



# Update – VWAP Calculation for VX Futures Daily Settlement Prices

Reference ID: C2021011901

## Overview

**Applicable Cboe Exchange:** CFE

**Effective January 25, 2021**, Cboe Futures Exchange, LLC (“CFE”) plans to begin using a volume weighted average price (VWAP) calculation to determine the daily settlement prices (“DSPs”) for standard-sized Cboe Volatility Index (“VX”) futures, *subject to regulatory review*.

## Technical Details

There is currently a three step hierarchy for determining the DSP for each VX futures contract. Under the first step of the hierarchy, the DSP of a VX futures contract is the average of the bid and the offer from the last best two-sided market in the contract prior to the daily settlement time during the applicable business day which simultaneously includes both a pending bid with a non-zero value and a pending offer with a non-zero value. The daily settlement time for VX futures, except in connection with a scheduled early close prior to or following a holiday, is 3:00 p.m. CT.

The DSP for a Mini Cboe Volatility Index (“VXM”) futures contract is the DSP of the VX futures contract that has the same final settlement date as the VXM futures contract.

On the effective date, a VWAP calculation will be used as the first step in the hierarchy for calculating the DSP for VX futures. The interval for the VWAP calculation will be the final 30 seconds leading up to the daily settlement time. The VWAP calculation will be determined based on executions in both VX futures and VXM futures during the VWAP interval. Executions in VX futures and VXM futures will be scaled in the calculation based on the difference in the notional sizes of the two products recognizing that VXM futures are 1/10 the notional size of VX futures. The VWAP calculation will be used to determine the DSP for a VX futures contract if the equivalent of at least 1 VX future is executed during the VWAP interval, taking into consideration executions in both the VX futures contract and the corollary VXM futures contract. The DSP for the corollary VXM futures contract will continue to be the same as the DSP for the VX futures contract.

Only executions of simple orders will be included in the VWAP calculation, including simple order transactions that occur when simple orders execute against spread orders. Executions of spread orders against other spread orders, trade at settlement (“TAS”) transactions, block trades, and exchange of contract for related position (“ECRP”) transactions will be excluded from the VWAP calculation.

The remaining steps in the hierarchy for determining the DSP for a VX futures contract will remain the same. Accordingly, if the VWAP calculation is not able to be used to determine the DSP, the next step in the hierarchy will be the mid-point calculation described above. CFE will also retain its authority to override any of steps in the hierarchy if it determines in its sole discretion that the DSP established through any of these steps is not a fair and reasonable reflection of the market or if there is a trading halt or other unusual circumstance at or around the daily settlement time.

### **New Closing Time for VX/VXM TAS Transactions**

The closing time for TAS transactions in VX and VXM futures (VXT and VXMT) is currently 2:58 p.m. CT on a normal business day. In connection with the implementation of the VWAP process for VX futures, the closing time for VXT and VXMT will be changed to the daily settlement time for VX futures. Accordingly, on the effective date, the close of trading hours for VXT and VXMT will be 3:00 p.m. CT on a normal business day.

### **Decimal Places for VX/VXM DSPs and VXT/VXMT TAS Transactions **(Update)****

CFE's rules currently provide that the DSP of a VX future may go out to four decimal places and may be a price that is not at a minimum increment for VX futures. This provision is not changing with the introduction of the VWAP calculation as the first step in the hierarchy for calculating the DSP for VX futures.

As a result, following the implementation of the VWAP process, the DSPs for VX and VXM futures may go out to four decimal places and be at a price that is not at a minimum increment for VX and VXM futures. Similarly, the prices at which VXT and VXMT TAS transactions will be restated following the determination of the DSPs for VX futures may also go out to four decimal places and be at a price that is not at a minimum increment for VX and VXM futures.

### **Testing Opportunities**

The CFE certification environment now uses the VWAP process to calculate the DSP for VX futures with the 30 second VWAP measurement interval. Also, the VXT and VXMT closing time in the CFE certification environment is now 3:00 p.m. CT.

### **Additional Information **(Update)****

For additional information, refer to the following CFE rule filing.

➤ [CFE Rule Filing Regarding VWAP Process](#)

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