

Service Hotline Number: 198

RE: Order execution on the 19 Sep19 ALSI, 10 Dec19 ALSI and Sep/Dec19 ALSI.

The below scenario depicts actual orders and trades that occurred in the Equity Derivative Market on Thursday, 12 September 2019 at 11:59:32. The scenario is replayed in detail to explain the behaviour of the orders within the system.

Step 1

Initial order books

| ALSIFUTSEP2019 | | | | | | ALSIFUTDEC2019 | | | | | |
|----------------|-----|-------|-------|-----|-------|----------------|-----|-------|-------|-----|-------|
| OID | Qty | Price | Price | Qty | OID | OID | Qty | Price | Price | Qty | OID |
| SEPB1 | 1 | 50836 | 50851 | 1 | SEPO1 | DECB1 | 3 | 51512 | 51530 | 1 | DECO1 |
| SEPB2 | 1 | 50834 | 50853 | 1 | SEPO2 | DECB2 | 4 | 51512 | 52500 | 2 | DECO2 |
| SEPB3 | 3 | 50833 | 50857 | 1 | SEPO3 | DECB3 | 2 | 50000 | 53000 | 1 | DECO3 |
| SEPB4 | 4 | 50833 | 50861 | 1 | SEPO4 | DECB4 | 1 | 49000 | | | |
| SEPB5 | 1 | 50828 | 50862 | 1 | SEPO5 | | | | | | |

| ALSISEP2019DEC2019 | | | | | |
|--------------------|-----|-------|-------|-----|------|
| OID | Qty | Price | Price | Qty | OID |
| SDB1 | 1 | 661 | 679 | 3 | SDO1 |
| SDB2 | 5 | 651 | 679 | 12 | SDO2 |
| SDB3 | 5 | 651 | 685 | 10 | SDO3 |
| SDB4 | 17 | 650 | 685 | 100 | SDO4 |

Implied Out order (DECO1), highlighted in red, is created from the base orders SEPO1 and SDO1.

Step 2

1. Order DECB1 is amended from 51512 to 52497, trading against order DECO1 at 51530. (highlighted)
2. This results in the execution of the base orders (SEPO1 and SDO1) which are linked to DECO1. (highlighted)
3. The following trades are disseminated,
 - a. ALSIFUTDEC2019 – 1 @ 51350
 - b. ALSISEP2019DEC2019 – 1 @ 679
 - c. ALSIFUTSEP2019 – 1 @ 50851

| ALSIFUTSEP2019 | | | | | | ALSIFUTDEC2019 | | | | | |
|----------------|-----|-------|-------|-----|-------|----------------|-----|-------|-------|-----|-------|
| OID | Qty | Price | Price | Qty | OID | OID | Qty | Price | Price | Qty | OID |
| IMP2 | 1 | 50851 | 50851 | 1 | SEPO1 | DECB1 | 3 | 52497 | 51530 | 1 | DECO1 |
| SEPB1 | 1 | 50836 | 50853 | 1 | SEPO2 | DECB2 | 4 | 51512 | 52500 | 2 | DECO2 |
| SEPB2 | 1 | 50834 | 50857 | 1 | SEPO3 | DECB3 | 2 | 50000 | 53000 | 1 | DECO3 |
| SEPB3 | 3 | 50833 | 50861 | 1 | SEPO4 | DECB4 | 1 | 49000 | | | |
| SEPB4 | 4 | 50833 | 50862 | 1 | SEPO5 | | | | | | |

| ALSISEP2019DEC2019 | | | | | |
|--------------------|-----|-------|-------|-----|------|
| OID | Qty | Price | Price | Qty | OID |
| IMP1 | 1 | 679 | 679 | 3 | SDO1 |
| SDB1 | 1 | 661 | 679 | 12 | SDO2 |
| SDB2 | 5 | 651 | 685 | 10 | SDO3 |
| SDB3 | 5 | 651 | 685 | 100 | SDO4 |

Step 3

1. Implied In (IMP3) is generated from base orders SEPO2 and DECB1 at a price of 1644 (Leg 2 price – Leg 1 price) and aggresses against SDO1.

| ALSIFUTSEP2019 | | | | | | ALSIFUTDEC2019 | | | | | |
|----------------|-----|-------|-------|-----|-----|----------------|-----|-------|-------|-----|-----|
| OID | Qty | Price | Price | Qty | OID | OID | Qty | Price | Price | Qty | OID |

| | | | | | | | | | | | | |
|--------|---|-------|-------|---|-------|--|-------|---|-------|-------|---|-------|
| | | | 50853 | 1 | SEPO2 | | DECB1 | 2 | 52497 | 52500 | 2 | DECO2 |
| SEP B1 | 1 | 50836 | 50857 | 1 | SEPO3 | | DECB2 | 4 | 51512 | 53000 | 1 | DECO3 |
| SEP B2 | 1 | 50834 | 50861 | 1 | SEPO4 | | DECB3 | 2 | 50000 | | | |
| SEP B3 | 3 | 50833 | 50862 | 1 | SEPO5 | | DECB4 | 1 | 49000 | | | |
| SEP B4 | 4 | 50833 | | | | | | | | | | |

| ALSISEP2019DEC2019 | | | | | |
|--------------------|-----|-------|-------|-----|------|
| OID | Qty | Price | Price | Qty | OID |
| IMP3 | 1 | 1644 | 679 | 2 | SDO1 |
| SDB1 | 1 | 661 | 679 | 12 | SDO2 |
| SDB2 | 5 | 651 | 685 | 10 | SDO3 |
| SDB3 | 5 | 651 | 685 | 100 | SDO4 |

Step 4

1. Due to passive price determination logic, the execution on ALSISEP2019DEC2019 between IMP3 and SDO1 will happen at a price of 679.

| ALSIFUTSEP2019 | | | | | | ALSIFUTDEC2019 | | | | | |
|----------------|-----|-------|-------|-----|-------|----------------|-----|-------|-------|-----|-------|
| OID | Qty | Price | Price | Qty | OID | OID | Qty | Price | Price | Qty | OID |
| | | | 50853 | 1 | SEPO2 | DECB1 | 2 | 52497 | 52500 | 2 | DECO2 |
| SEP B1 | 1 | 50836 | 50857 | 1 | SEPO3 | DECB2 | 4 | 51512 | 53000 | 1 | DECO3 |
| SEP B2 | 1 | 50834 | 50861 | 1 | SEPO4 | DECB3 | 2 | 50000 | | | |
| SEP B3 | 3 | 50833 | 50862 | 1 | SEPO5 | DECB4 | 1 | 49000 | | | |
| SEP B4 | 4 | 50833 | | | | | | | | | |

| ALSISEP2019DEC2019 | | | | | |
|--------------------|-----|-------|-------|-----|------|
| OID | Qty | Price | Price | Qty | OID |
| IMP3 | 1 | 1644 | 679 | 2 | SDO1 |
| SDB1 | 1 | 661 | 679 | 12 | SDO2 |
| SDB2 | 5 | 651 | 685 | 10 | SDO3 |
| SDB3 | 5 | 651 | 685 | 100 | SDO4 |

Step 5

1. Since IMP3 is executed at 679. There is a price improvement applied on the Leg 1 implied match order generated to complete the implied execution chain.
2. The passive price improvement applied onto IMP4 is calculated based on the spread price formula (Leg 2 price – Spread price = Leg 1 price)

Leg 1 Price = 52497 – 679

Leg 1 Price = 51818

3. IMP4 executes against SEPO2 based on the above formula.

4. IMP5 executes against DECB1.
5. The following trades are disseminated,
 - a. ALSISEP2019DEC2019 – 1 @ 679
 - b. ALSIFUTSEP2019 – 1 @ 51818
 - c. ALSIFUTDEC2019 – 1 @ 52497

| ALSIFUTSEP2019 | | | | | | ALSIFUTDEC2019 | | | | | |
|----------------|-----|-------|-------|-----|-------|----------------|-----|-------|-------|-----|-------|
| OID | Qty | Price | Price | Qty | OID | OID | Qty | Price | Price | Qty | OID |
| IMP4 | 1 | 51818 | 50853 | 1 | SEPO2 | DECB1 | 2 | 52497 | 52497 | 1 | IMP5 |
| SEPB1 | 1 | 50836 | 50857 | 1 | SEPO3 | DECB2 | 4 | 51512 | 52500 | 2 | DECO2 |
| SEPB2 | 1 | 50834 | 50861 | 1 | SEPO4 | DECB3 | 2 | 50000 | 53000 | 1 | DECO3 |
| SEPB3 | 3 | 50833 | 50862 | 1 | SEPO5 | DECB4 | 1 | 49000 | | | |
| SEPB4 | 4 | 50833 | | | | | | | | | |

| ALSISEP2019DEC2019 | | | | | |
|--------------------|-----|-------|-------|-----|------|
| OID | Qty | Price | Price | Qty | OID |
| IMP3 | 1 | 679 | 679 | 2 | SDO1 |
| SDB1 | 1 | 661 | 679 | 12 | SDO2 |
| SDB2 | 5 | 651 | 685 | 10 | SDO3 |
| SDB3 | 5 | 651 | 685 | 100 | SDO4 |

Step 6

1. Implied In (IMP6) is generated from base orders SEPO3 and DECB1 at a price of 1640 (Leg 2 price – Leg 1 price) and aggresses against SDO1.

| ALSIFUTSEP2019 | | | | | | ALSIFUTDEC2019 | | | | | |
|----------------|-----|-------|-------|-----|-------|----------------|-----|-------|-------|-----|-------|
| OID | Qty | Price | Price | Qty | OID | OID | Qty | Price | Price | Qty | OID |
| | | | 50857 | 1 | SEPO3 | DECB1 | 1 | 52497 | 52500 | 2 | DECO2 |
| SEPB1 | 1 | 50836 | 50861 | 1 | SEPO4 | DECB2 | 4 | 51512 | 53000 | 1 | DECO3 |
| SEPB2 | 1 | 50834 | 50862 | 1 | SEPO5 | DECB3 | 2 | 50000 | | | |
| SEPB3 | 3 | 50833 | | | | DECB4 | 1 | 49000 | | | |
| SEPB4 | 4 | 50833 | | | | | | | | | |

ALSISEP2019DEC2019

| OID | Qty | Price | Price | Qty | OID |
|------|-----|-------|-------|-----|------|
| IMP6 | 1 | 1640 | 679 | 1 | SDO1 |
| SDB1 | 1 | 661 | 679 | 12 | SDO2 |
| SDB2 | 5 | 651 | 685 | 10 | SDO3 |
| SDB3 | 5 | 651 | 685 | 100 | SDO4 |

Step 7

1. Due to passive price determination logic, the execution on ALSISEP2019DEC2019 between IMP6 and SDO1 will happen at a price of 679.

| ALSIFUTSEP2019 | | | | | | ALSIFUTDEC2019 | | | | | |
|----------------|-----|-------|-------|-----|-------|----------------|-----|-------|-------|-----|-------|
| OID | Qty | Price | Price | Qty | OID | OID | Qty | Price | Price | Qty | OID |
| | | | 50857 | 1 | SEPO3 | DECB1 | 1 | 52497 | 52500 | 2 | DECO2 |
| SEPB1 | 1 | 50836 | 50861 | 1 | SEPO4 | DECB2 | 4 | 51512 | 53000 | 1 | DECO3 |
| SEPB2 | 1 | 50834 | 50862 | 1 | SEPO5 | DECB3 | 2 | 50000 | | | |
| SEPB3 | 3 | 50833 | | | | DECB4 | 1 | 49000 | | | |
| SEPB4 | 4 | 50833 | | | | | | | | | |

| ALSISEP2019DEC2019 | | | | | |
|--------------------|-----|-------|-------|-----|------|
| OID | Qty | Price | Price | Qty | OID |
| IMP6 | 1 | 1640 | 679 | 2 | SDO1 |
| SDB1 | 1 | 661 | 679 | 12 | SDO2 |
| SDB2 | 5 | 651 | 685 | 10 | SDO3 |
| SDB3 | 5 | 651 | 685 | 100 | SDO4 |

Step 8

1. Since IMP6 is executed at 679. There is a price improvement applied on the Leg 1 implied match order generated to complete the implied execution chain.
2. The passive price improvement applied onto IMP7 is calculated based on the spread price formula (Leg 2 price – Spread price = Leg 1 price)

Leg 1 Price = 52497 – 679

Leg 1 Price = 51818

3. IMP7 executes against SEPO3 based on the above formula.
4. IMP8 executes against DECB1.
5. The following trades are disseminated,
 - a. ALSISEP2019DEC2019 – 1 @ 679
 - b. ALSIFUTSEP2019 – 1 @ 51818
 - c. ALSIFUTDEC2019 – 1 @ 52497

| ALSIFUTSEP2019 | | | | | | ALSIFUTDEC2019 | | | | | |
|----------------|-----|-------|-------|-----|-------|----------------|-----|-------|-------|-----|-------|
| OID | Qty | Price | Price | Qty | OID | OID | Qty | Price | Price | Qty | OID |
| IMP7 | 1 | 51818 | 50857 | 1 | SEPO3 | DECB1 | 1 | 52497 | 52497 | 1 | IMP8 |
| SEPB1 | 1 | 50836 | 50861 | 1 | SEPO4 | DECB2 | 4 | 51512 | 52500 | 2 | DECO2 |

| | | | | | | | | | | | | |
|------|---|-------|-------|---|-------|--|------|---|-------|-------|---|-------|
| SEP2 | 1 | 50834 | 50862 | 1 | SEPO5 | | DEC3 | 2 | 50000 | 53000 | 1 | DECO3 |
| SEP3 | 3 | 50833 | | | | | DEC4 | 1 | 49000 | | | |
| SEP4 | 4 | 50833 | | | | | | | | | | |

| ALSISEP2019DEC2019 | | | | | |
|--------------------|-----|-------|-------|-----|------|
| OID | Qty | Price | Price | Qty | OID |
| IMP6 | 1 | 679 | 679 | 2 | SDO1 |
| SDB1 | 1 | 661 | 679 | 12 | SDO2 |
| SDB2 | 5 | 651 | 685 | 10 | SDO3 |
| SDB3 | 5 | 651 | 685 | 100 | SDO4 |

Step 9

Final order book after execution

| ALSIFUTSEP2019 | | | | | | ALSIFUTDEC2019 | | | | | |
|----------------|-----|-------|-------|-----|-------|----------------|-----|-------|-------|-----|-------|
| OID | Qty | Price | Price | Qty | OID | OID | Qty | Price | Price | Qty | OID |
| SEP1 | 1 | 50836 | 50861 | 1 | SEPO4 | DEC2 | 4 | 51512 | 52500 | 2 | DECO2 |
| SEP2 | 1 | 50834 | 50862 | 1 | SEPO5 | DEC3 | 2 | 50000 | 53000 | 1 | DECO3 |
| SEP3 | 3 | 50833 | | | | DEC4 | 1 | 49000 | | | |
| SEP4 | 4 | 50833 | | | | | | | | | |

| ALSISEP2019DEC2019 | | | | | |
|--------------------|-----|-------|-------|-----|------|
| OID | Qty | Price | Price | Qty | OID |
| SDB1 | 1 | 661 | 679 | 12 | SDO2 |
| SDB2 | 5 | 651 | 685 | 10 | SDO3 |
| SDB3 | 5 | 651 | 685 | 100 | SDO4 |