| | Type | Announcement |
|-----|-----------|---|
| | No | 2022/ |
| Doc | Subject | Implementation of Opening Session at Derivatives Market and Change in the End of Session Time of Single Stock Futures and Options Contracts |
| , , | Apr. Date | / /2022 |
| | From | Derivatives Market |
| | То | Members, Data Vendors and Independent Software Vendors (ISVs) |

To Whom It May Concern,

Ref: Announcement dated 02/06/2022 and numbered E-18454353-100.04.02-9127

With the referenced document, it was announced that as of September 23, 2022 an opening session using the single price method will be held before the normal session in Derivatives Market (VIOP), and simultaneously with the launch of opening session, the end of Normal Session of single stock futures and option contracts, which are currently 18:10 on normal business days and 12:40 on half business days, will be aligned with other contracts and to be set as 18:15 and 12:45 respectively if there are no obstacles reported during member test period. At this point, no obstacle has been detected in the tests carried out on the new implementations.

As the conclusion Borsa İstanbul has decided;

- To launch the opening session and change the end of session time of single stock futures and option contracts as of September 23, 2022,
- To update Derivatives Market Procedure as stated in the attachment by the reason of the related implementation and other operational regulations.

The updated version of Derivatives Market Procedure will be available on Borsa İstanbul website under "Corporate" tab, "Regulations" section (https://www.borsaistanbul.com/en/sayfa/4028/procedures).

Kindly for your information.

Korkmaz ERGUN CEO and Board Member

Attachment: Changes in Borsa İstanbul A.Ş. Derivatives Market Procedure

Attachment: Revision Comparison Table of Derivatives Market Procedure

| OLD TEXT | NEW TEXT |
|--|---|
| 9. Daily Workflow | 9. Daily Workflow |
| 7. Daily WUI MIU W | 7. Daily Wolkiow |
| Daily workflow of VIOP comprises of the non-trading periods, Normal Session, | Daily workflow of VIOP comprises of the non-trading periods, opening session , |
| announcement of the settlement price, Evening Session and end-of-day | Normal Session, announcement of the settlement price, Evening Session and end- |
| operations. | of-day operations. |
| 9.2. Normal Session | 9.2. Opening Session |
| | 7.2. Opening Session |
| ••• | Opening session is the period that orders are accepted into the system in a |
| | certain time frame without matching and at the end of this period, single price |
| | method, defined in Procedure, is applied in matching. |
| | method, defined in Frocedure, is applied in matching. |
| | In the single price method; orders are sorted according to price and time |
| | priority, and the appropriate orders are matched at the price named as the |
| | equilibrium price, which ensures the execution of the highest quantity of |
| | trades within the price levels of these orders. If there is more than one price |
| | level that ensures the execution of the highest trade quantity, the price level |
| | with the minimum remaining quantity of the orders that can match at these |
| | price levels is determined as the equilibrium price. In case there is more than |
| | one price that meets these two conditions, from the orders pending at price |
| | levels that can match the prices that meet the condition; if the total quantity |
| | of the buy orders is more than the total quantity of the sell orders, the higher |
| | price is determined as equilibrium price. If the total quantity of the sell orders |
| | is more than the total quantity of the buy orders the lowest price is determined |
| | as equilibrium price. If the total quantity of the buy orders is equal to the total |
| | quantity of the sell orders than the arithmetic average of the prices is |
| | determined as the equilibrium price. (Attachment-18) It is announced as the |
| | opening session price. |
| | Opening besider prices |
| | |
| | |

There are two periods in opening session: order collection and matching. Order collection period starts at order collection time and ends at a random time in 30 seconds after the end of order collection period. Matching period follows order collection period. **During order collection period;** a) orders may be entered valid for opening, normal and evening sessions, b) price and quantity of orders can be amended, and order validity can be changed. c) orders can be cancelled and/or inactivated. c) inactive orders can be activated and sent to the system. 9.3. Normal Session (Numbers of paragraphs have been changed consecutively.) 12. Trading Methods 12. Trading Methods Multiple price method is used in the Market, in which orders are matched Multiple price method is used in the Market, in which orders are matched continuously on the basis of price and time priority. General Manager, if deems continuously on the basis of price and time priority. At the opening session, orders necessary, may decide to use a single price or a different trading method in the are accepted into the system in a certain time frame without matching and at whole or certain sections of the session. the end of this period, single price method, defined in this Procedure, is applied in matching. General Manager, if deems necessary, may decide to use a single price or different trading methods in the whole or certain sections of the sessions. 19. Trade Cancellation 19. Trade Cancellation **h**) Application for a trade cancellation for erroneous trades in the Evening ğ) Application for a trade cancellation for erroneous trades in the Evening Session Session is evaluated in the following Normal Session. If the application is is evaluated in the following Normal Session. If the application is considered as considered as acceptable, the related erroneous trade/trades are cancelled. acceptable, the related erroneous trade/trades are cancelled.

| 1) In the evaluation of trade cancellation request, requests may be evaluated together or seperately taking the relationship between orders and trades into account for the same investor. | h) In the evaluation of trade cancellation request, requests may be evaluated together or seperately taking the relationship between orders and trades into account for the same investor. i) In case of cancellation of the trades executed in the opening session, the equilibrium price does not change. |
|--|--|
| 27 Special Conditions Regarding Physically Delivered Currency Futures and Options Contracts | 27. Principles Regarding Orders in Opening Session In order collection period only limit orders and orders with order validity other than "FOK" are allowed. "GTD" and "GTC" orders entered from previous days are also included in the opening session. Strategy orders, stop orders, creation of flexible contracts and trade reports are not allowed. |
| | In matching period of the opening session; order entry, cancellation and order amendment are not allowed. Unmatched and uncancelled orders from opening session are transferred to the normal session. |
| | If the activation condition for the stop orders entered in the previous days is met during the opening session, the relevant stop orders are triggered by the start of the normal session. |
| | 28. Special Conditions Regarding Physically Delivered Currency Futures and Options Contracts |
| 30. Order Amendment | (Numbers of paragraphs have been changed consecutively.) 31. Order Amendment |

| Brokers can amend their own orders whereas chief brokers can amend all orders of Market member they are authorized to. While information in certain fields may not be amended as being the main element of an order, information provided in other fields may be amended. In the table below (Table 7) during the Normal Session, amendable fields and whether or not the time priority would still remain in effect after the amendments are indicated: | Brokers can amend their own orders whereas chief brokers can amend all orders of Market member they are authorized to. While information in certain fields may not be amended as being the main element of an order, information provided in other fields may be amended. In the table below (Table 7), amendable fields and whether or not the time priority would still remain in effect after the amendments are indicated: |
|--|--|
| Although the changes and time priority rules mentioned in the table above apply to the day orders in the Evening Session, no change in the validity period can be made during the Evening Session | Although the changes and time priority rules mentioned in the table above apply to the day orders entered in the Evening Session, no change in the validity period can be made during the Evening Session. |
| 32. Order Cancellation | 33. Order Cancellation |
| Market maker accounts of market maker members are held exempted from Voluntary Order Cancelation Fee for the instrument class they are responsible as a market maker. | Market maker accounts of market maker members are held exempted from Voluntary Order Cancelation Fee in all sessions for the instrument class they are responsible as a market maker. |
| 44.6. Revenue Sharing | 45.6. Revenue Sharing |
| Revenue sharing is on instrument class/type/group basis. Exchange fee collected from trades and trade reports executed at all contracts in the related instrument class/type/group, not at only the contracts for which the market maker is responsible, are added into revenue sharing calculation | Revenue sharing is on instrument class/type/group basis. Exchange fee collected from trades and trade reports executed at all contracts in the related instrument class/type/group, not at only the contracts for which the market maker is responsible, are added into revenue sharing calculation. In revenue sharing calculation, exchange fee and trade value amounts of opening session are included in the normal session's amounts. |
| 47. Procedure of extraordinary circumstances | 48. Procedure of extraordinary circumstances |

All conditions and developments, that arise from conditions of markets, submarkets, platforms and systems or infrastructure, preventing or that may prevent the fair and secure functioning of the Market and other unexpected events are accepted as extraordinary circumstances.

If at least one of the below cases is occurred before the Normal Session, it may be decided that trading session is not opened or suspended after it is opened by the General Manager:

. . .

• Tthe cases of earthquake, radiation hazard, fire, flood, natural disaster, power cut and terrorist incidents etc. which may prevent the <u>regular</u> Normal Session.

All conditions and developments, that arise from conditions of markets, submarkets, platforms and systems or infrastructure, preventing or that may prevent the fair and secure functioning of the Market and other unexpected events are accepted as extraordinary circumstances.

If at least one of the below cases is occurred before the Opening Session, it may be decided that opening session is not started or suspended after it is opened by the General Manager:

- Technical problems stemming from the System, network, VIOP's data broadcasting (resulting from the Exchange) or data/database which may be possibly effect the entire trading system,
- The case of technical disruptions at electricity and uninterruptible power systems (UPS) of the Exchange, which disables or may disables working of the System,
- The cases of earthquake, radiation hazard, fire, flood, natural disaster, power cut and terrorist incidents etc. which may prevent the regular Opening Session.

If the Opening Session is not started at its regular time or interrupted due to the above cases, re-arrangement of opening and normal session and/or changes in start/end hours of opening and normal sessions are decided by General Manager.

If at least one of the below cases is occurred before the Normal Session, it may be decided that trading session is not opened or suspended after it is opened by the General Manager:

. . .

• <u>Events</u> which may prevent the Normal Session <u>from being held and</u> the cases of earthquake, radiation hazard, fire, flood, natural disaster, power cut and terrorist incidents etc.

...

If the Normal Session is not opened at its regular time or interrupted due to the above cases, trading session's duration is determined by the below rules;

- In case Normal Session is not opened at its regular time or interrupted, if the session is not opened until the last 15 minutes of the trading session and it is understood that is not started until to the normal end time, trading session is not reopened at that day.
- In case Normal Session is opened and then interrupted due to the above reasons and cannot reopened, executed trades and entered orders are considered valid with the confirmation of no data loss by the Exchange. The last valid order number and the last valid trade number are announced for Market members' check, and then clearing operations are executed.
- If the Normal Session is opened and then interrupted due to the above cases and then reopened, ending time of Normal Session can be changed by the General Management.
- When the Normal Session is not opened or Normal Session time cannot be changed, different practices may be applied by the General Management considering the possible effects on Market regarding the expiry date or corporate actions.

If the Normal Session cannot be opened or interrupted and not reopened, transactions can be held at Disaster Recovery Site. In this case, the above-mentioned rules (trading session duration, ratios, numbers etc.) are executed. For all connections remote access method is used in DRS. After the decision of the transition to Disaster Recovery Site, the last order number and the last trade number are announced. Normal Session is completed at Disaster Recovery Site and end of day transactions are executed.

. . .

If the Normal Session is not opened at its regular time or interrupted due to the above cases, trading session's duration is determined by the below rules;

- In case Normal Session is not opened at its regular time or interrupted, if the session is not opened until the last 15 minutes of the trading session and it is understood that is not started until to the normal end time, trading session is not reopened at that day.
- In case Normal Session is opened and then interrupted due to the above reasons and cannot reopened, executed trades and entered orders are considered valid with the confirmation of no data loss by the Exchange.
- If the Normal Session is opened and then interrupted due to the above cases and then reopened, ending time of Normal Session can be changed by the General Management.
- When the Normal Session is not opened or Normal Session time cannot be changed, different practices may be applied by the General Management considering the possible effects on Market regarding the expiry date or corporate actions.

If the <u>Opening and/or</u> Normal Session cannot be opened or interrupted and not reopened, transactions can be held at Disaster Recovery Site. In this case, the above-mentioned rules (trading session duration, ratios, numbers etc.) are executed. For all connections remote access method is used in DRS.

Tthe cases of earthquake, radiation hazard, fire, flood, natural disaster, **Events** which may prevent the Evening Session from being held and the cases of earthquake, radiation hazard, fire, flood, natural disaster, power cut power cut and terrorist incidents etc. which may prevent the regular and terrorist incidents etc. Evening Session. In case Evening Session is opened and then interrupted due to the above reasons and cannot reopened, executed trades and entered orders are In case Evening Session is opened and then interrupted due to the above reasons and cannot reopened, executed trades and entered orders are considered valid with the confirmation of no data loss by the Exchange. considered valid with the confirmation of no data loss by the Exchange. The last valid order number and the last valid trade number are announced for Market members' check, and then clearing operations are executed. 48. Changing Daily Price Limits 49. Changing Daily Price Limits Changes in daily price limits can be made in the Normal Session or Evening Changes in daily price limits can be made in the **opening session**, normal session Session as well as at the end of the Normal Session. If necessary, within the or evening session as well as before or after these sessions. If necessary, within the framework of market conditions, the daily price limits, on a contract basis, may framework of market conditions, the daily price limits, on a contract basis, may be raised up to two times by the Deputy General Manager or Market Manager. be raised up to two times by the Deputy General Manager or Market Manager. ATTACHMENT-3: EXPLANATIONS ON TRADING DAY SECTIONS AND ATTACHMENT-3: EXPLANATIONS ON TRADING DAY SECTIONS AND VIOP'S TRADING AND DAILY WORKFLOW HOURS VIOP'S TRADING AND DAILY WORKFLOW HOURS A) DAILY WORKFLOW HOURS AND TRADING DAY SECTIONS OF A) DAILY WORKFLOW HOURS AND TRADING DAY SECTIONS OF CONTRACTS EXCLUDED FROM EVENING SESSION CONTRACTS EXCLUDED FROM EVENING SESSION **FULL BUSINESS DAY** FULL BUSINESS DAY/HALF BUSINESS DAY **SUB-MARKET SESSION HOURS** SUB-MARKET **SESSION HOURS**

| Equity Derivatives Market | 09:30-18:10 |
|----------------------------------|---------------------------|
| Other Derivatives Markets | 09: 30 -18:15 |
| TRADING DAY SECTIONS | HOURS |
| VIOP_YAYIN | System Startup |
| VIOP_SEANS_ONCESI | 07:30:00 |
| VIOP_SUREKLI_MZYD | 09:30:00 |
| VIOP_SEANS_SONU | 18:10:00 /18:15:00 |
| VIOP_UF_ILANI | 18:55:00+ |
| VIOP_GUNSONU_N | 19:00:00+ |

B) DAILY WORKFLOW HOURS AND TRADING DAY SECTIONS OF CONTRACTS INCLUDED IN EVENING SESSION

| FULL BUSINESS DAY | | |
|---------------------------------------|------------------------------------|--|
| CONTRACT | SESSION HOURS | |
| Contracts Included in Evening Session | 09: 30 -18:15 & 19:00-23:00 | |
| TRADING DAY SECTIONS | HOURS | |
| VIOP_YAYIN_AS | System Startup | |
| VIOP_SEANS_ONCESI_AH | 07:30:00 | |
| VIOP_SUREKLI_MZYD | 09:30:00 | |
| VIOP_SEANS_SONU | 18:15:00 | |
| VIOP_UF_ILANI | 18:45:00+ | |
| VIOP_GUNSONU | 18:46:00+ | |
| VIOP_AS_ONCESI | 18:50:00 | |
| VIOP_AS_SUREKLI_MZYD | 19:00:00 | |
| VIOP_AS_SONU | 23:00:00 | |
| VIOP_GUNSONU_AS | 23:15:00 | |

Evening Session does not held at the last trading day of the calendar year.

| Contracts Not Included in Evening Session | 09: 20 -18:15 / 09:20-12:45 |
|---|---|
| TRADING DAY SECTIONS | HOURS |
| VIOP_YAYIN | System Startup |
| VIOP_SEANS_ONCESI | 07:30:00 |
| VIOP_ACS_EMR_TP | <u>09:20:00</u> |
| VIOP_ACS_ESLESTIRME | <u>09:25:00*</u> |
| VIOP_SUREKLI_MZYD | 09:30:00 |
| VIOP_SEANS_SONU | 18:15:00 / 12:45:00 |
| VIOP_UF_ILANI | 18:55:00+ / 13:25:00 + |
| VIOP_GUNSONU_N | 19:00:00+ / 13:30:00 + |

^{*} Order matching session will start at a random time within 30 seconds, and the order collection will continue until this time.

B) DAILY WORKFLOW HOURS AND TRADING DAY SECTIONS OF CONTRACTS INCLUDED IN EVENING SESSION

| FULL BUSINESS DAY/HALF BUSINESS DAY | | |
|---------------------------------------|---|--|
| CONTRACT | SESSION HOURS | |
| Contracts Included in Evening Session | 09: <u>20</u> -18:15 & 19:00-23:00 <u>/ 09:20-12:45</u> | |
| TRADING DAY SECTIONS | HOURS | |
| VIOP_YAYIN_AS | System Startup | |
| VIOP_SEANS_ONCESI_AH | 07:30:00 | |
| VIOP ACS EMR TP | <u>09:20:00</u> | |
| VIOP_ACS_ESLESTIRME | 09:25:00* | |
| VIOP_SUREKLI_MZYD | 09:30:00 | |
| VIOP_SEANS_SONU | 18:15:00 <u>/ 12:45:00</u> | |
| VIOP_UF_ILANI | 18:45:00+ <u>/ 13:25:00+</u> | |
| VIOP_GUNSONU | 18:46:00+ <u>/ 13:30:00+</u> | |
| VIOP_AS_ONCESI | 18:50:00 | |
| VIOP_AS_SUREKLI_MZYD | 19:00:00 | |
| VIOP_AS_SONU | 23:00:00 | |
| VIOP_GUNSONU_AS | 23:15:00 | |

C) HALF DAY WORKFLOW HOURS AND TRADING DAY SECTIONS OF CONTRACTS EXCLUDED FROM EVENING SESSION

| HALF BUSINESS DAY | | |
|----------------------------------|------------------------------|--|
| SUB-MARKET | SESSION HOURS | |
| Equity Derivatives Market | 09:30-12:40 | |
| Other Derivatives Markets | 09:30-12:45 | |
| TRADING DAY SECTIONS | HOURS | |
| VIOP_YAYIN | System Startup | |
| VIOP_SEANS_ONCESI | 07:30:00 | |
| VIOP_SUREKLI_MZYD | 09:30:00 | |
| VIOP_SEANS_SONU | 12:40:00/12:45:00 | |
| VIOP_UF_ILANI | 13:25:00+ | |
| VIOP_GUNSONU_N | 13:30:00+ | |

D) DAILY WORKFLOW HOURS AND TRADING DAY SECTIONS OF CONTRACTS INCLUDED IN EVENING SESSION

| HALF BUSINESS DAY | | |
|-------------------------------|-----------------------|--|
| CONTRACT | SESSION HOURS | |
| Contracts Included in Evening | 09:30-12:45 | |
| Session | | |
| TRADING DAY SECTIONS | HOURS | |
| VIOP_YAYIN_AS | System Startup | |
| VIOP_SEANS_ONCESI_AH | 07:30:00 | |
| VIOP_SUREKLI_MZYD | 09:30:00 | |
| VIOP_SEANS_SONU | 12:45:00 | |
| VIOP_UF_ILANI | 13:25:00+ | |
| VIOP_GUNSONU_N | 13:30:00 + | |
| VIOP_YAYIN_AS | 23:30:00 + | |

* Order matching session will start at a random time within 30 seconds, and the order collection will continue until this time.

Evening Session does not hold at the last trading day of the calendar year.

| TRADING DAY SECTIONS | EXPLANATIONS |
|----------------------|--|
| BIST_DURDURMA | It is used for trading halt. |
| | Order entry, cancellation and amendment are not allowed. |
| | Trade reporting is not allowed. |
| VIOP_ARA | It is the no trade period if there is a trading |
| | halt or the time between the creation of |
| | flexible contract and opening to trade. |
| | Order entry and amendment are not |
| | allowed. |
| | Orders can be cancelled. |
| | Trade reporting is not allowed. |

| TRADING DAY SECTIONS | EXPLANATIONS |
|----------------------|--|
| BIST_DURDURMA | It is used for trading halt. |
| | Order entry, cancellation and amendment are not allowed. |
| | Trade reporting is not allowed. |
| | Opening session period that orders are |
| | accepted into the system in a certain time |
| | frame without matching. |
| | Various kinds of orders with different |
| | types and validities can be sent. (see. |
| | Table-2) |
| | Trade reporting is not allowed. |
| VIOP_ACS_EMR_TP | Flexible contracts cannot be created. |
| | Price and quantity of orders can be |
| | amended, and order validity can be |
| | changed. |
| | Orders can be cancelled and/or |
| | inactivated. |
| | <u>Inactive orders can be activated and sent</u> |
| | to the system. |
| | Opening session period in which the trades |
| | are realized with single price method. |
| VIOD ACC ECLECTIONE | Order entry, cancellation and amendment |
| VIOP_ACS_ESLESTIRME | are not allowed. |
| | Trade reporting is not allowed. |
| | Flexible contracts cannot be created. |
| VIOP_ARA | It is the no trade period if there is a trading |
| | halt or the time between the creation of |
| | flexible contract and opening to trade. |

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| Types of Orders That Can Be Entered According to Trading Day Segments | | | | | | | | | | | | | | | | | | | |
|---|------------|---|---|----------------|---|---|---|---|--------------------|---|---|---|---|-------|---|---|---|---|---|
| Trading Day | Order Type | | | Order Validity | | | | | Order Amend/Cancel | | | | | Other | | | | | |
| Segments | A | В | С | D | H | I | J | K | L | M | N | 0 | P | R | S | T | U | V | Y |
| BIST_DURDURM A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| VIOP_ARA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |

ATTACHMENT-11: NORMAL SESSION RIGHTS OF MARKET MAKERS

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The Revenue Sharing Calculation Method:

For example, for an instrument class/type/group where three market makers are active, let's assume that the market presence of market maker A is 80%, market maker B is 100% and market maker C is 20% and performance criterion for this instrument class is 70%. Assuming that the traded value that occurs as a result of the trades that market maker A realizes with non-market maker accounts is equal to TRY 100,000, that of market maker B is TRY 200,000 and that of market maker C is TRY 100,000. Therefore, the revenue sharing calculation will be as follows:

ows:

| Order entry and amendment are not allowed. |
|--|
| Orders can be cancelled. |
| Trade reporting is not allowed. |

. . .

| Types of Ord | Types of Orders That Can Be Entered According to Trading Day Segments | | | | | | | | | | | | | | | | | | |
|----------------------|---|----------|----------|----------------|----------|----------|----------|----------|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Trading Day | Order Type | | | Order Validity | | | | | Order Amend/Cancel | | | | | Other | | | | | |
| Segments | A | В | C | D | Н | I | J | K | L | M | N | 0 | P | R | S | T | U | V | Y |
| BIST_DURDURM A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| VIOP ACS EMR T P | <u>1</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>1</u> | <u>1</u> | <u>0</u> | <u>1</u> | <u>1</u> | <u>1</u> | 1 | <u>1</u> | 1 | 1 | 1 | 1 | 1 | <u>0</u> | <u>0</u> |
| VIOP ACS ESLES TIRME | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | 1 |
| VIOP_ARA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |

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ATTACHMENT-11: NORMAL SESSION RIGHTS OF MARKET MAKERS

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**Normal Session exchange fee discount rules are also valid for the opening session.

The Revenue Sharing Calculation Method:

For example, for an instrument class/type/group where three market makers are active, let's assume that the market presence of market maker A is 80%, market maker B is 100% and market maker C is 20% and performance criterion for this instrument class is 70%. Assuming that the traded value that occurs as a result of the trades that market maker A realizes with non-market maker accounts is equal to TRY 100,000, that of market maker B is TRY 200,000 and that of market maker C is TRY 100,000. Therefore, the revenue sharing calculation will be as follows:

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EK-18: BORSA İSTANBUL A.Ş. VADELİ İŞLEM VE OPSİYON PİYASASI PROSEDÜRÜ REVİZYON KARSILASTIRMA TABLOSU

ATTACHMENT-18: SINGLE PRICE METHOD EXAMPLES

The equilibrium price calculation algorithm in the opening session works as follows:

- 1- Among the price levels of the orders submitted to the system, the price at which the most orders will execute is determined as the equilibrium price.
- 2- If there is more than one price level that ensures the execution of the highest trade quantity, the price level with the minimum remaining quantity of the orders that can match at these price levels is determined as the equilibrium price.
- 3- In case there is more than one price that meets these two conditions, from the orders pending at price levels that can match the prices that meet the condition; if the total quantity of the buy orders is more than the total quantity of the sell orders, the higher price is determined as equilibrium price. If the total quantity of the sell orders is more than the total quantity of the buy orders the lowest price is determined as equilibrium price. If the total quantity of the buy orders is equal to the total quantity of the sell orders, than the arithmetic average of the prices is determined as the equilibrium price.

In the examples below, when calculating the equilibrium price, the numbers in the "Buy Side Total Quantity" and "Sell Side Total Quantity" columns indicate the total order quantities at each price level from the best price to the worst price. In other words, highest to lowest prices for buy side and lowest to highest prices for sell side are considered. The function of these columns is to calculate how many trades can be executed at any price level chosen as the equilibrium price.

Example 1: Highest Trade Quantity Can Be Executed at a Single Price Level

| Buy | <u>Side</u> | | Sell | Side | Two do | Remaining | | |
|-----------------|-----------------------|--------------|-----------------------|-----------------|-----------------------|--------------|-------------|--|
| Total Quantit Y | Order Quanti ty | <u>Price</u> | Order Quantit y | Total Quantit Y | Trade Quanti ty | Quanti ty | <u>Side</u> | |
| <u>10</u> | <u>10</u> | <u>8,70</u> | <u>10</u> | <u>150</u> | <u>10</u> | <u>140</u> | <u>Sell</u> | |
| <u>10</u> | | 8,60 | <u>10</u> | <u>140</u> | <u>10</u> | <u>130</u> | <u>Sell</u> | |
| <u>10</u> | | 8,50 | <u>10</u> | <u>130</u> | <u>10</u> | <u>120</u> | Sell | |
| <u>40</u> | <u>30</u> | 8,40 | <u>40</u> | <u>120</u> | <u>40</u> | <u>80</u> | Sell | |
| <u>55</u> | <u>15</u> | 8,30 | <u>5</u> | <u>80</u> | <u>55</u> | <u>25</u> | Sell | |
| <u>60</u> | <u>5</u> | 8,20 | <u>35</u> | <u>75</u> | <u>60</u> | <u>15</u> | Sell | |
| 80 | <u>20</u> | 8,10 | 30 | <u>40</u> | <u>40</u> | <u>40</u> | Buy | |
| 105 | <u>25</u> | 8,00 | | <u>10</u> | <u>10</u> | 95 | Buy | |
| 155 | <u>50</u> | 7,90 | <u>10</u> | <u>10</u> | 10 | 145 | Buy | |

Since there is only one price level where highest trade quantity can be executed, the matching occurs at the quantity of 60 and the equilibrium price level of 8.20.

Example 2: <u>Highest Trade Quantity Can Be Executed at Two Different Price Levels</u>

| Buy | <u>Side</u> | | Sell | Side | Twode | Remaining | | |
|-----------------|-----------------------|--------------|-----------------------|-----------------|-----------------------|--------------|-------------|--|
| Total Quantit Y | Order Quantit Y | <u>Price</u> | Order Quantit Y | Total Quantit y | Trade Quantit y | Quant ity | <u>Side</u> | |
| <u>10</u> | 10 | 8,70 | <u>10</u> | <u>150</u> | <u>10</u> | <u>140</u> | <u>Sell</u> | |
| <u>10</u> | | 8,60 | <u>10</u> | 140 | <u>10</u> | 130 | Sell | |
| <u>10</u> | | 8,50 | <u>10</u> | <u>130</u> | <u>10</u> | <u>120</u> | Sell | |
| 40 | 30 | 8,40 | 40 | 120 | 40 | 80 | Sell | |

| 55 | 15 | 8,30 | <u>15</u> | 80 | 55 | 25 | Sell |
|------------|-----------|------|-----------|----|----|----------|------|
| <u>60</u> | <u>5</u> | 8,20 | <u>5</u> | 65 | 60 | <u>5</u> | Sell |
| 80 | 20 | 8,10 | 50 | 60 | 60 | 20 | Buy |
| 105 | 25 | 8,00 | | 10 | 10 | 95 | Buy |
| <u>155</u> | <u>50</u> | 7,90 | <u>10</u> | 10 | 10 | 145 | Buy |

Since there are two price levels that meet the highest trade quantity criteria, the price level with the minimum remaining quantity is determined as the equilibrium price. Since the remaining quantity at the 8.20 price level is less than the 8.20 and 8.10 price levels, where the highest trade quantity can be executed, the equilibrium price is determined as 8.20 and trades with 60 quantities are executed.

Example 3: Highest Trade Quantity and Minimum Remaining Amount Criteria Can Be Met at Multiple Price Levels

<u>A)</u>

| Buy | Side_ | | Sell | <u>Side</u> | Trade | Remaining | | |
|-----------------|-----------------------|--------------|-----------------------|-----------------|-----------------------|--------------|-------------|--|
| Total Quantit Y | Order Quantit Y | Price | Order Quantit y | Total Quanti ty | Trade Quant ity | Quant ity | <u>Side</u> | |
| <u>10</u> | <u>10</u> | 8,50 | <u>20</u> | 240 | <u>10</u> | <u>230</u> | Sell | |
| 10 | | 8,40 | 80 | 220 | 10 | 210 | Sell | |
| 80 | 70 | 8,30 | | 140 | 80 | 60 | Sell | |
| <u>80</u> | | 8,20 | <u>100</u> | 140 | 80 | <u>60</u> | Sell | |
| 125 | <u>45</u> | 8,10 | 40 | 40 | 40 | 85 | Buy | |
| <u>135</u> | <u>10</u> | 8,00 | | | | | | |

In case there are two price levels that meet the conditions of the maximum trade quantity and the minimum remaining quantity, while determining the equilibrium price; If the total quantity of buy orders from pending orders at price levels that can match the prices that meet the condition is more than the total quantity of sell orders, the higher price is determined as equilibrium price, and if the total quantity of sell orders is more than the total quantity of buy orders, the lowest price is determined as equilibrium price. In the example, since the sum of sell orders is higher in the market, the lower price of 8.20 is determined as the equilibrium price and trades with a quantity of 60 are executed.

<u>B)</u>

| Buy | Side | | Sell | Side | Tuede | Remaining | | |
|-----------------|-----------------------|--------------|-----------------------|-----------------|-----------------------|--------------|-------------|--|
| Total Quantit y | Order Quantit Y | <u>Price</u> | Order Quanti ty | Total Quantit y | Trade Quant ity | Quant ity | <u>Side</u> | |
| <u>20</u> | <u>20</u> | 8,40 | <u>50</u> | <u>150</u> | <u>20</u> | <u>130</u> | Sell | |
| <u>50</u> | 30 | 8,30 | <u>50</u> | 100 | <u>50</u> | <u>50</u> | Sell | |
| 100 | <u>50</u> | 8,20 | 30 | <u>50</u> | <u>50</u> | 50 | Buy | |
| <u>150</u> | <u>50</u> | 8,10 | <u>20</u> | <u>20</u> | <u>20</u> | <u>130</u> | Buy | |

In case there are two price levels that meet the conditions of the highest trade quantity and the minimum remaining quantity, if the total quantity of the buy orders is equal to the total amount of the sell orders, the arithmetic average of the prices is determined as the equilibrium price. In the example, since the total buy and sell quantities are equal, the arithmetic average of the two prices is taken and the price of 8.25 is determined as the equilibrium price, and trades with 50 quantity is executed.

| ATTACHMENT-19: BORSA İSTANBUL A.Ş. DERIVATIVES MARKET PROCEDURE REVISION COMPARISON TABLE |
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