayment cut-off time to settle the second leg. MAS may impose penalty charges on banks that fail to repay at the cut-off time.

6.5 REPO COST

Calculation of repo cost is on the basis of 365 days per year.

6.6 PURCHASE PRICE

Unless otherwise agreed between the buyer and the seller, the purchase price shall include the accrued interest. The prevailing market prices shall be used as a guide when determining the purchase price of the securities, which will be known as the dirty price.

SECTION 7 – INTEREST CALCULATIONS

7.1   INTEREST PAYMENTS

    a. Interest payments for notes/bonds are made semi-annually and shall fall on the 1st or 15th of each month. Where the 1st or 15th falls on a Sunday or public holiday, settlement will be effected on the next business day.

       Accrued interest on a note/bond is calculated from and including the previous coupon date or the day from which interest is to accrue for a new issue, up to but excluding the value date of the transaction.

       Please refer to Appendix I on the formulae for accrued interest calculations.

    b. In all transactions for notes/bonds, fractions of a cent equalling or exceeding one-half of a cent shall be rounded up to one cent, and fractions of a cent less than one-half of a cent shall be disregarded.

       Example:

       S$1,257.3750 accrued interest shall be increased to S$1,257.38.

       S$1,257.3748 accrued interest shall be decreased to S$1,257.37.

SECTION 8 – STANDARD YIELD AND PRICE CALCULATIONS

8.1   BONDS/BILLS

The standard method of calculating yield to maturity shall be based on the US method of semi-annual interest compounding. Please see Appendix I for the formulae for price and yield calculations. The daycount convention for SGS bond computations is on an Actual/Actual basis whilst the daycount convention for Treasury bills is on an Actual/365 basis.

FORMULAE

1.   Normal Interest Period of 6 Months

1.1   Accrued Interest

The formula for accrued interest calculation for a note/bond transaction is as follows:-

(i)   Cum-interest Period

$$AI = \frac{CPN}{2} \times \frac{DCS}{E}$$

where AI =   accrued interest per S$100 face value

                CPN =   annual coupon rate (as a percentage)

                DCS =   days between beginning of current coupon period and settlement date

                E =   number of days in coupon period where settlement occurs

Example

The accrued interest per S$100 face value for a transaction involving 5.125 percent Singapore Government bonds due 15 Nov 2004, for value 30 June 1998 is calculated as follows:-

$$AI = \frac{5.125}{2} \times \frac{46}{184}$$

$$= 0.64 \text{ (rounded to 2 decimal places)}$$

Assuming that the `clean' price of the bond is S$105.90, the `dirty' price of the issue would be S$105.90 + S$0.64 = S$106.54

        (ii)   Ex-interest Period

$$AI = -\frac{CPN}{2} \times \frac{DSC}{E}$$

where   AI   =   accrued interest per S$100 face value
                CPN =   annual coupon rate
                DSC =   days between settlement date and the next coupon payment date
                E   =   number of days in coupon period where settlement occurs

Example

The accrued interest per S$100 face value for a transaction involving 5.125 percent Singapore Government bonds due 15 Nov 2004, for value 12 May 1998 with the coupon payment date of 15 May 1998 and ex-interest date of 12 May 1998 is calculated as follows:-

$$AI = -\frac{5.125}{2} \times \frac{3}{181}$$

$$= - 0.04 \text{ (rounded to 2 decimal places)}$$

Assuming that the `clean' price of the bond is S$105.32, the `dirty' price of the issue would be S$105.32 - S$0.04 = S$105.28

1.2   Price/Yield

The formulae for price and yield calculations are as follows:-

(i)   For semi-annual coupon with 6 months or less to maturity:

$$P = \left[\frac{100\left(RV + \frac{CPN}{2}\right)}{100 + \left(\frac{DSM}{E} \times \frac{Y}{2}\right)}\right] - \left(\frac{CPN}{2} \times \frac{DCS}{E}\right)$$

(ii)   For semi-annual coupon with more than 6 months to maturity:

$$P = \left[\frac{RV}{\left(1 + \frac{Y}{200}\right)^{N-1+\frac{DSC}{E}}}\right] + \left[\sum_{K=1}^{N} \frac{\frac{CPN}{2}}{\left(1 + \frac{Y}{200}\right)^{K-1+\frac{DSC}{E}}}\right] - AI$$

where   AI   =   accrued interest per S$100 face value

DSM =   days between settlement date and maturity date

DCS =   days between beginning of current coupon period and settlement date

E   =   number of days in coupon period where settlement occurs

DSC =   E – DCS = days from settlement date to next 6 month coupon date

N   =   number of semi-annual coupons payable between settlement date and maturity date

CPN =   annual coupon rate (as a percentage)

Y   =   annual yield (as a percentage)

P   =   dollar price per S$100 face value

RV   =   redemption value

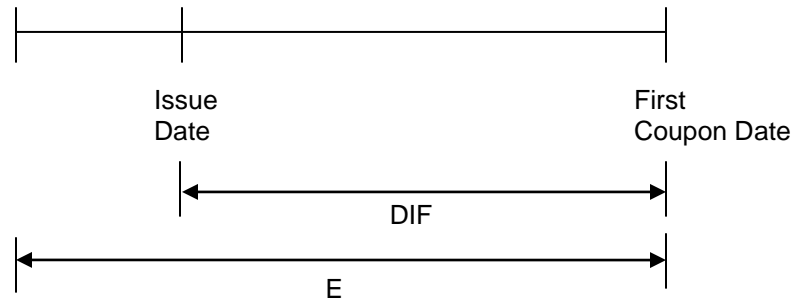## 2. Irregular First Interest Period For New Issue

2.1 First Interest (Coupon) Payment

$$FC = \frac{CPN}{2} \times \frac{DIF}{E}$$

where   FC   =   amount of first interest (coupon) payment per S$100 face value.

CPN =   annual coupon rate (as a percentage).

DIF =   days between issue date and first coupon date.

E   =   number of days in the assumed normal first coupon period (6 months).

Case 1 :   First Interest Period Less Than 6 Months

```
        ┌───────┬───────────────────────────────────┐
        │       │                                   │
       Issue                                       First
       Date                                        Coupon Date

                ├───────────────────────────────────┤
                              DIF
        ├─────────────────────────────────────────────┤
                              E
```

Case 2:   First Interest Period More Than 6 Months

```
        ┌───────┬───────────────────────────────────┐
        │       │                                   │
       Issue                                       First
       Date                                        Coupon Date

                ├───────────────────────────────────┤
                              E
        ├─────────────────────────────────────────────┤
                              DIF
```

2.2   Accrued Interest

$$AI = \frac{CPN}{2} \times \frac{DIS}{E}$$

where   AI   =   accrued interest per S$100 face value.

            CPN   =   annual coupon rate (as a percentage).

            DIS   =   days between issue date and settlement date.

            E   =   number of days in the assumed normal first
                       coupon period (6 months).

2.3   Price/Yield

$$P = \left[\frac{RV}{\left(1+\frac{Y}{200}\right)^{N-1+\frac{DSC}{E}}}\right] +$$

$$\left[\left(\Sigma_{K=2}^{N}\frac{\frac{CPN}{2}}{\left(1+\frac{Y}{200}\right)^{K-1+\frac{DSC}{E}}}\right)+\frac{FC}{\left(1+\frac{Y}{200}\right)^{\frac{DSC}{E}}}\right] - AI$$

where   AI   =   accrued interest per S$100 face value

FC   =   amount of first interest payment per S$100 face value

DSC   =   days between settlement date and first interest payment date

E   =   number of days in the first coupon period

N   =   number of semi-annual coupons payable between settlement date and maturity date

CPN   =   annual coupon rate

Y   =   annual yield (as a percentage)

P   =   dollar price per S$100 face value

RV   =   redemption value

3.   Calculations For Treasury Bills

Purchases and sales of Treasury bills are made at net prices expressed on a rate of discount basis (yield). The computation of the discount and price is based on the actual number of days to maturity, 365 days per year, according to the following formula:-

(i) $D = \dfrac{M}{365} \times R$;

(ii) $P = S\$100 - D$;

where M =   days to maturity

             R =   annual rate of discount (yield), expressed as a percentage

             D =   full discount per S$100 face value

             P =   dollar price per S$100 face value

DEFINITIONS

1.   Business Day

"Business day" means any day on which the Singapore Government securities market is open for trading, deliveries and payments.

2.   Dealer

"Dealer" means a company/corporation which (or a person in its employ who) carries on the business of dealing in Singapore Government securities as principal or as agent whether or not the company/corporation carries on any other business.

3.   Repurchase Agreements (Repos)

A "Repo" transaction is one in which the seller agrees to sell a particular security at a certain price, with the commitment to repurchase that security from the buyer at a predetermined price at some mutually agreed future date.

4.   Securities

"Securities" means Treasury bills and notes/bonds issued by the Singapore Government or agencies of the Government.