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July 8, 2019

REQUEST FOR COMMENTS

AMENDMENTS TO THE RULES OF BOURSE DE MONTREAL INC. TO INTRODUCE TOP-OF-THE-BOOK PRICE LIMITS TO EXISTING PRICE LIMITS

On May 9, 2019, the Rules and Policies Committee of Bourse de Montréal Inc. (the "**Bourse"**) approved amendments to the Rules of the Bourse to introduce Top-of-the-Book Price Limits to the Bourse's existing suite of marketplace thresholds.

Comments on the proposed amendments must be submitted at the latest on **August 16, 2019**. Please submit your comments to:

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A copy of these comments shall also be forwarded to the *Autorité des marchés financiers* (the "**Autorité**") to:

M[e] Anne-Marie Beaudoin
Corporate Secretary
Autorité des marchés financiers
800 Victoria Square, 22nd Floor
P.O. Box 246, Tour de la Bourse
Montréal (Québec) H4Z 1G3
E-mail: consultation-en-cours@lautorite.qc.ca

Please note that comments received by one of these recipients will be transferred to the other recipient and that the Bourse may publish a summary of such comments as part of the self-certification process concerning this file. Unless specified otherwise, comments will be published anonymously by the Bourse.

Appendices

You will find in the appendices an analysis as well as the text of the proposed amendments. The implementation date of the proposed amendments will be determined by the Bourse, in accordance with the self-certification process as established by the *Derivatives Act* (CQLR, chapter I-14.01).

Process for Changes to the Rules

The Bourse is authorized to carry on business as an exchange and is recognized as a self-regulatory organization by the Autorité. The Board of Directors of the Bourse has delegated to the Rules and Policies Committee of the Bourse its powers to approve and amend the Rules, the Policies and the Procedures, which are thereafter submitted to the Autorité in accordance with the self-certification process as determined by the *Derivatives Act* (CQLR, chapter I-14.01).

AMENDMENTS TO THE RULES OF BOURSE DE MONTREAL INC. TO INTRODUCE TOP-OF-THE-BOOK PRICE LIMITS TO EXISTING PRICE LIMITS

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1. DESCRIPTION

In 2018, Bourse de Montréal Inc. (the “Bourse”) reviewed its price thresholds beyond which orders are rejected or prevented from trading (“Marketplace Thresholds”) and introduced new Daily Price Limits (“DPL”) within its trading environment. Marketplace Thresholds are part of an integrated framework to prevent erroneous orders, preserve market integrity and reduce short-term price volatility. The Bourse already has multiple controls in place that play an important role in the overall market risk management and now wishes to introduce a new dynamic control within its existing suite, namely the Top-of-the-Book Price Limits.

Early session trading can be more sensitive to unexpected movements due to the absence of trading on the underlying asset (the “cash market”). Consequently, the Bourse wishes to initially use this new control to protect market integrity on index futures during the early trading session (2:00 a.m. to 9:15 a.m.) while the underlying indices are not calculated in real time. Nevertheless, this control will be available for the Bourse to implement on all products (options and futures).

2. PROPOSED AMENDMENTS

The proposed amendments to articles 6.102A and 6.102B of the rules of the Bourse in order to introduce Top-of-the-Book Price Limits to existing DPL limits are attached.

The Bourse further proposes to modify the title of articles 6.102A and 6.102B and other references to Daily Price limits within its rules by removing the word ‘’Daily’’ as the daily aspect of the price limits is no longer relevant given the proposed addition of dynamic price limits within the DPL functionality.

3. ANALYSIS

A. Background

Current controls

Marketplace Thresholds are part of an integrated approach to prevent erroneous transactions, preserve market integrity and manage intraday sudden and unexplained market volatility. This approach is in line with the regulatory guidelines contained within *National instrument 23-103 electronic trading and direct electronic access to marketplaces*. Each of the Bourse’s controls plays an important role in the overall risk mitigation process.

In addition to the requirement of approved participants to establish and maintain appropriate supervisory controls, policies and procedures (pursuant to articles 3.4, 3.5 and 3.100 of the rules of the Bourse) some of the Bourse’s current controls are:

- DPL functionality whereby the Bourse may set up thresholds (X limits and Y limits) beyond which orders are rejected (X) or prevented from trading (Y) (pursuant to articles 6.102A and 6.102B of the rules of the Bourse);

- Order price filters that validate incoming orders based on their price for certain products (pursuant to article 6.112 of the rules of the Bourse);
- For derivatives whereby the underlying is exchange-traded, an automatic trading halt mechanism based on the circuit-breaker policy of the underlying's exchange;
- A discretionary authority granted to market supervisors to halt trading upon sudden and unforeseeable events that may affect market integrity (pursuant to article 6.101 of the Rules of the Bourse);
- Mechanisms for the cancellation or adjustment of trades that allow market supervisors to quickly cancel trades or adjust trade prices (pursuant to article 6.111 of the Rules of the Bourse);
- Maximum volume thresholds that validate incoming orders based on their size.

Current limitations on order price filters and DPL functionality in case of market volatility swings

The Bourse currently computes and disseminates different Marketplace Thresholds via its market data feed for every listed product traded on the Bourse. Futures are currently subject to order price filters under article 6.112 of the rules of the Bourse, whereas options are subject to the DPL functionality under article 6.102A of the rules. Article 6.102B allows the Bourse to subject futures contracts to the DPL functionality as well.

Order price filters for Index futures contracts are based on a fixed percentage controlled by the Market Operation Department (MOD) and are derived into a limit range based on the previous day settlement price for the early session, and a revised percentage based on the previous day settlement price for the regular trading session. Under certain circumstances, this might be too restrictive for certain futures contracts especially during the early session when the underlying cash market is closed and liquidity is reduced.

Although not currently active on Index futures contracts, the DPL functionality could be leveraged to better control price fluctuations. The control price derived by the DPL functionality is based on previous day settlement and is not adjusted automatically throughout the day. The MOD has the option to trigger a recalculation of such control price on which the DPL limits are based in order to move the applicable limits, however, this functionality is not automatically readjusted in case of large intraday volatility swings. The introduction of a new Top-of-the-Book Price Limits would help mitigate such volatility swings for any listed product, and more so for index futures currently trading during the early session.

Proposed enhancement: the Top-of-the-Book Price Limits

The Bourse wishes to enhance the current DPL functionality to improve the granularity of its Marketplace Thresholds. The revised DPL functionality would allow for better control of mispriced orders, improving the management of short-term volatility of listed products over the whole trading session.

The current DPL functionality is comprised of two levels of control:

1- (X) limits which are based on a static control price and filter incoming orders based on their price; and

2- (Y) limits which are based on a static control price and validate the potential execution price of the next executable order.

The Top-of-the-Book Price Limits that the Bourse wishes to implement are price limits based on the dynamic resting Bid/Ask of the current Central Limit Order Book ("CLOB") that validate the order limit price before the transaction.

Operation of the Top-of-the-Book Price Limits

The Top-of-the-Book Price Limits functionality validates the order limit price against the most recent dynamic snapshot of the resting Bid/Ask for a given contract within the CLOB. All sell orders use the resting Bid price as the reference price (or the resting Ask price if no bid is available), and all buy orders use the resting Ask price as the reference price (or the resting Bid price if no Ask price is available). If there is neither a Bid nor an Ask price in the CLOB, the Top-of-the-Book Price Limits functionality remains inactive. Any order priced within or at the Top-of-the-Book Price Limits is allowed in the electronic trading system. The DPL functionality will reject any order outside the Top-of-the-Book Price Limits.

A limit order (including Stop Limit orders) with a price outside of the Top-of-the-Book Price Limits will be rejected even if there is enough for it to be filled before reaching the Top-of-the-Book Price Limits. Moreover, during all pre-opening phases, only the (X) limits are active. For Stop Orders, the difference between the stop limit price and the stop trigger price will be validated against the Top-of-the-Book Price Limits.

The example below highlights the Top-of-the-Book Price Limits functionality mechanics:

> The Index Future contract XYZ September 19, 2019, has a minimum tick increment of $0.1 and is assigned a Top-of-the-Book Price Limits range of 20 Ticks (or $2.00). The current market has a resting Bid/Ask of $807.10/807.50, resulting in a lower/upper Top-of-the-Book Price Limits of $805.10/809.50.
>
> The following scenarios exemplify how the Top-of-the-Book Price Limits affect the trading orders:
>
> <u>Scenario A:</u>
>
> A market participant enters an order to sell 10 contracts at $804.20.
>
> *Result:*
>
> The incoming order is outside the Top-of-the-Book Price Limits ($805.10/809.50) and is therefore rejected. The Bourse through its order entry and drop copy protocols, sends an electronic message to the market participant's trading application informing him that the order has been rejected.
>
> <u>Scenario B :</u>
>
> Later on the same trading session, the resting Bid/Ask of the Index Future contract XYZ September 19, 2019, changes to $805.10/806.00, resulting in a revised Top-of-the-Book Price Limits band of $803.10/808.00.
>
> Subsequently, a market participant enters an order to sell 10 contracts at $804.20.

Result:

The incoming order is inside the Top-of-the-Book Price Limits and is therefore accepted and trades versus the resting Bid order in the CLOB. The Bourse, through its order entry and drop copy protocols, sends an electronic message to the market participant's trading application informing him that the order has been executed.

B. Objectives

This initiative aims to improve market integrity by limiting the ability of disruptive orders entering the CLOB. The Top-of-the-Book Price Limits are expected to reduce erroneous and disruptive orders during early session hours by preventing orders that are not consistent with the principles of market integrity. This enhancement will encourage market participants to trade at a price closer to the Bid/Ask that better reflects reliable and available information in a fair and orderly fashion.

C. Comparative Analysis

Comparable functionalities

The Bourse has reviewed and compared the various marketplace thresholds and related functionalities offered by comparable exchanges. The following exchanges validate incoming order prices against the dynamic resting Bid/Ask of the current Order Book and against the potential execution price of the next executable order.

	NYSE AMEX	CBOE	Borsa Italiana
Functionalities similar to the Top-of-the-Book Price Limits	Yes	Yes	Yes

[1]

Presence of similar controls on comparable exchanges

NYSE-AMEX applies a concept called '"NBBO executable'' where an order price too far from the National Best Bid and Offer is rejected from reaching the central book of order.

CBOE applies a concept called "Limit Order Price Reasonability Checks'' where an order price too far from the National Best Bid and Offer is rejected from reaching the central book of order.

Borsa Italiana applies a concept similar to the one that the Bourse wishes to introduce. Prior to executing a strategy trade, the trading system validates its potential execution price. The potential execution price is validated against the sum of the prices of the instrument series included in the strategy series (called the "Total Legs Price"). If the difference between the net price and the Total Legs Price is higher than a

[1] Sources:
NYSE AMEX:
https://www.nyse.com/publicdocs/nyse/markets/amex-options/US_Options_Risk_Controls_Client_Document.pdf
CBOE: http://www.cmegroup.com/confluence/display/EPICSANDBOX/Limits+and+Banding
BORSE ITALIANA: http://www.borsaitaliana.it/borsaitaliana/gestione-mercati/migrazioneidem/idemguidetothetradingsystemv122.pdf and https://www.borsaitaliana.it/borsaitaliana/gestione-mercati/migrazioneidem/idemguidetothetradingsystemversion372.pdf

predefined number of ticks, the strategy order is rejected and an order rejection message is returned. The maximum allowed difference is currently set to 20 ticks. Thresholds for validation could be set at different levels by instrument type and price level (with reference to the price parameter of the strategy order under validation).

Conclusion of the comparative analysis

The Bourse considers that by introducing the Top-of-the-Book Price Limits to its trading environment, it will be aligned with other exchanges offering similar functionalities.

D. Analysis of Impacts

Impacts on Market

Although the Bourse proposes to modify its rules in order to introduce the Top-of-the-Book Price Limits within the DPL functionality, which can itself be used on all listed products, the Bourse will first use this new functionality to better control the trading of Index Futures. As such, the potential impacts on the market are fairly limited. The Bourse will analyse the results of this implementation following its completion and determine other potential uses of the Top-of-the-Book Price Limits.

The Bourse understands that there might be some risk in the process of setting up the Top-of-the-Book Price Limits at appropriate levels without disrupting the trading dynamics. The Bourse continues to test multiple scenarios to mitigate such risk, analyzing the effects of various percentage ranges with actual market data. The course of action chosen by the Bourse upon the evolution of this new functionality is to err on the side of caution by introducing larger Top-of-the-Book Price Limits initially to prevent market disruption and adjust such limits over time to reach an appropriate balance between fair and orderly markets and ensuring that trading does not become too disruptive.

The Bourse will closely monitor the market impacts and will make appropriate corrections to the system calibrations where and when required to ensure orderly trading.

Impacts on Technology

Development work for the implementation is completed and the Bourse is currently testing multiple scenarios. The Top-of-the-Book Price Limits feature has already been integrated into the current trading system.

The Bourse expects that the Top-of-the-Book Price Limits functionality will have no technological impacts on independent software vendors (ISV) or participants given that the Top-of-the-Book Price Limits will not be disseminated to the marketplace and that the rejected orders sent by the Bourse to the client will receive the same response as the orders rejected by the current (X) limits.

Impacts on regulatory functions

There are no impacts.

Impacts on clearing functions

As the aforementioned functionality resides entirely within the trading system, it has no impact on the clearing functions of the Canadian Derivatives Clearing Corporation.

Public Interest

The Bourse considers that the present initiative is in the public interest, since its goal is to reduce potentially disruptive price swings not consistent with fair and orderly markets, especially during early trading hours. The proposed enhancement of the DPL functionality will improve the quality of the Bourse's markets by enhancing the risk management tools offered by the Bourse to mitigate the risks associated with order entry errors and ensure that market participants have an increased degree of protection when executing transactions. In addition, the proposed changes should further reduce the frequency with which the Bourse has to intervene in the market to adjust trade prices.

4. PROCESS

The proposed amendments, including this analysis, must be approved by the Bourse's Rules and Policies Committee and submitted to the Autorité des marchés financiers, in accordance with the self-certification process, and to the Ontario Securities Commission for information purposes.

5. ATTACHED DOCUMENTS

Proposed amendments to the rules of the Bourse.

Article 6.1 Emergency Authority of the Bourse

(a) The Bourse has the power and the authority to act in the event that it determines the existence of an emergency situation which threatens the integrity, liquidity or orderly trading or liquidation of any Listed Product. The Bourse may exercise its emergency powers in the event that it believes in good faith that any of the circumstances similar to the following exist:

(i) a manipulation, attempted manipulation, corner or squeeze is occurring or threatens to occur;

(ii) the liquidity of a Listed Product on the Bourse or its orderly liquidation is threatened by the concentration of positions in the hands of entities or individuals who are unable or unwilling to settle or to make or take Delivery in the ordinary course;

(iii) an action of the Government of Canada, of a Canadian provincial government or any foreign government or of any other Derivative Instruments market is likely to have a direct and adverse impact on the integrity, liquidity and orderly liquidation of any Listed Product on the Bourse; or

(iv) an unusual, unforeseeable, and adverse circumstance has occurred.

(b) In the event that the Bourse determines that an emergency situation exists, it may take any of the following actions or any other action that may be appropriate to remedy the situation:

(i) terminate trading;

(ii) limit trading to liquidation of Listed Products only;

(iii) order liquidation of all or a portion of an Approved Participant's accounts;

(iv) order liquidation of positions as to which the holder is unable or unwilling to settle or to make or take Delivery;

(v) confine trading to a specific price range or otherwise modify the ~~daily~~ price limits when such a limit exists;

(vi) modify the Trading Days or trading hours;

(vii) alter conditions of Delivery or of settlement;

(viii) fix the Settlement Price at which Listed Products are to be liquidated according to the rules of the Clearing Corporation;

(ix) require additional Margins to be deposited with the Clearing Corporation.

(c) When the Clearing Corporation informs the Bourse of any emergency situation, whether in progress or feared, of which it has become aware, the Bourse shall act within twenty-four (24) hours to consider appropriate measures, if any. The Clearing Corporation shall have the right to participate in any deliberation made pursuant to the present Article.

(d) As soon as practicable following the imposition of emergency action, the Board of Directors must be promptly notified. Any action taken pursuant to this Article may not extend beyond the duration of the emergency. In no event shall actions taken pursuant to this Article remain in effect for more than ninety (90) days following their imposition.

[…]

Article 6.102A ~~Daily~~ Price Limits on Options

1. For the purpose of this Article:

a) "control price" means a price calculated for each options using a generalized version of the Barone–Adesi model for American style options and Black-Scholes model for European style options.
b) "reserved state" means a trading halt triggered by a theoretical opening price under or above the Y limits at the opening of a given instrument.
c) "Top-of-the-Book Price Limits" means price limits that validate the potential execution price of an order against the then prevailing resting bid and ask prices, under and above which an order is not allowed to register in the central limit order book.
~~b)~~d) "X limits" means price limits based on a percentage of the control price under and above which an order is not allowed to register in the central limit order book.
~~c)~~e) "Y limits" means price limits based on a percentage of the control price under and above which an incoming order would not be executed and would be eliminated, or under and above which a theoretical opening price would put the derivative instrument into a reserved state.
~~d)~~~~a) "reserved state" means a trading halt triggered by a theoretical opening price under or above the Y limits at the opening of a given instrument.~~

2. The Bourse may subject options to ~~the~~ X limits, ~~and~~ Y limits and Top-of-the-Book Price Limits as follows:

a) X limits: any order entered by a participant in breach of the X limits is automatically rejected by the Trading System and a message is automatically sent to the participant to confirm such order rejection.

b) Y limits

i) At the opening of an instrument, a theoretical opening price under or above the calculated Y limits causes the Derivative Instrument to enter into a reserved state.

ii) Participants can enter new orders and modify or cancel their orders on an instrument which is in reserved state.

iii) When an instrument is in reserved state, the Trading System will attempt to automatically re-open the trading of such instrument through a volatility auction. Should the resulting reopening price be within the Y limits, trading on the instrument will resume. Should the resulting reopening price be outside the Y limits, the instrument will be maintained in a reserved state and another volatility auction will take place. Such process will automatically take place until trading on the instrument resumes. The Bourse can extend the trading halt created by the reserved state to ensure orderly trading.

iv) The Bourse will notify the market through its market data feed when an instrument enters into a reserved state and when trading is resumed for such instrument.

v) During the continuous trading phase, passive orders priced outside the Y limits but within the X limits will be allowed in the Trading System. Should the potential execution price of an incoming order be outside the Y limits, such incoming order will be eliminated, preventing the trade, and a message will be automatically sent to the participant to confirm such order elimination.

vi) A limit order priced outside the Y limits that could otherwise be partially executed will be partially executed up until a lot is priced outside of the Y limits, and the remaining quantity of the order will be priced at the Y limit.

c) Top-of-the-Book Price Limits

i) Any order entered by a participant in breach of the Top-of-the-Book Price Limits is automatically rejected by the Trading System and a message is automatically sent to the participant to confirm such order rejection.

ii) A limit order priced outside the Top-of-the-Book Price Limits that could otherwise be partially executed will be similarly rejected by the Trading System.

iii) Sell orders use the resting bid price as the reference price, and buy orders use the resting ask price as the reference price. Should the central limit order book not have a resting bid price, the resting ask price is used, and inversely if there is no resting ask price, the resting bid price is used. If there is neither a bid nor an ask price in the central limit order book, the Top-of-the-Book Price Limits will remain inactive.

3. Control prices and percentages of the X limits and Y limits can be modified and Y limits can be temporarily lifted at the Bourse's discretion to ensure regular trading.

~~3.~~4. Integer parameters used to set the Top-of-the-Book Price Limits can be modified, and the Top-of-the-Book Price Limits can be temporarily lifted at the Bourse's discretion to ensure regular trading.

~~4.~~5. The X limits are disseminated to the market via the Bourse's market data feed daily prior to the opening of the market.

~~5.~~6. The X limits do not apply to bulk quotes entered by Approved Participants or clients of Approved Participants while acting as duly appointed Market makers pursuant to Article 3.112.

Article 6.102B ~~Daily~~ Price Limits on Futures

1. For the purpose of this Article:

a) "control price" means a price calculated for each Futures based on the previous day Settlement Price.

b) "reserved state" means a trading halt triggered by a theoretical opening price under or above the Y limits at the opening of a given instrument.

~~a)~~c) "Top-of-the-Book Price Limits" means price limits that validate the potential execution price of an order against the then prevailing resting bid and ask prices, under and above which an order is not allowed to register in the central limit order book.

~~b)~~d) "X limits" means price limits based on a percentage of the control price under and above which an order is not allowed to register in the central limit order book.

~~c)~~e) "Y limits" means price limits based on a percentage of the control price under and above which an incoming order would not be executed and would be eliminated, or under and above which a theoretical opening price would put the derivative instrument into a reserved state.

~~d)a) "reserved state" means a trading halt triggered by a theoretical opening price under or above the Y limits at the opening of a given instrument.~~

2. The Bourse may subject Futures to ~~the~~ X limits, ~~and~~ Y limits and Top-of-the-Book Price Limits as follows:

a) X limits: any order entered by a participant in breach of the X limits is automatically rejected by the Trading System and a message is automatically sent to the participant to confirm such order rejection.

b) Y limits

i) At the opening of an instrument, a theoretical opening price under or above the calculated Y limits causes the Derivative Instrument to enter into a reserved state.

ii) Participants can enter new orders and modify or cancel their orders on an instrument which is in reserved state.

iii) When an instrument is in reserved state, the Trading System will attempt to automatically re-open the trading of such instrument through a volatility auction. Should the resulting reopening price be within the Y limits, trading on the instrument will resume. Should the resulting reopening price be outside the Y limits, the instrument will be maintained in a reserved state and another volatility auction will take place. Such process will automatically take place until trading on the instrument resumes. The Bourse can extend the trading halt created by the reserved state to ensure orderly trading.

iv) The Bourse will notify the market through its market data feed when an instrument enters into a reserved state and when trading is resumed for such instrument.

v) During the continuous trading phase, passive orders priced outside the Y limits but within the X limits will be allowed in the trading system. Should the potential execution price of an incoming order be outside the Y limits, such incoming order will be eliminated, preventing the trade, and a message will be automatically sent to the participant to confirm such order elimination.

vi) A limit order priced outside the Y limits that could otherwise be partially executed will be partially executed up until a lot is priced outside of the Y limits, and the remaining quantity of the order will be priced at the Y limit.

c) Top-of-the-Book Price Limits

i) Any order entered by a participant in breach of the Top-of-the-Book Price Limits is automatically rejected by the Trading System and a message is automatically sent to the participant to confirm such order rejection.

ii) A limit order priced outside the Top-of-the-Book Price Limits that could otherwise be partially executed will be similarly rejected by the Trading System.

iii) Sell orders use the resting bid price as the reference price, and buy orders use the resting ask price as the reference price. Should the central limit order book not have a resting bid price, the resting ask price is used, and inversely if there is no resting ask price, the resting bid price is used. If there is neither a bid nor an ask price in the central limit order book, the Top-of-the-Book Price Limits will remain inactive.

3. Control prices and percentages of the X limits and Y limits can be modified and Y limits can be temporarily lifted at the Bourse's discretion to ensure regular trading.

4. Integer parameters used to set the Top-of-the-Book Price Limits can be modified, and the Top-of-the-Book Price Limits can be temporarily lifted at the Bourse's discretion to ensure regular trading.

~~3.~~5. The X limits are disseminated to the market via the Bourse's market data feed daily prior to the opening of the market.

~~4.~~6. The X limits do not apply to bulk quotes entered by Approved Participants or clients of Approved Participants while acting as duly appointed Market Makers pursuant to Article 3.112.

[...]

Article 6.116 Input of Orders and Use of the Basis Trade on Close Functionality

(a) An Approved Participant shall not withhold or withdraw from the market any order, or any part of an order, for the benefit of any Person other than the Person placing the order.

(b) Any order which is entered into the Trading System must indicate if the order is for the account of a firm, of a client or of a professional, as these terms are defined in Article 6.115. In addition, if the order is for the account of an insider or of a significant shareholder, as these terms are defined in Article 6.115, it must be identified as such. When these conditions are met, the system automatically records the order. If a chronological ranking of receipt cannot be established between many orders, the client priority rules of Article 6.114 of the Rules apply.

(c) The Bourse may, from time to time, allow Approved Participants to enter orders using the Basis Trade on Close ("BTC") functionality. A BTC is a Trade effected on the Bourse on a Futures Contract designated by the Bourse that is priced in reference to the closing price of the applicable Underlying Interest, adjusted by a valid price increment (the "basis"). A BTC may result in a final Futures Contract price to be outside of applicable ~~daily~~ price limits. The final Futures Contract price will be calculated as follows: Underlying Interest closing price + basis (the basis could be either positive or negative). The Underlying Interest closing price will be the last price published by the Toronto Stock Exchange ("TSX") at the calculation time on a given day. If no price is available, the Underlying Interest closing price published by TSX on the previous day will be used. Should the Underlying Interest closing price be modified after the calculation time, but before 5:00pm, the final Futures Contract price will be automatically adjusted by the Electronic Trading System on the same trading day. Should the Underlying Interest closing price change after 5:00pm, the final Futures Contract price will be adjusted the following trading day. The calculation time may differ from one Futures Contract to another. In the event of a disruption in the primary market for a given Underlying Interest, a trading halt will be invoked on the BTC by a Market Supervisor. The Bourse will publish by circular the trading schedule, calculation time and minimum price fluctuation for each futures contract for which the BTC is offered. The BTC trading schedule may be different from the related Futures Contract trading schedule. However, the last day of Trading of the BTC shall be the same as the last trading day of the related Futures Contract.

Article 6.1 Emergency Authority of the Bourse

(a) The Bourse has the power and the authority to act in the event that it determines the existence of an emergency situation which threatens the integrity, liquidity or orderly trading or liquidation of any Listed Product. The Bourse may exercise its emergency powers in the event that it believes in good faith that any of the circumstances similar to the following exist:

(i) a manipulation, attempted manipulation, corner or squeeze is occurring or threatens to occur;

(ii) the liquidity of a Listed Product on the Bourse or its orderly liquidation is threatened by the concentration of positions in the hands of entities or individuals who are unable or unwilling to settle or to make or take Delivery in the ordinary course;

(iii) an action of the Government of Canada, of a Canadian provincial government or any foreign government or of any other Derivative Instruments market is likely to have a direct and adverse impact on the integrity, liquidity and orderly liquidation of any Listed Product on the Bourse; or

(iv) an unusual, unforeseeable, and adverse circumstance has occurred.

(b) In the event that the Bourse determines that an emergency situation exists, it may take any of the following actions or any other action that may be appropriate to remedy the situation:

(i) terminate trading;

(ii) limit trading to liquidation of Listed Products only;

(iii) order liquidation of all or a portion of an Approved Participant's accounts;

(iv) order liquidation of positions as to which the holder is unable or unwilling to settle or to make or take Delivery;

(v) confine trading to a specific price range or otherwise modify the price limits when such a limit exists;

(vi) modify the Trading Days or trading hours;

(vii) alter conditions of Delivery or of settlement;

(viii) fix the Settlement Price at which Listed Products are to be liquidated according to the rules of the Clearing Corporation;

(ix) require additional Margins to be deposited with the Clearing Corporation.

(c) When the Clearing Corporation informs the Bourse of any emergency situation, whether in progress or feared, of which it has become aware, the Bourse shall act within twenty-four (24) hours to consider appropriate measures, if any. The Clearing Corporation shall have the right to participate in any deliberation made pursuant to the present Article.

(d) As soon as practicable following the imposition of emergency action, the Board of Directors must be promptly notified. Any action taken pursuant to this Article may not extend beyond the duration of the emergency. In no event shall actions taken pursuant to this Article remain in effect for more than ninety (90) days following their imposition.

[…]

Article 6.102A Price Limits on Options

1. For the purpose of this Article:

   a) "control price" means a price calculated for each options using a generalized version of the Barone–Adesi model for American style options and Black-Scholes model for European style options.
   b) "reserved state" means a trading halt triggered by a theoretical opening price under or above the Y limits at the opening of a given instrument.
   c) "Top-of-the-Book Price Limits" means price limits that validate the potential execution price of an order against the then prevailing resting bid and ask prices, under and above which an order is not allowed to register in the central limit order book.
   d) "X limits" means price limits based on a percentage of the control price under and above which an order is not allowed to register in the central limit order book.
   e) "Y limits" means price limits based on a percentage of the control price under and above which an incoming order would not be executed and would be eliminated, or under and above which a theoretical opening price would put the derivative instrument into a reserved state.

2. The Bourse may subject options to X limits, Y limits and Top-of-the-Book Price Limits as follows:

   a) X limits: any order entered by a participant in breach of the X limits is automatically rejected by the Trading System and a message is automatically sent to the participant to confirm such order rejection.

   b) Y limits
      i) At the opening of an instrument, a theoretical opening price under or above the calculated Y limits causes the Derivative Instrument to enter into a reserved state.

ii) Participants can enter new orders and modify or cancel their orders on an instrument which is in reserved state.

iii) When an instrument is in reserved state, the Trading System will attempt to automatically re-open the trading of such instrument through a volatility auction. Should the resulting reopening price be within the Y limits, trading on the instrument will resume. Should the resulting reopening price be outside the Y limits, the instrument will be maintained in a reserved state and another volatility auction will take place. Such process will automatically take place until trading on the instrument resumes. The Bourse can extend the trading halt created by the reserved state to ensure orderly trading.

iv) The Bourse will notify the market through its market data feed when an instrument enters into a reserved state and when trading is resumed for such instrument.

v) During the continuous trading phase, passive orders priced outside the Y limits but within the X limits will be allowed in the Trading System. Should the potential execution price of an incoming order be outside the Y limits, such incoming order will be eliminated, preventing the trade, and a message will be automatically sent to the participant to confirm such order elimination.

vi) A limit order priced outside the Y limits that could otherwise be partially executed will be partially executed up until a lot is priced outside of the Y limits, and the remaining quantity of the order will be priced at the Y limit.

c) Top-of-the-Book Price Limits

i) Any order entered by a participant in breach of the Top-of-the-Book Price Limits is automatically rejected by the Trading System and a message is automatically sent to the participant to confirm such order rejection.

ii) A limit order priced outside the Top-of-the-Book Price Limits that could otherwise be partially executed will be similarly rejected by the Trading System.

iii) Sell orders use the resting bid price as the reference price, and buy orders use the resting ask price as the reference price. Should the central limit order book not have a resting bid price, the resting ask price is used, and inversely if there is no resting ask price, the resting bid price is used. If there is neither a bid nor an ask price in the central limit order book, the Top-of-the-Book Price Limits will remain inactive.

3. Control prices and percentages of the X limits and Y limits can be modified and Y limits can be temporarily lifted at the Bourse’s discretion to ensure regular trading.

4. Integer parameters used to set the Top-of-the-Book Price Limits can be modified, and the Top-of-the-Book Price Limits can be temporarily lifted at the Bourse’s discretion to ensure regular trading.

5. The X limits are disseminated to the market via the Bourse’s market data feed daily prior to the opening of the market.

6. The X limits do not apply to bulk quotes entered by Approved Participants or clients of Approved Participants while acting as duly appointed Market makers pursuant to Article 3.112.

Article 6.102B Price Limits on Futures

1. For the purpose of this Article:

   a) "control price" means a price calculated for each Futures based on the previous day Settlement Price.
   b) "reserved state" means a trading halt triggered by a theoretical opening price under or above the Y limits at the opening of a given instrument.
   c) "Top-of-the-Book Price Limits" means price limits that validate the potential execution price of an order against the then prevailing resting bid and ask prices, under and above which an order is not allowed to register in the central limit order book.
   d) "X limits" means price limits based on a percentage of the control price under and above which an order is not allowed to register in the central limit order book.
   e) "Y limits" means price limits based on a percentage of the control price under and above which an incoming order would not be executed and would be eliminated, or under and above which a theoretical opening price would put the derivative instrument into a reserved state.

2. The Bourse may subject Futures to the X limits and Y limits as follows:

   a) X limits: any order entered by a participant in breach of the X limits is automatically rejected by the Trading System and a message is automatically sent to the participant to confirm such order rejection.

   b) Y limits
      i) At the opening of an instrument, a theoretical opening price under or above the calculated Y limits causes the Derivative Instrument to enter into a reserved state.
      ii) Participants can enter new orders and modify or cancel their orders on an instrument which is in reserved state.
      iii) When an instrument is in reserved state, the Trading System will attempt to automatically re-open the trading of such instrument through a volatility auction. Should the resulting reopening price be within the Y limits, trading on the instrument will resume. Should the resulting reopening price be outside the Y limits, the instrument will be maintained in a reserved state and another volatility auction will take place. Such process will automatically take place until trading on the instrument resumes. The Bourse can extend the trading halt created by the reserved state to ensure orderly trading.
      iv) The Bourse will notify the market through its market data feed when an instrument enters into a reserved state and when trading is resumed for such instrument.
      v) During the continuous trading phase, passive orders priced outside the Y limits but within the X limits will be allowed in the trading system. Should the

potential execution price of an incoming order be outside the Y limits, such incoming order will be eliminated, preventing the trade, and a message will be automatically sent to the participant to confirm such order elimination.

vi) A limit order priced outside the Y limits that could otherwise be partially executed will be partially executed up until a lot is priced outside of the Y limits, and the remaining quantity of the order will be priced at the Y limit.

c) Top-of-the-Book Price Limits

i) Any order entered by a participant in breach of the Top-of-the-Book Price Limits is automatically rejected by the Trading System and a message is automatically sent to the participant to confirm such order rejection.

ii) A limit order priced outside the Top-of-the-Book Price Limits that could otherwise be partially executed will be similarly rejected by the Trading System.

iii) Sell orders use the resting bid price as the reference price, and buy orders use the resting ask price as the reference price. Should the central limit order book not have a resting bid price, the resting ask price is used, and inversely if there is no resting ask price, the resting bid price is used. If there is neither a bid nor an ask price in the central limit order book, the Top-of-the-Book Price Limits will remain inactive.

3. Control prices and percentages of the X limits and Y limits can be modified and Y limits can be temporarily lifted at the Bourse's discretion to ensure regular trading.

4. Integer parameters used to set the Top-of-the-Book Price Limits can be modified, and the Top-of-the-Book Price Limits can be temporarily lifted at the Bourse's discretion to ensure regular trading.

5. The X limits are disseminated to the market via the Bourse's market data feed daily prior to the opening of the market.

6. The X limits do not apply to bulk quotes entered by Approved Participants or clients of Approved Participants while acting as duly appointed Market Makers pursuant to Article 3.112.

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Article 6.116 Input of Orders and Use of the Basis Trade on Close Functionality

(a) An Approved Participant shall not withhold or withdraw from the market any order, or any part of an order, for the benefit of any Person other than the Person placing the order.

(b) Any order which is entered into the Trading System must indicate if the order is for the account of a firm, of a client or of a professional, as these terms are defined in Article 6.115. In addition, if the order is for the account of an insider or of a significant shareholder, as these terms are defined in Article 6.115, it must be identified as such. When these conditions are met, the system automatically records the order. If a chronological ranking of receipt cannot be established between many orders, the client priority rules of Article 6.114 of the Rules apply.

(c) The Bourse may, from time to time, allow Approved Participants to enter orders using the Basis Trade on Close ("BTC") functionality. A BTC is a Trade effected on the Bourse on a Futures Contract designated by the Bourse that is priced in reference to the closing price of the applicable Underlying Interest, adjusted by a valid price increment (the "basis"). A BTC may result in a final Futures Contract price to be outside of applicable price limits. The final Futures Contract price will be calculated as follows: Underlying Interest closing price + basis (the basis could be either positive or negative). The Underlying Interest closing price will be the last price published by the Toronto Stock Exchange ("TSX") at the calculation time on a given day. If no price is available, the Underlying Interest closing price published by TSX on the previous day will be used. Should the Underlying Interest closing price be modified after the calculation time, but before 5:00pm, the final Futures Contract price will be automatically adjusted by the Electronic Trading System on the same trading day. Should the Underlying Interest closing price change after 5:00pm, the final Futures Contract price will be adjusted the following trading day. The calculation time may differ from one Futures Contract to another. In the event of a disruption in the primary market for a given Underlying Interest, a trading halt will be invoked on the BTC by a Market Supervisor. The Bourse will publish by circular the trading schedule, calculation time and minimum price fluctuation for each futures contract for which the BTC is offered. The BTC trading schedule may be different from the related Futures Contract trading schedule. However, the last day of Trading of the BTC shall be the same as the last trading day of the related Futures Contract

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