DAILY SETTLEMENT PRICE PROCEDURES FOR FUTURES CONTRACTS AND OPTIONS ON FUTURES CONTRACTS

1. RULE

Article 6390 of the Rules of Bourse de Montréal Inc. (the Bourse) stipulates that:

"The daily settlement price or the closing quotation are determined according to the procedures established by the Bourse for each derivative instrument."

2. SUMMARY

FUTURES CONTRACTS AND OPTIONS ON FUTURES CONTRACTS DAILY SETTLEMENT PRICES

- These markets use the average price during the last minutes of trading or other calculation methods, as specified for each instrument in the following procedures, so as to establish a single settlement price. These calculations are executed manually by market supervisors or, as the case may be, by an automated algorithm using pre-established guidelines for each product.

- The prices at which block trades, Exchange for Physical (EFP) or Exchange for Risk (EFR) transactions are arranged shall not be used to establish the open, high, low or daily settlement price.

3. OBJECTIVES

The objectives of establishing daily settlement prices are to:

- Ensure a fair and orderly market close and pricing for approved participants so that they can properly mark-to-market their positions for margin calculations and back office processing, including the clearing and settlement of their transactions ;

- Ensure that the Canadian Derivatives Clearing Corporation (CDCC) and all market participants are informed of the settlement prices.

4. DESCRIPTION

4.1 THREE-MONTH CANADIAN BANKERS' ACCEPTANCE FUTURES CONTRACTS (BAX)

The daily settlement price procedure for the Three-Month Canadian Bankers' Acceptance Futures contract (BAX) is executed by a fully automated pricing algorithm which utilizes the parameters described in sections 4.1.1, 4.1.2 and 4.1.3 to ensure accuracy in the process.

DEFINITIONS:

"Regular orders": Orders routed by approved participants to the Montréal Exchange trading system.

"Implied orders": Orders generated by the implied pricing algorithm (using regular orders) and registered in the order book by the electronic trading system.

"Minimum Threshold": The applicable threshold for BAX will be:

- 150 contracts for the first four quarterly contract months ("whites");
- 100 contracts for quarterly contract months 5 to 8 ("reds"); and
- 50 contracts for quarterly contract months 9 to 12 ("greens").

4.1.1 IDENTIFICATION OF THE FRONT QUARTERLY CONTRACT MONTH

The automated daily settlement pricing algorithm identifies the front quarterly contract month from the first two quarterly contract months. The front quarterly contract month is the one, among the first two quarterly contract months, that has the largest open interest and the required market information. In the absence of both these criteria together, then the front quarterly contract month shall be determined by market supervisors based on available market information.

4.1.2 ALGORITHM UTILIZED FOR THE DETERMINATION OF THE DAILY SETTLEMENT PRICE OF THE FRONT QUARTERLY CONTRACT MONTH

Once the front quarterly contract month has been identified, the automated daily settlement price algorithm will determine the settlement price of the front quarterly contract month according to the following priorities: first, it will use the weighted average price of cumulated trades that meet the Minimum Threshold, during the last three minute prior to 3:00pm, or prior to 1:00pm on early closing days, on that contract month; if no such average price is available, it will then use the weighted average price of cumulated trades for a total equal to the Minimum Threshold on that contract month for a period not exceeding the last 30 minutes prior to 3:00pm, or prior to 1:00pm on early closing days. Trades resulting from both regular and implied orders will be used in the process. If no such average price is yet available, then the least variation between the bid or offer price that is not as a result of implied orders and the previous day settlement price will be used.

The settlement price must be within the bid/offer price of the individual contract provided that the bid or offer meets the Minimum Threshold of volumes required.

All volumes and orders on a spread will be weighted at 50% relative to the orders and volumes on individual contracts, whereas a butterfly spread will be weighted at 25% relative to the orders and volumes on individual contracts.

4.1.3 PROCEDURE FOR THE DETERMINATION OF THE DAILY SETTLEMENT PRICE OF THE REMAINING BAX CONTRACT MONTHS

Upon completion of the aforementioned steps, the automated daily pricing algorithm will then establish the settlement prices for all other BAX contract months sequentially. The daily settlement prices of all other BAX contract months will be based first on the last three minute outright market (resulting from regular and implied orders) prior to 3:00pm, or prior to 1:00pm on early closing days*,* and strategy combination traded weighted average or, if no weighted average price can be determined in this manner, the least variation between the bid or offer for booked orders.

The settlement price must be within the bid/offer price of the individual contract provided that the bid or offer meets the Minimum Threshold of volumes required.

All volumes and orders on a spread will be weighted at 50% relative to the orders and volumes on individual contracts, whereas a butterfly spread will be weighted at 25% relative to the orders and volumes on individual contracts.

4.1.4 ANCILLARY PROCEDURE

In the absence of any required items to apply the aforementioned procedure, market supervisors will establish the settlement price based on available market information. They may also disregard any event (trade, bid or offer) which occurs close to 3:00pm, or close to 1:00pm on early closing days, and which is not compatible with a given settlement price.

In this situation, market supervisors will keep a record of the criteria used to establish the settlement price.

4.2 FUTURES CONTRACTS ON S&P/TSX INDICESAND ON THE FTSE EMERGING MARKETS INDEX

The settlement price shall be the weighted average of all trades during the calculation period, which ranges from 3:59pm to 4:00pm for all contract months. In the case of mini futures contracts on S&P/TSX indices, the settlement price shall be the same as the standard futures contracts on S&P/TSX indices when such standard futures contracts exist.

4.2.1 MAIN PROCEDURE

- **Booked orders**

  If there is an unfilled order with a higher bid or lower offer in an outright month, this bid or offer will override the settlement price obtained from the weighted average. The order must have been posted for 20 seconds or longer prior to the close and its size must be for a total of 10 contracts or more.

- **Last trades**

  If there are no trades in the calculation period, then the last trade before the calculation period will be taken into account while still respecting posted bids and offers in the market.

4.2.2 FIRST ANCILLARY PROCEDURE

When two contract months and the spread are trading (quarterly calendar roll), the ancillary procedure of this section will apply.

- The front month must be settled first (the establishment of the front month is based on the month with the greatest open interest).

- The spread between the two contract months must be settled next by taking into account the average trading price of the calculation period and by examining the trades executed during the previous 10 minutes.

- The settlement price for the back month or far month is obtained by the difference between the front month settlement price and the value of the spread.

4.2.3 SECOND ANCILLARY PROCEDURE

In the absence of the items required to apply the main procedure in 4.2.1 and the ancillary procedure in 4.2.2, the following ancillary procedure will apply.

Market supervisors will post a settlement price that will reflect the same differential that was applied on the previous day settlement. The settlement price will be adjusted accordingly to respect that contract's previous settlement price.

4.2.4 THIRD ANCILLARY PROCEDURE

In the absence of the items required to apply the main procedure in 4.2.1 and the ancillary procedures in 4.2.2 and in 4.2.3, the following ancillary procedure will apply.

In this situation, market supervisors will establish the settlement price based on available market information. They may also disregard any event (trade, bid or offer) which occurs near the end of the Trading Day and which is not compatible with a given settlement price.

In this situation, market supervisors will keep a record of the criteria used to establish the settlement price.

4.3 GOVERNMENT OF CANADA BOND FUTURES CONTRACTS

4.3.1 MAIN PROCEDURE

The settlement price shall be the weighted average of all trades during the closing range. The closing range is defined as the last minute of trading prior to 3:00pm, or prior to 1:00pm on early closing days, for all contract months.

- **Booked orders**

  If there is an unfilled order with a higher bid or lower offer in an outright month, this bid or offer will override the settlement price obtained from the weighted average. This order must have been posted for 20 seconds or longer prior to 3:00pm, or prior to 1:00pm on early closing days, and its size must be for 10 contracts or more.

- **Last trades**

  If there are no trades in the last minute of trading, then the last trade will be taken into account while still respecting posted bids and offers in the market.

4.3.2 FIRST ANCILLARY PROCEDURE

When two contract months and the spread are trading (quarterly calendar roll), the following ancillary procedure will apply.

- The front month must be settled first (the establishment of the front month is based on the month with the greatest open interest).

- The spread between the two contract months must be settled next by taking into account the last minute average trading price prior to 3:00pm, or prior to 1:00pm on early closing days, and by examining the trades executed during the previous 10 minutes.

- The settlement price for the back month or far month is obtained by the difference between the front month settlement price and the value of the spread.

4.3.3 SECOND ANCILLARY PROCEDURE

In the absence of the items required to apply the main procedure in 4.3.1 and the ancillary procedure in 4.3.2, the following ancillary procedure will apply.

Market supervisors will post a settlement price that will reflect the same differential that was applied on the previous business day. The settlement price will be adjusted accordingly to respect that contract's previous settlement price.

4.3.4 THIRD ANCILLARY PROCEDURE

In the absence of the items required to apply the main procedure in 4.3.1 and the ancillary procedures in 4.3.2 and 4.3.3, the following ancillary procedure will apply.

In this situation, market supervisors will establish the settlement price based on available market information. They may also disregard any event (trade, bid or offer) which occurs close to 3:00pm, or close to 1:00pm on early closing days, and which is not compatible with a given settlement price.

In this situation, market supervisors will keep a record of the criteria used to establish the settlement price.

4.4 OPTIONS ON THREE-MONTH CANADIAN BANKERS' ACCEPTANCE FUTURES CONTRACTS

4.4.1 MAIN PROCEDURE

4.4.1.1 Weighted average

The settlement price shall be the weighted average of the prices traded in the closing range (last minute of trading prior to 3:00pm, or prior to 1:00pm on early closing days). If there is, at the close, a higher bid or lower offer than the settlement price so obtained, that bid or offer shall be the settlement price.

4.4.1.2 Last trades

If no trade occurs during the closing range, the market supervisors will consider transactions executed during the last 30 minutes of trading prior to 3:00pm, or prior to 1:00pm on early closing days. Also, to be considered, the bids and offers shall be for a minimum of 25 contracts and shall have been posted at least one minute before 3:00pm, or before 1:00pm on early closing days, to be considered.

If no trade occurs in the closing range (or in the last 30 minutes of trading prior to 3:00pm, or prior to 1:00pm on early closing days), the settlement price shall be the theoretical price calculated by the Bourse (as described in section 4.4.2). If there is, at the close, a higher bid or lower offer than the settlement price so obtained, that bid or offer shall be the settlement price.

4.4.2 ANCILLARY PROCEDURE

In the absence of the items required to apply the main procedure in 4.4.1, the following ancillary procedure will apply.

The settlement price shall be determined by inserting the following parameters into a standard option pricing model (Black & Scholes):

Price of the underlying:

- The Bourse will capture the settlement price of the underlying BAX futures contract. This will be the price of the underlying.

Interest rate:

- The interest rate used will be the rate implied by the settlement price of the BAX futures contract nearest to expiration.

Volatility:

- The Bourse will use the implied volatility (per contract month, for puts and calls) obtained from the acting Market Maker. The same volatility will be applied for both calls and puts.

The strike price of the options' series and the time to expiration are the other parameters that will be inserted into the model.

In determining the closing price, the Bourse shall take into account the information provided by the posted strategy, for example; if the SEP 9200 straddle is 98 bid, the total of the closing prices of these two series should not be inferior to 98.

4.5 30-DAY OVERNIGHT REPO RATE FUTURES CONTRACTS (ONX)

4.5.1 MAIN PROCEDURE

The settlement price shall be the weighted average of all trades during the closing range. The closing range is defined as the last three minutes of trading prior to 3:00pm, or prior to 1:00pm on early closing days, for all contract months.

4.5.1.1 Weighted average of closing range trades

The weighted average will be derived from trades that occurred in the outright months during the closing range. The total volume traded in each outright month must be for 25 or more contracts.

4.5.1.2 Booked orders

If there is an unfilled order with a higher bid price or lower offer price in a month, this bid or offer will override the settlement price obtained from the weighted average. This order must have been posted for 15 seconds or longer prior to 3:00pm, or prior to 1:00pm on early closing days, and its size must be for a total of 25 or more contracts in each of the months.

4.5.1.3 Remaining balances of booked orders partially executed at the close

In the case of a booked order as stipulated in paragraph 4.5.1.2 above, which would be only partially executed, the trades during the closing period as well as the remaining balance of booked orders will be considered to establish the settlement price.

Example 1: If there is a booked order for 25 ONX contracts at 97.92 and 15 of those contracts are executed, the 10 remaining contracts, if they are still present on the market at the same price, will be considered to establish the required minimum of 25 contracts.

Example 2: If there is a trade of 15 ONX contracts during the closing period at 97.92 and there is a booked order bid for 10 ONX contracts at 97.91 (respecting the required time limit), the bid will be considered in addition to the trades in the closing period to establish a settlement price.

4.5.1.4 Strips and spreads

All trades and unfilled booked orders for strips and spreads related to any expiry months will be ignored.

4.5.2 FIRST ANCILLARY PROCEDURE

In the absence of the items required to apply the main procedure in 4.5.1, the following ancillary procedure will apply.

4.5.2.1 Weighted average of trades on strategies

The settlement price shall be the weighted average of the trades on the strategies traded during the last five minutes of trading prior to 3:00pm, or prior to 1:00pm on early closing days, provided the volume for the strategy taken into account was of 25 or more contracts.

4.5.2.2 Booked orders

If there is an unfilled order with a higher bid or lower offer, this bid or offer will override the settlement obtained from the weighted average described in 4.5.2.1. It has to have been posted for three minutes or longer prior to 3:00pm, or prior to 1:00pm on early closing days, and the size must be for 25 or more contracts.

4.5.3 SECOND ANCILLARY PROCEDURE

In the absence of the items required to apply the main procedure in 4.5.1 and the ancillary procedure in 4.5.2, the following ancillary procedure will apply.

4.5.3.1 Differential with the previous contract month's settlement price

The settlement price will be defined by a price that reflects an appropriate differential with the settlement price of the previous contract month always starting with the contract month closest to expiry.

4.5.3.2 Conflicts between spreads

If two spreads are in conflict, the calendar spread closest to expiry will have priority.

4.5.4 THIRD ANCILLARY PROCEDURE

In the absence of the items required to apply the main procedure in 4.5.1 and the ancillary procedures in 4.5.2 and 4.5.3, the following ancillary procedure will apply.

In this situation, market supervisors will establish the settlement price based on the available market information. They may also disregard any event (trade, bid or offer) which occurs close to 3:00pm, or close to 1:00pm on early closing days, and which is not compatible with a given settlement price.

In this situation, market supervisors will keep a record of the criteria used to establish the settlement price.

4.6 OVERNIGHT INDEX SWAP FUTURES CONTRACTS (OIS)

4.6.1 MAIN PROCEDURE

The settlement price shall be the weighted average of all trades during the closing range. The closing range is defined as the last three minutes of trading prior to 3:00pm, or prior to 1:00pm on early closing days, for all contract months.

4.6.1.1 Weighted average of closing range trades

The weighted average will be derived from trades that occurred in the outright months during the closing range. The total volume traded in each outright month must be for 25 or more contracts.

4.6.1.2 Booked orders

If there is an unfilled order with a higher bid price or lower offer price in a month, this bid or offer will override the settlement price obtained from the weighted average. This order must have been posted for 15 seconds or longer prior to 3:00pm, or prior to 1:00pm on early closing days, and its size must be for a total of 25 or more contracts in each of the months.

4.6.1.3 Remaining balances of booked orders partially executed at the close

In the case of a booked order as stipulated in paragraph 4.6.1.2 above, which would be only partially executed, the trades during the closing period as well as the remaining balance of booked orders will be considered to establish the settlement price.

Example 1: If there is a booked order for 25 OIS contracts at 97.92 and 15 of those contracts are executed, the 10 remaining contracts, if they are still present on the market at the same price, will be considered to establish the required minimum of 25 contracts.

Example 2: If there is a trade of 15 OIS contracts during the closing period at 97.92 and there is a booked order bid for 10 OIS contracts at 97.91 (respecting the required time limit), the bid will be considered in addition to the trades in the closing period to establish a settlement price.

4.6.1.4 Strips and spreads

All trades and unfilled booked orders for strips and spreads related to any expiry months will be ignored.

4.6.2 FIRST ANCILLARY PROCEDURE

In the absence of the items required to apply the main procedure in 4.6.1, the following ancillary procedure will apply.

4.6.2.1 Weighted average of trades on strategies

The settlement price shall be the weighted average of the trades on the strategies traded during the last five minutes of trading prior to 3:00pm, or prior to 1:00pm on early closing days, provided the volume for the strategy taken into account was of 25 or more contracts.

4.6.2.2 Booked orders

If there is an unfilled order with a higher bid or lower offer, this bid or offer will override the settlement obtained from the weighted average described in 4.8.2.1. It has to have been posted for three minutes or longer prior to 3:00pm, or prior to 1:00pm on early closing days, and the size must be for 25 or more contracts.

4.6.3 SECOND ANCILLARY PROCEDURE

In the absence of the items required to apply the main procedure in 4.6.1 and the ancillary procedure in 4.6.2, the following ancillary procedure will apply.

4.6.3.1 Differential with the previous contract month's settlement price

The settlement price will be defined by a price that reflects an appropriate differential with the settlement price of the previous contract month always starting with the contract month closest to expiry.

4.6.3.2 Conflicts between spreads

If two spreads are in conflict, the calendar spread closest to expiry will have priority.

4.6.4 THIRD ANCILLARY PROCEDURE

In the absence of the items required to apply the main procedure in 4.6.1 and the ancillary procedures in 4.6.2 and 4.6.3, the following ancillary procedure will apply.

In this situation, market supervisors will establish the settlement price based on the available market information. They may also disregard any event (trade, bid or offer) which occurs close to 3:00pm, or close to 1:00pm on early closing days, and which is not compatible with a given settlement price.

In this situation, market supervisors will keep a record of the criteria used to establish the settlement price.

4.7 CANADIAN SHARE FUTURES CONTRACTS

The settlement price shall be the weighted average of all trades during the closing range. The closing range is defined as the last minute of the Trading Day for all contract months.

4.7.1 MAIN PROCEDURE

- **Booked orders**

If there is an unfilled order with a higher bid or lower offer in an outright month, this bid or offer will override the settlement price obtained from the weighted average. The order must have been posted for 20 seconds or longer prior to the close and its size must be for a total of 10 contracts or more.

- **Last trades**

If there are no trades in the last minute of trading, then the last trade will be taken into account while still respecting posted bids and offers in the market.

4.7.2 FIRST ANCILLARY PROCEDURE

When two contract months and the spread are trading (quarterly calendar roll), the ancillary procedure of this section will apply.

- The front month must be settled first (the establishment of the front month is based on the month with the greatest open interest).
- The spread between the two contract months must be settled next by taking into account the average trading price of the last minute and by examining the trades executed during the previous 10 minutes.
- The settlement price for the back month or far month is obtained by the difference between the front month settlement price and the value of the spread.

4.7.3 SECOND ANCILLARY PROCEDURE

In the absence of the items required to apply the main procedure in 4.7.1 and the ancillary procedure in 4.7.2, the following ancillary procedure will apply.

Market supervisors will post a settlement price that will reflect the same differential that was applied on the previous day settlement. The settlement price will be adjusted accordingly to respect that contract's previous settlement price.

4.7.4 THIRD ANCILLARY PROCEDURE

In the absence of the items required to apply the main procedure in 4.7.1 and the ancillary procedures in 4.7.2 and in 4.7.3, market supervisors will establish the daily settlement price based on available market information. They may also disregard any event (trade, bid or offer) which occurs near the end of the Trading Day and which is not compatible with a given settlement price.

In this situation, market supervisors will keep a record of the criteria used to establish the settlement price.

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