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BORSA İSTANBUL A.Ş.

EQUITY MARKET ALGORITHMIC TRADING AND BISTECH PTRM/PRE-TRADE RISK MANAGEMENT PROCEDURE

İSTANBUL – 2016

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1. Revision Records

This document is the translation of the original document in Turkish and is the first version in English.

2. Purpose, Scope and Grounds

2.1. Purpose and Scope

The purpose of this Procedure is to establish the principles required to be complied by members and users that install electronic order transmission systems belonging to the members themselves or to their customers in co-location center within the organization of Borsa İstanbul A.Ş. or in member premises and submitting the orders to the System which are generated completely electronically through algorithmic software programs running on these electronic order transmission systems.

2.2. Grounds

This Procedure is prepared and issued in reliance upon Borsa İstanbul A.Ş. Equity Market Directive.

3. Definitions and Abbreviations

The meanings of the definitions and abbreviations in this regulation are given below.

Algorithmic Order Transmission Systems: Refers to systems generating buy-sell orders without human intervention for capital market instruments by using algorithms generated by algorithmic software programs, in line with pre-defined strategies.

Algorithmic Orders: Encompasses profit-oriented orders and market maker quotes generated within the frame of strategies employed by algorithmic order transmission systems, as well as small orders created by dividing large orders into parts in tandem with certain strategies and according to the market conditions.

Algorithmic Trading: Refers to all transactions executed in reliance upon orders produced by algorithmic order transmission systems.

The Exchange/BİAŞ: Stands for Borsa İstanbul A.Ş.

BISTECH PTRM/Pre-Trade Risk Management Application: Refers to a risk management application developed in integration with BISTECH trading platform with a view to controlling and monitoring the risks that are expected to be exposed to, as a result of orders entered into the System and trades executed therein.

Direct Market Access: Refers to the process wherein orders of the Exchange member intermediary institutions' customers are collected via electronic channels, and are submitted to the Exchange through member order transmission systems after completion of the necessary position and risk controls electronically on the member side. During this process, the Exchange may be accessed only via order transmission channels availed to the member by the Exchange. Customer cannot transmit orders directly to the Exchange without the use of member systems.

Order-to-Trade Ratio (OTR): Ratio of cumulative number of orders entered/modified/cancelled to the number of executed transactions by a High Frequency Trader (HFT user). OTR is used as the threshold parameter in the application of excessive usage fees to HFT users.

Co-location: A data center service that is provided for speeding up order transmission and access to data by positioning of systems and servers belonging to data broadcasting institutions, service providers, members and their customers as close as possible to BISTECH Trading Platform within certain standards.

Drop Copy: Refers to the service of directing copies of information/confirmation messages generated by the System regarding the orders of members submitted to the System and the executed transactions of the subject orders to the relevant member's specific (Drop Copy) users created in order to carry out monitoring and risk controlling.

OUCH Protocol: Refers to an order transmission protocol dedicated exclusively to High Frequency Traders (HFT user), developed to enable faster order submission by means of its simplified functions.

System: Refers to Equity Market Trading System over BISTECH Trading Platform.

High Frequency Traders (HFT user): Refers to users having the potential of submitting a great number of orders and executing trades at a high speed by using algorithmic order generation and transmission systems. In order for a user to be marked as a High Frequency Trader, servers generating orders for the account of that user must be deployed by the member in the Exchange's co-location center, and distinctive user codes must have been given to these users by the Exchange.

4. Roles and Responsibilities

The General Manager is responsible for the implementation of this Procedure.

5. Algorithmic Order Transmission, High Frequency Traders and Fee System in Equity Market

5.1 Use of Algorithmic Order Transmission Systems

It is mandatory to use BISTECH PTRM/Pre-trade Risk Management application, for the members who generate and transmit orders through algorithms using order transmission systems belonging to themselves or to their customers established in their own premises or in the Exchange co-location center. Members who are out of this scope can optionally use this application.

Members are required to provide information to the Exchange in writing, about algorithm software programs to be used (or already in use) for transmission of orders. This information should include the location of servers where the software will be run, to whom the software belongs to, the protocol (FIX, OUCH), by whom the software is tested and the testing time frame, assessment of member about test results, and from which date the software will start to be used.

Member is liable to the Exchange for the algorithmic order transmission systems used in order to submit its own orders or the orders of its customers. Member using/intermediating these systems bears a non-transferable liability regarding the effects and results of these systems on the market. Members are liable to have already completed the necessary controls and tests in respect of algorithmic order transmission systems and software programs to be used in submission of orders to the System, and to monitor the probable risks on a real-time basis, and to limit these risks that may emerge after deployment and if needed to terminate order transmission by stopping the servers on which the software programs are operating, as soon as possible.

Before starting to send orders to the System through algorithmic order transmission systems member is under obligation to submit a letter of undertaking to the Exchange in writing containing such statements that Systems are tested in the Exchange testing environment in terms of performance and function, and that according to test results, the results of orders to be sent to the System are predictable in a way that will not hinder, disrupt, risk or mislead the markets, and that control practices will be installed and used with the intention of ensuring these. Furthermore, member is also obligated to immediately notify the Exchange through the fastest communication channels as soon as the problems or malfunctions caused by algorithmic order transmission systems occur.

In case of market distortions due to transactions with orders transmitted through algorithmic order transmission systems or transactions of HFT users, the transactions of the relevant users may be suspended by the Exchange, and the services provided to these users and/or members may be partially or completely suspended. In the event that the services provided are stopped by the Exchange, the member cannot claim loss of profit, loss or other compensations.

5.2. High Frequency Traders

Members wishing to use High Frequency Traders allocated to themselves or to their customers, will be subject to the practices and principles to be determined by the Exchange.

With a view to differentiate the high frequency transactions from normal customer orders and track them, different users will be allocated for these transactions upon the application of the member. In order transmission of algorithms for High Frequency Transactions, it is required to define a separate user for each different algorithmic order transmission system.

Users intending to submit orders through OUCH protocol are also considered as HFT users, and are therefore subject to the principles set forth in this Procedure.

5.3. Excessive Usage Fee Based on Order-to-Trade Ratio Applicable on High Frequency Traders

HFT Users are exempted from order cancellation, price worsening and quantity reduction fees. Instead of this tariff, they are subject to a practice based upon the order-to-trade ratio aiming to charge excessive usages. If the ratio of total number of orders submitted, modified and cancelled to total number of trades executed by the member exceeds 5:1, a fixed fee of 0.25 TL is charged for each of order transmission /correction/cancellation operations causing this ratio to be exceeded. Calculations are made on daily basis, while fees are charged on monthly basis together with the Exchange trading fees. Exchange trading fees do not differ for these users.

Users submitting orders via OUCH protocol from the Exchange co-location center are considered as HFT users and are therefore subject to the valid fee tariff applied on High Frequency Trading.

Calculation regarding the HFT users' charges by the OTR method is made according to the principles stated in the attachment [\(ANNEX-1\)](#).

6. Pre-Trade Risk Management

“Pre-trade Risk Management” application offered for use by our members is a risk management tool developed in integration with BISTECH Trading Platform aiming to control and monitor the possible risks that are expected to be exposed because of orders entered into BISTECH Trading Platform and trades executed therein.

In this application, within the scope of the Equity Market, account validation at order entry and risk group controls are performed. If and when deemed necessary, the Exchange or Takasbank may suspend members and/or accounts, and information relating to member and/or account suspension may be tracked.

Risk group controls allowing the management of risks that may be caused by users submitting orders and executing trades are performed at different stages, that are pre-trade, at-trade and post trade in line with the limits predefined by member. If deemed necessary, the Exchange may also determine and apply either overall or instrument-based limits for members.

Member is under obligation to document by which methods and calculations the risk limits are determined for each risk group defined in the BISTECH PTRM/Pre-trade Risk Management Application, and if demanded by the Exchange, to report these to the Exchange on the same day.

6.1. Account Validation at Order Entry

It is checked whether the mandatory account fields are filled at the time of entry of order/trade report/market maker quote and also whether these fields are consistent with the accounts predefined in Takasbank system or not.

6.1.1. Order Entry Examples

It is mandatory to fill in the AFK (Agency/Fund Code) field for fund orders. It is also checked whether the related “Fund Code” is predefined in the Trading, Settlement and Custody structure of the System. As an additional result of it, account type of all transactions executed in the name of funds must be “F”. In addition, the same control will be used for M (Customer) and P (Member Portfolio) accounts and other customer and portfolio type accounts, to make sure AFK field will be filled with M or P or not used at all. Aforesaid trading accounts may not have been configured for each member. Some of these accounts are shown in the following table.

Tables no. 1, 2 and 3 given below are based on various scenarios in regard to fields filled in at the time of entry of order to the System, and they show the results as to whether orders will be accepted by the System or not:

Table 1: Customer Account Type Example

| Account Type | Account No. | AFK | Order Entry Accepted/Rejected |
|--------------|-------------|-----|-------------------------------|
| M | - | - | × |
| M | 123 | - | ✓ |
| M | 123 | M | ✓ |
| M | 123 | P | × |
| M | 123 | F | × |
| M | 123 | 789 | × |
| M | 123 | ABC | × |
| M | 123 | PYP | × |
| M | 123 | PYM | ✓ |

×: Order is rejected.

✓: Order is accepted.

M: Customer

P: Portfolio

F: Fund

PYM: Market Maker Customer Account

PYP: Market Maker Portfolio Account

If Account Type is “M”, then AFK field:

- may be filled with “M”, “PYM” or member’s “custody account code” if there is one; or
- may be left blank.

Table 2: Portfolio Account Type Example

| Account Type | Account No. | AFK | Order Entry Accepted/Rejected |
|--------------|-------------|-----|-------------------------------|
| P | - | - | × |
| P | 123 | - | ✓ |
| P | 123 | P | ✓ |
| P | 123 | M | × |
| P | 123 | F | × |

| | | | |
|----------|-----|-----|---|
| P | 123 | 789 | × |
| P | 123 | ABC | × |
| P | 123 | PYP | ✓ |
| P | 123 | PYM | × |

×: Order is rejected.

✓: Order is accepted.

If Account Type is “P”, AFK field:

- May be filled with “P” or “PYP”; or
- May be left blank.

Note: For members, for use in emergencies at Takasbank side, DA (Default Account) may be configured for account type of Portfolio. This account code shall not be entered into AFK field.

Table 3: Fund Account Type Example

| Account Type | Account No. | AFK | Order Entry Accepted/Rejected |
|--------------|-------------|-----|-------------------------------|
| F | - | - | × |
| F | 123 | - | × |
| F | 123 | F | × |
| F | 123 | M | × |
| F | 123 | P | × |
| F | 123 | 789 | × |
| F | 123 | ABC | ✓ |
| F | 123 | PYP | × |
| F | 123 | PYM | × |

×: Order is rejected.

✓: Order is accepted.

If Account Type is “F”, AFK field may only be filled with “Fund Code” configured in Takasbank system.

Note: ABC fund code shown in the table is assumed to have been configured in Takasbank system.

A review of the tables no. 1, 2 and 3 given above reveals that the System checks whether the mandatory account fields are filled at the time of entry of order and also whether these fields are in conformity with transaction accounts predefined in Takasbank system or not.

6.2. Risk Group Controls (User Limits)

Through this application, orders sent to the System are controlled pre-trade or post-trade.

Said orders and trades are controlled in line with the limits configured by the member's BISTECH PTRM/Pre-trade Risk Management Application user (PTRM GUI and/or PTRM Application Programming Interface (PTRM API) user) for risk management purposes. If deemed necessary, the Exchange may also set limit(s) for member(s).

- Pre-trade risk checks
 - Maximum buy size and maximum sell size
 - Restricted instruments
 - Price tolerance limit
- At-trade risk checks
 - Position risk limits
 - Order rate limit (order/second)
 - Duplicate order interval/limit

In addition to these functions, it is also possible to cancel the pending orders of all users in all risk groups of the member, all users under one risk group or a single user selected from any risk group at once.

While a member may have multiple risk groups created with different risk limits, a user cannot be assigned to more than one risk group. Different limits may be defined for each risk group.

The following risk calculation methods may be used related to position risk limits and maximum order size.

Table 4: Risk Calculation Methods

| Method | Definition for Equity Market |
|-----------------|--|
| Quantity | Order/trade quantity |
| Volume | Order/trade quantity * Lot size ¹ |
| Value | Order/trade quantity * Order/trade price * Lot size ¹ |

¹ As the lot size is determined as 1 in Equity Market, calculations done by quantity and volume methods give the same result.

- **Quantity:** Order/Trade Quantity

If the method for the configured risk limit is set as quantity, then the quantity of orders entered/trades executed is calculated.

- **Volume:** Order/Trade Quantity * Lot Size

If the calculation method for the configured risk limit is set as volume, then the result of multiplication of quantity of orders entered/trades executed by lot size is calculated. As the lot size is determined as 1 in Equity Market, calculations done by Quantity and Volume methods give the same result.

- **Value:** Order/Trade Volume * Order/Trade Price * Lot Size

If the calculation method for the configured risk limit is set as value:

- If the order entered/matched is a limit order:

Limit price of order entered/matched is used in calculation of value.

- If the order entered/matched is a market order/mid-point market order:

If risk calculation method is set as “value”, the following prices are taken into account in calculation of value for these orders that do not have prices:

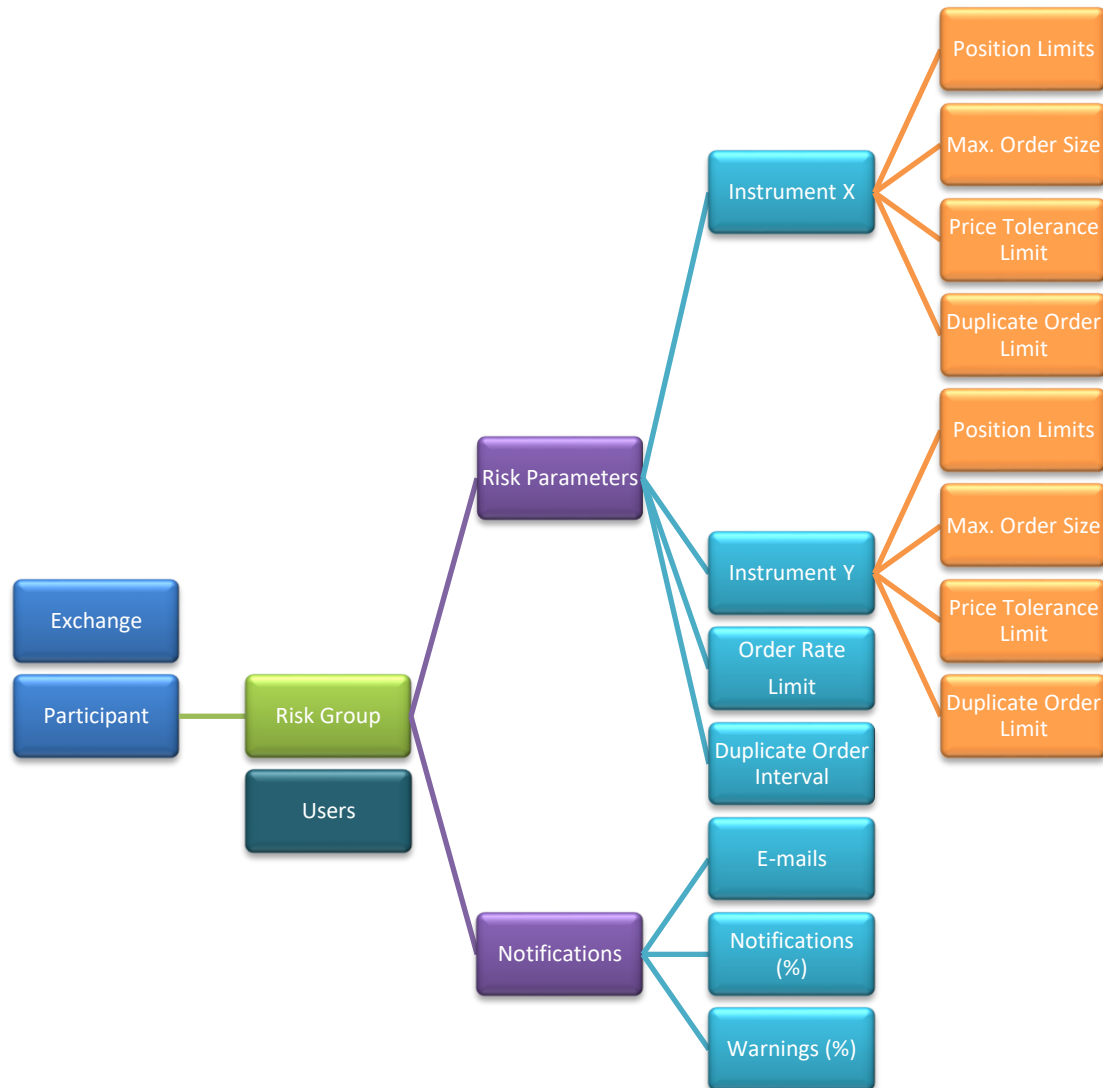
- If the related instrument/contract has a last match price, that price is taken into account. (When the order is executed, it is updated as the related match price.)
- If there is no intraday last match price, closing price of the previous day is used. (When the order is executed, calculations are done over the related match price.)
- In case of lack of a closing price or settlement price calculated for the previous day, the order is rejected.

- If the order entered/matched is in AOF series:

If risk calculation method is set as “value”, then, in calculation of value for limit orders entered into “. AOF” series, the related price is calculated using the last match price realized in “. E” equity series. If orders in “. AOF” series are entered at a certain number of price ticks to the price, then, calculation is done by taking this price difference into consideration. As market orders entered in “. AOF” series are not inserted into the order book, the order-related counters do not change. When the order is executed, calculations are done with the actual price of “.AOF” transaction.

6.2.1. Pre- Trade Risk Management Implementation Structure

Below is the general table relating to hierarchical structure of application parameters:



6.2.2. Pre-Trade Risk Controls

BISTECH PTRM/Pre-trade Risk Management Application checks the following pre-defined limits before orders are inserted in the order book.

6.2.2.1. Maximum Buy and Sell Size

Maximum buy size refers to the maximum buy order size that can be sent to the System at once and maximum sell size refers to the maximum sell order size that can be sent to the System at once. Depending on the selected limit calculation method, maximum size is calculated in quantity, value or volume units.

If *submitted order size* \geq *Maximum buy or sell order size*, then, the System does not allow order entry. Maximum buy or sell order size may be configured on instrument type and/or instrument bases, and limit is controlled by the System during order entry and order modification.

6.2.2.2 Restricted Instrument

If "Disabled" option is selected in the restricted instruments column, users in the risk group can submit orders to and trade in all available instruments, and in this case, risk control is performed only on the instruments for which risk limits are set and breaches will occur only for these instruments.

If the "Included" option is selected, users in the risk group can only submit orders to and trade in instruments for which risk limits are defined by the member, and these users are not allowed to submit orders in other instruments. The instruments for which no risk limit has been set by the member, even if a risk limit has been set by the Exchange, orders cannot be submitted when this option is selected.

If the "Excluded" option is selected, users in the risk group cannot submit orders for instruments for which a risk limit is defined by the member, and order submission and trades are allowed for other instruments. In cases where this option is selected, order entry is allowed also in the instruments for which the Exchange limit is set and the member limit is not, and risk monitoring is not performed.

6.2.2.3 Price Tolerance Limit

Price Tolerance Limit can be configured by members for rejection of orders with prices deviating from control price at a rate equal to or higher than the set threshold percentage. If a price tolerance limit is configured for an instrument, a new or modified order submitted by users included in the risk group is subject to the following price limit controls before it is accepted by the System:

- Order Price \leq Control Price – (Price Tolerance Limit * Control Price) \rightarrow rejected
- Order Price \geq Control Price + (Price Tolerance Limit * Control Price) \rightarrow rejected
- Control Price – (Price Tolerance Limit * Control Price) $<$ Order Price $<$ Control Price + (Price Tolerance Limit * Control Price) \rightarrow accepted

The following prices are taken as control price in the following order depending on their existence in the System:

- Last Trading Price
- Base Price
- Best Bid Price or Best Ask Price
- Reference Price

6.2.3 At-Trade Risk Controls

BISTECH PTRM/Pre-trade Risk Management Application makes the following controls after the orders are inserted in the order book.

6.2.3.1. Risk Limits

These are the limits that are configured for instrument type and/or instrument that control the submitted orders and executed transactions of users assigned to the risk group.

After the order is accepted into the System, 11 different risk calculations are made according to the risk calculation method, taking into account the executed transactions and existing orders in the orderbook of the users included in the risk group since the beginning of the day.

Position risk limits controls are performed by comparing the calculated risks with the following limits:

Table 5: Position Risk Limits

| | | |
|-----------|-------------------------------|--|
| A: | Open Buy Orders | |
| B: | Open Sell Orders | |
| C: | Traded Bought | |
| D: | Traded Sell | |
| E: | Traded Net | $E = C-D $ |
| F: | Total Open Order | $F = A+B$ |
| G: | Total Buy | $G = A+C$ |
| H: | Total Sell | $H = B+D$ |
| I: | Total Short-Sell ² | open short sell orders + Short sell trades |
| J: | Total Net Buy | $J = C-D+A$ |
| K: | Total Net Sell | $K = D-C+B$ |

Limits and calculation method to be used in position risk limit controls of a risk group may be configured at instrument type and/or instrument levels for Equity Market. If the pre-determined risk limits are exceeded, the instrument type and/or instrument with limit excess turns into limit breach status.

While a risk group is in a breach status, users in that risk group:

- May not submit new orders to the breached instrument type and/or instrument,
- May not make any modification on their existing orders in the breached instrument type and/or instrument
- May cancel existing orders and quotes,
- May continue submitting new orders in non-breached instrument types and/or instruments.

² Total short sell is consisted of the open sell orders sent with short sell flag and the trades resulting from these orders.

- When users in the risk group cancel their existing orders in a way to revert the limit excess, the breach state is automatically lifted. The breach status can be removed by the Exchange or the member by increasing the limit breached by the risk group during the day.

Setting the risk limit as zero means that the relevant limit is infinite, the System does not perform any control for the risk limit defined as zero. If a limit of zero on an instrument type and/or instrument is set to a value other than zero during the day, consumption data begins to be published, taking into account the orders and trades realized from the beginning of the day. If the limit changed intraday from zero to a certain value is smaller than the consumption at the effective moment of the new limit, a breach occurs.

6.2.3.2. Order Rate Limit

It is a limit configuration for a risk group based on the number of orders-per-second for the orders submitted to the System. It is based on control of new orders, and the following situations are not taken into consideration:

- Order cancellations
- Rejected orders
- Order updates
- Orders which do not remain in order book as a pending order because of their Time in Force conditions, such as Fill or Kill (FoK), Fill and Kill (FaK) (Exception; Orders executed at submission are taken into account)

Orders submitted to the System are evaluated at a rate of 1/10 of a second (100 milliseconds). If the configured limit is reached or exceeded, the System blocks the related risk group and does not accept new orders. Users in a blocked risk group:

- May not enter new orders,
- May not modify their open orders,
- May cancel their open orders,
- May connect to the System and make queries.

A blocking caused by the breach of order rate limit is not removed automatically during the day. It may only be removed manually by the member. Blocks which are not removed manually during the day of breach, are automatically lifted at the beginning of the next trading day.

6.2.3.3. Duplicate Order Limit

A limitation may be imposed on numbers of orders submitted to the same instrument by a user within a risk group with the same quantity, same price and same side (bid or ask side) during a certain period of time (on seconds basis). This limitation may be configured on instrument type and/or instrument basis. When duplicate order limit is reached in an instrument, the related risk group is blocked on instrument type and/or instrument basis for which that limit is configured, and users configured in that risk group are not permitted to enter new orders for the subject instrument type and/or instrument. A blocking arising out of breach of recurring order limit is

not automatically removed during the day. However, it may only be removed manually by member. Blocks that are not removed manually during the day of breach of limit are automatically removed at the beginning of the next trading day.

6.3. Application Parameters

Terms and parameters used in the Pre-Trade Risk Management Application are given below together with their descriptions and meanings:

Member: Exchange Member company using BISTECH PTRM/Pre-trade Risk Management Application.

Risk Group (Pre-trade limits group-PTLG): Basic conceptual unit created by the member's PTRM user or the Exchange PTRM user in order to track and control the risk of the relevant user group.

User: Member representative observing the risk (PTRM user) or the whose risk is being observed.

Instrument: Capital market instruments for which order is entered and/or transaction is executed.

Risk Limits: Limits which are configured for instrument type(s) and/or instrument(s) assigned to users in the PTLG and by which orders entered and transactions executed are controlled.

- **Open Buy Orders:** A risk limit for the total of open buy orders for the related instrument type and/or instrument on real-time basis.
- **Open Sell Orders:** A risk limit for the total of open sell orders for the related instrument type and/or instrument on real-time basis.
- **Traded Bought:** A risk limit for the total of buy transactions for the related instrument type and/or instrument on real-time basis.
- **Traded Sold:** A risk limit for the total of sell transactions for the related instrument type and/or instrument on real-time basis.
- **Traded Net:** The risk limit based on the absolute of Traded Bought-Traded Sold for the related instrument type and/or instrument.
- **Total Open Orders:** The risk limit based on the total Open Buy + Open Sell orders for the related instrument type and/or instrument.
- **Total Buy:** The risk limit based on the total of Open Buy Orders + Traded Bought for the related instrument type and/or instrument.
- **Total Sell:** The risk limit based on the total of Open Sell Orders + Traded Sold for the related instrument type and/or instrument.
- **Total Short-Sell:** The risk limit based on the total of open short-sell orders + short selling transactions executed for the related instrument type and/or instrument on real-time basis.

- **Total Net Buy:** The risk limit based on Traded Bought- Traded Sold+ Open Buy Orders for the related instrument type and/or instrument.
- **Total Net Sell:** The risk limit based on Traded Sold- Traded Bought+ Open Sell Orders for the related instrument type and/or instrument.
- **Buy/Sell Max Size:** A limit for the maximum size of orders that may be submitted to the System.

Order Rate Limit: The risk limit based on the orders that can be transmitted to the System per second, configured on risk group basis.

E-mail Recipient Addresses: Refers to e-mail addresses to which breach, warning and notification messages are sent.

Notification and Warning Percentages Relating to Risk Limits: These are alarm percentages configured in respect of excess of limits specified for the related instrument types and/or instruments linked to the risk group.

Restricted Instrument: This field that can be configured as “disabled”, “included” or “excluded” allows the restriction of instruments that the users that are set into the risk group can enter orders and therefore trade.

Default Group: When a risk group is designated as the Default Group, transactions entered by the Exchange on behalf of the member are reflected in the total risk calculated by PTRM.

6.4. Significant Considerations Related to Risk Limits

Limit Breach: If *Actual Risk Limit Consumption* \geq *Set Risk Limit*, breach occurs. With the limit breach, the relevant risk group is automatically blocked by the System. Orders of users included in a risk group that is blocked are not accepted, but rejected by the System. Users cannot modify their orders, but can cancel the orders.

Trade Reports: Unilateral and double-sided trade report transactions are taken into account for the calculations of traded bought and traded sold calculations in the risk group controls. Limit consumption is not increased when users send a trade report order to the System, but when actual transaction is executed. Trade reports are considered and treated as transactions in the risk calculations but not rejected in maximum order size controls or in case of blocking of a risk group.

Good Till Date and Good Till Cancel Orders: Unfilled portions of GTD and GTC orders are reloaded into the System at the beginning of each day, and calculations for the new day are made by taking these orders into account. At this stage, there is no rejection or cancellation of orders. Maximum order size controls for GTD and GTC orders are not re-conducted at the beginning of each day.

Inactive Orders: Orders made inactive by users themselves are not included in risk group calculations. If and when orders are made inactive, the limit consumption is updated as if the orders in question have been cancelled. However, orders that are inactivated by the System continue to be calculated as consumption for that risk group.

Cancellation of Transaction: If the transactions are cancelled, there will be no update in the consumption of the related risk limit.

6.5. Blocking a Risk Group

Risk group may be blocked manually or automatically. Blocking may occur in the following cases:

- Risk group is automatically blocked by the System if and when the limits determined for risk group are reached or exceeded.
- Risk group may be manually blocked by the member or if deemed necessary, by the Exchange user.
- In the case that a monitored user is assigned to a risk group, the risk group is automatically blocked if and when the monitored user is disconnected or exits on purpose from the System.
- If the Order rate limit set for a risk group is exceeded, System automatically blocks the related risk group.
- If a limit of a zero on an instrument type and/or instrument changed intraday from zero to a certain value that is smaller than the consumption at the effective moment of the new limit, a breach occurs.

If any of the above situations occur, risk group is blocked.

Users that are in a of blocked risk group:

- Cannot submit new orders into the System,
- Cannot modify their open orders existing in the System,
- Can cancel their orders,
- Can continue to be connected to the System,
- Can continue to monitor the market (receiving broadcasts, order/trade tracking, etc.)

A risk group blocked manually may be unblocked again manually.

In the event that the monitored user is disconnected or exits on purpose from the System, the blocked status of the blocked risk group continues and is not removed even if the user is reconnected to the System. PTRM user has to manually remove the blocked status of the risk group.

In the event that a risk group is blocked due to a limit breach, that risk group's blocked status is automatically removed if and when its limit consumption decreases (i.e., the current limit consumption falls below the preset limit) or the related limit is updated (increased).

Blocked status of a risk group caused by breach of order rate limit is required to be removed manually, and it will not be removed automatically.

If no action is taken for removal of a blocked status, it is automatically removed in the beginning of the next business day.

6.6. Suspended Members and Accounts

PTRM may prevent order transmission under and within the scope of the member and/or account suspensions carried out by Takasbank risk control systems. Furthermore, the Exchange and Takasbank can, if and when needed, also perform suspensions at member and/or account level directly via PTRM application.

Members may monitor and track over PTRM application all and any information as to timing of suspension, at which level (member and/or account level) it is done, by which source (Takasbank risk control systems or PTRM) it is done, and cause of suspension. All pending orders of the suspended member and/or account may be cancelled within the frame of cause and scope of suspension. Information on what actions have been taken in respect of the suspended member and/or account can also be tracked via the application. In addition to the current status, the history of suspensions containing the actions of suspensions taken throughout the day can also be retroactively monitored and tracked for the relevant day.

7. Miscellaneous and Final Provisions

7.1 Repealed Regulations

There is no repealed regulation.

7.2 Effective Date

This Procedure is put into force as of publishing date.

7.3 Enforcement

The provisions of this Procedure shall be enforced and executed by the CEO.

7.4 Cases without Provisions

CEO is authorized to make decisions, regulate and direct the implementation within the framework of the relevant legislation on matters that are not included in this regulation or where there is no clarity.

8. Appendices

Annex-1: Charging of HFT Users by OTR Method

Order-to-Trade Ratio is calculated on a user basis. In case a member has more than one of this type of user, the details of these users will be shown in consequent lines in the member's Exchange Fee Report.

OTR Calculation Details:

Rules Regarding the Order:

- Every new order entry by the HFT users is included in the calculation.
- Cancellations, price worsening and/or quantity reductions on orders in less than 10 seconds after the order entry or the last modification on the order are included in the calculation (included to the number of orders in the order-to-trade ratio). Modifications or cancellations made after the 10 seconds are not taken included in the calculation.
- Mass quote entry/modification/cancellations are not included in the calculation.
- Price enhancing, quantity increasing changes on the order are not included in the calculation, even if they are made within 10 seconds.
- All orders inactivated because of the "cancel on disconnect" preference are included in the calculation.
- Fill and kill (FaK) orders are included in the calculation as a new order. However, the cancellation of unfulfilled FaK orders, or unfulfilled parts of FaK orders are not included as cancellation. On the other hand, modifications or cancellations made on a FaK order already on book in call auctions (opening, closing, mid-day single price and circuit breaker) are included in the calculation.
- Orders cancelled by the Exchange or the System (expired orders, orders that do not fulfill the up-tick rule etc.) are not included in the calculation.
- When an order placed by an HFT user is modified/cancelled by another user of the same participant, these modifications/cancellations are handled with the conventional order cancellation/modification fees, but not included in the OTR calculation. For instance, if a TW user cancels an order placed by a FIXHFT user, this order is displayed in the conventional order modification/cancellation report of the participant and charged with the conventional method. It is not included in the OTR calculation, because the cancellation in this case is made by the TW user but not the HFT user.
- In cases where orders of the HFT user are cancelled by the participant's BISTECH Pre-Trade Risk Management (PTRM) user through "mass cancel" function, all of the cancelled orders are included in the OTR calculation.
- Each part of an iceberg (reserve) order becoming visible (displayed quantity) is regarded as a new order and is included in the OTR calculation.
- Modifications made on the total quantity of an iceberg order are not included in the calculation. Order cancellation, price worsening and/or quantity decreasing made on the displayed quantity (within 10 seconds) are included in the OTR calculation.

Rules Regarding the Trade:

- Trades with value smaller than 50 TL are not included in the calculation (i.e., they are not added to the denominator of the ratio). For instance, if an order is matched partially in 6 different transactions with values 40, 49, 50, 51, 200 and 250 TL, denominator (number of trades) of the calculation will be 4.
- In cases where the HFT user places, modifies, cancels orders but does not have a trade (i.e., when the ratio is X/0), the ratio is regarded unfulfilled, and thus each order activity is charged with 0.25 TL fee.
- Trades where the same HFT user is both the buyer and the seller, i.e., the internally crossed trades on a user basis, are not included in the calculation.

Calculation Examples:

| Order count in a day | Trades with value over 50 TL | OTR | Order number within the range | Number of excess orders (A-C) | OTR cost for the day- TL |
|-------------------------|------------------------------------|-------|--|-------------------------------------|-----------------------------|
| (A) | (B) | (A/B) | (5 x B) | (D) | (D x 0,25 TL) |
| | | | (C) | | |
| 10.000 | 2.500 | 4 | 12.500 | - | - |
| 20.000 | 8.000 | 2,50 | 40.000 | - | - |
| 50.000 | 9.000 | 5,56 | 45.000 | 5.000 | 1.250,00 |
| 100.000 | 12.500 | 8 | 62.500 | 37.500 | 9.375,00 |
| 150.000 | 30.000 | 5 | 150.000 | - | - |
| 180.000 | 30.000 | 6 | 150.000 | 30.000 | 7.500,00 |
| 200.000 | 22.500 | 8,89 | 112.500 | 87.500 | 21.875,00 |