Updated Report

Agricultural Block Trade Analysis

A Report by Staff of the Market Intelligence Branch

Division of Market Oversight

U.S. Commodity Futures Trading Commission

October 2018

Table of Contents

List of Exhibits

Significance of Block Trades

The Chicago Mercantile Exchange ("CME") launched block trading for the full suite of agricultural futures and options on futures products on January 8, 2018. Prior to this action, the CME had allowed block trades for only eleven (mostly smaller) products in the agricultural asset class.

Block trading is an important issue for the CFTC because of DCM Core Principle 9 of the Commodity Exchange Act which states that "[t]he board of trade shall provide a competitive, open, and efficient market and mechanism for executing transactions that protects the price discovery process of trading in the centralized market of the board of trade."[1]

Prior to the CME's expansion of agricultural block trading in January, the CFTC heard various concerns from some members of the industry – most importantly, that block trades could reduce liquidity from the central limit order book ("CLOB") and could reduce price transparency.

Since January's implementation of agricultural block trading in larger markets, the CFTC's Division of Market Oversight ("DMO") staff has heard continuing concerns that block trades are occurring in liquid front months and prices of some block trades appear to be outside the range of current prices.

DMO staff has taken these concerns seriously and made recommendations to the CME. DMO staff has also undertaken a data-driven analysis of all futures block trades from January 2018 through September 2018 in order to keep the Commission and industry participants informed on this issue. This report updates DMO staff's initial analysis of data from January 2018 to March 2018 ("initial analysis").[2]

[1] 7 U.S.C. 7(d)(9).

[2] *See* Agricultural Block Trade Analysis, A Report by Staff of the Market Intelligence Branch, Division of Market Oversight, U.S. Commodity Futures Trading Commission, July 2018, https://www.cftc.gov/MarketReports/StaffReports/index.htm.

Key Questions and Answers

DMO staff designed its analysis to answer several questions related to industry concerns. A summary of the questions and answers follows.

How large is agricultural block trade volume relative to total agricultural volume?

Similar to the initial analysis, block trades are insignificant compared to total volume, but block trades can be a significant percent of the total volume in an individual contract month on specific days.

Are agricultural block trades displacing total agricultural volume?

Similar to the initial analysis, DMO staff observed no increase in block trade volume relative to total volume.

Are agricultural block trades occurring in nearby months?

Over 63% of block volume is in the nearby months versus 75% in the initial analysis.

Are agricultural block trades pulling liquidity away from the CLOB?

Almost 57% of block futures volume is being offset in the CLOB for the same contract expiration on the same day versus 65% in the initial analysis.

Are block trades being executed at "fair and reasonable" levels in accordance with CME rules?

Similar to the initial analysis, they are in compliance with CME rules.

Methodology Overview

DMO staff analyzed all grain, oilseed, and livestock transactions from January 8 through September 30, 2018. This amounted to an analysis of millions of records.

DMO staff sourced the block trade and position data from proprietary data submitted to the CFTC. DMO staff sourced order book, market volume, and price data from Vertex and DTN. Additionally, DMO staff used the CME Advisory Notice (RA1719-5R) and CME Rule 526 to evaluate the "fair and reasonable" price standard for block trades.

DMO staff identified 389 futures blocks (52 outright and 337 spreads) and 485 options on futures blocks (81 outright and 404 spreads). Each apparent spread transaction was counted as two separate legs because that is how they are cleared. The reason for the odd number on the

legged spreads results from a corn/ethanol spread block. Since ethanol is not part of this study, DMO staff excluded it from the analysis. One of the reasons traders sometimes execute block trades is for these more exotic spread trades, such as this corn/ethanol spread.

For this study, DMO staff included futures and options in the volume summary statistics which are displayed in Exhibits 1 to 4 below. Block option volume is not delta adjusted in this report. DMO staff focused the detailed pricing and liquidity analysis in Exhibits 5 and 6 below on futures-only block trades due to the complexity of options and the relatively small value of options on a delta adjusted basis.

Exhibit 1: Block Trades Percentage
(Futures and Options)

Commodity	All Days	Days when Blocks Occur
CBT CORN	0.32%	1.29%
CBT WHEAT-HRW	0.17%	2.58%
CBT WHEAT-SRW	0.16%	0.86%
CBT SOYBEANS	0.15%	1.22%
CBT ROUGH RICE	0.14%	6.05%
CBT SOYBEAN OIL	0.11%	1.60%
CME LEAN HOGS	0.08%	2.21%
CBT SOYBEAN MEAL	0.08%	0.88%
CME LIVE CATTLE	0.02%	0.36%
Average	**0.19%**	**1.22%**

Similar to the initial analysis, blocks are an extremely small percentage of total futures and options volume (0.19% above versus 0.17% in the initial analysis).

The middle column of Exhibit 1 compares block volume to total volume. Every agricultural commodity's share of block trades is well below one percent with an average of about 1/5 of one percent. This demonstrates that block trading is not a significant share of the market and that blocks could not consistently impact price discovery.

The right column of Exhibit 1 displays block volume on days when blocks actually occur. On approximately 18% of the trade days, no block trades are executed in any of the agricultural markets analyzed, so the prevalence of many "zero" observances skews the data downward in the "All Days" column. When removing the dates with no block trades from each commodity and then comparing block volume with total volume, block trades are still very small, averaging about 1.2% of total volume.

Exhibit 2: High Block Volume Days
(Futures and Options)

Date	Contract Month	Contract Market	Block Volume	Block Share of Volume
3/27/2018	Mar-19	CORN	3,006	47.7%
4/13/2018	Mar-19	WHEAT-SRW	1000	45.0%
4/16/2018	Jul-19	WHEAT-SRW	500	44.4%
2/2/2018	May-18	LEAN HOGS	187	42.4%
4/26/2018	Jul-19	WHEAT-SRW	381	40.4%
4/27/2018	Jul-19	WHEAT-SRW	381	35.1%
5/15/2018	Dec-19	WHEAT-SRW	242	34.6%
7/12/2018	Nov-19	SOYBEANS	1600	34.5%
3/29/2018	Jul-19	WHEAT-SRW	200	31.7%
2/1/2018	May-18	LEAN HOGS	200	30.3%

Exhibit 2 shows the top block percentages of volume by date and individual contract month. Industry participants' concerns may have been driven by these larger percentages, which may be misleading because the volume in Exhibit 2 represents deferred and therefore generally thinly traded contract months. For example, in row one, on March 27, 2018, a deferred month March 2019 corn block trade totaled 3,006 contracts. This represented over 47% of the volume for that one contract month on that specific day. A more nearby month example is found in row four where on February 2, 2018 a Lean Hog block trade in the May 2018 contract totaled 187 contracts. It is important to note that May Lean Hogs is traditionally a seasonally thinly traded future contract month, so a modestly-sized block trade can easily make up a large share of volume.

Such large block percentages of the total volume may cause concern amongst the industry. However, the block trades in a thinly traded Lean Hog May contract or blocks executed in deferred contracts appear to be within the expectations that the CME had when they chose to implement block trades. It appears these trades support the CME's intent of block trades – to fulfill trading in less liquid months.

Exhibit 3: All Futures and Options Combined (AFOC)

(Futures and Options - Block option volume is not delta adjusted)

Contracts Percent

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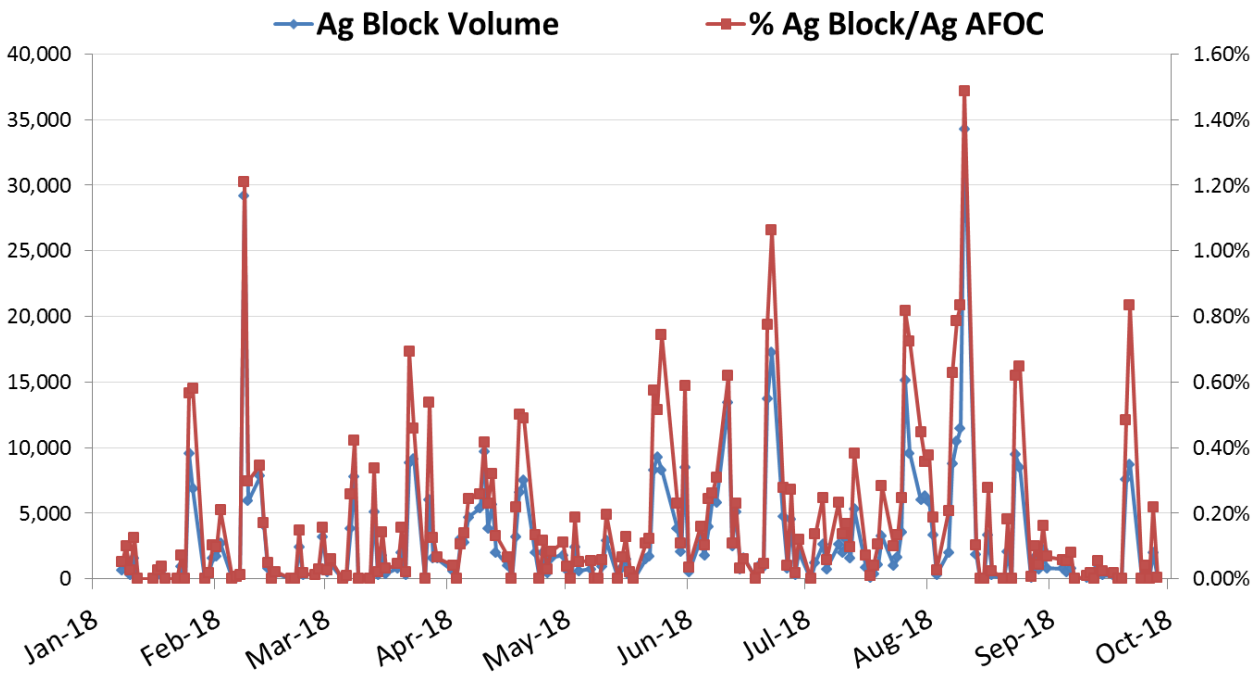


Exhibit 3 shows agricultural block volume (red line using the left axis) versus agricultural block volume as a percent of total agricultural volume (blue line using right axis).

In a Wall Street Journal article, the National Grain and Feed Association expressed a wariness "of increasing futures volume moving into blocks… [fearing] if volumes grow too large it could limit market participation, especially for relatively smaller hedgers."[3] The data shows that the number of block trades is not increasing and, as Exhibit 3 demonstrates, the block volume and block share of volume are also not increasing.

Of note, the large block volume of almost 30,000 contracts on February 8, 2018 was primarily due to two large block corn spread trades. That block trade volume was the second highest percentage observed to date at 1.2% of total agricultural volume. On that day, blocks accounted for about 4% of the March corn volume and 6% of the May corn volume. The largest block volume of 34,278 contracts occurred on August 10, 2018. It primarily consisted of vertical call spreads in corn and soybeans, with deep out-of-the-money call options. Adding the delta adjusted options to the futures, results in a futures equivalent volume of about 7,000 futures contracts. When viewed from a futures equivalent volume, this block volume is less significant.

[3] Benjamin Parkin and Jacob Bunge, Livestock and Grain Traders Navigate Murkier Market, The Wall Street Journal, April 8, 2018, WSJ link.

Exhibit 4: Nearby (< 90 days) versus Deferred Blocks

(Futures and Options)

"Nearby" if futures expiration within 90 days. All futures and options data	Percent Share	
	NEAR	DEFERRED
ROUGH RICE	100%	0%
LIVE CATTLE	87%	13%
SOYBEAN MEAL	71%	30%
WHEAT-HRW	66%	34%
CORN	66%	34%
SOYBEANS	62%	38%
LEAN HOGS	57%	43%
SOYBEAN OIL	51%	49%
WHEAT-SRW	46%	54%
Grand Total	63%	37%

Exhibit 4 shows that on average 63% of the agricultural block trade volume is occurring in the front two (generally most liquid) months. This is lower than the 75% number found in the initial analysis.

The industry concern is that block trades are pulling volume from liquid contracts. As an example, on February 8th the March-May corn spread volume was about 125,000 contracts for the day. Of that specific spread volume, there were two large block trades that accounted for almost 14,000 contracts. This concerned the industry because the use of block trades in liquid contracts appears to conflict with the expectations set by the CME in the pre-launch of block trades. Prior to the launch of agricultural block trading, the CME publicly opined that blocks would primarily be traded in deferred and thinly traded contracts. There is no rule violation in trading nearby block months, but due to these statements and industry expectations, nearby month block trades are likely getting the industry's attention.

Although declining as a percent of total block volume when compared to the initial analysis, block trades are still occurring mainly in the nearby months. DMO staff notes, however, that some of the nearby block volume occurs due to the large number of spread trades where institutional traders are executing a nearby leg with a deferred leg on a spread. Nearby block volume as a percent of total block volume remains significantly higher than in deferred months, but a large portion of these nearby month legs are being traded as blocks because of the thinly

traded deferred month leg. Therefore, the high percent of block volume in nearby months is not indicative of outright trading, but rather to the nearby month trades being tied to spread trades with less liquid deferred months. This is seen in the high percent of block spread trades. About 85% of agricultural block trades are spread trades versus 90% in the initial analysis.

Block Trades and the Central Limit Order Book

Block trade sizes can be large relative to the available liquidity in the CLOB. Generally, if a large market order is entered into an illiquid contract that market could experience price and volume spikes that could trigger logic events – temporary trading pauses. The impact of a large order could trigger prices of resting orders to be traded through rapidly, only to snap right back – possibly even causing a flash crash. Because the liquidity in some markets is not large enough to accommodate the execution of larger sized orders, participants may be harmed. Entering an order as a block trade and having a market-maker offset it over time could help to buffer sudden wide price moves in thinly traded markets. Some industry participants, particularly hedgers, who have expressed concerns that block trades take liquidity away from the CLOB, may be discounting the buffering effect that block trade offsetting can have on sudden price swings.

DMO staff analyzed this concern by focusing on identifying and measuring the block trades that are being offset in the CLOB. DMO staff took a conservative approach to measuring which block trades are being offset in the CLOB. For this study, the term "offset" means a trader transacted the opposite side of their block trade in the CLOB on the same day, same contract, and same month as the block trade. DMO staff opted to keep a narrow offset methodology to assure the offsets are not overstated.

Exhibit 5: Blocks Offset in the CLOB
(Futures Only - No Options)

Activity in the CLOB versus Blocks			
Contract	Block Volume	Activity in the CLOB Opposite the Block by Block Participant	Percent
ROUGH RICE	254	214	84%
LIVE CATTLE	1,681	1,275	76%
SOYBEANS	8,182	4,980	61%
LEAN HOGS	7,808	4,689	60%
CORN	112,046	67,230	60%
WHEAT-SRW	30,164	16,310	54%
SOYBEAN MEAL	10,894	5,865	54%
WHEAT-HRW	21,038	9,847	47%
SOYBEAN OIL	11,840	4,758	40%
Grand Total	203,907	115,168	**57%**

The far right column in Exhibit 5 shows the percentage of blocks offset into the CLOB by product. DMO staff observed a fairly large range from 40% to 84%. The average percent offset in

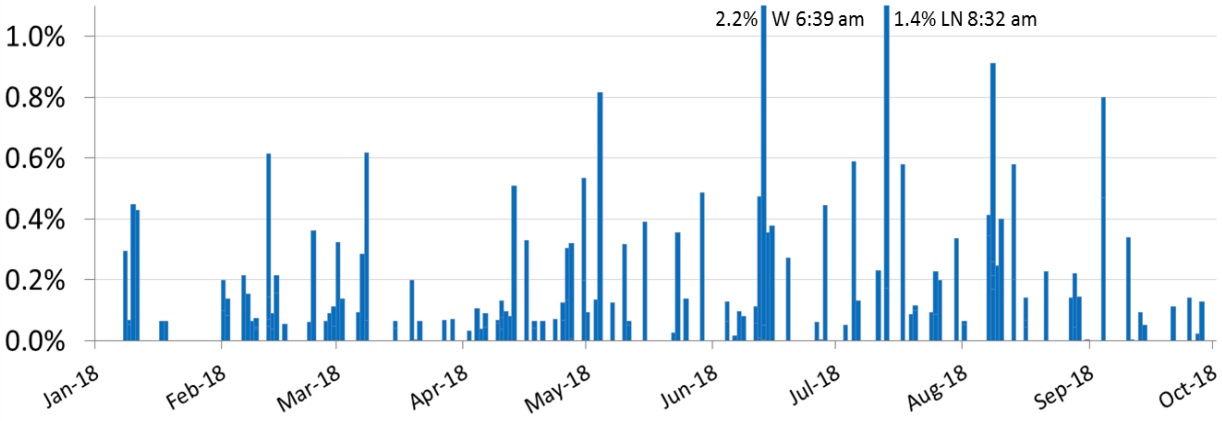
the CLOB for all agricultural products examined is 57%, which means, if two participants execute a block, 57% of that volume hits the CLOB for that trade date. This is compared to 64% in the initial analysis. The market maker of those block trades executes trades in the CLOB on the opposite side of the blocks. So, if a market maker buys via a block it will sell in the CLOB to offset that trade, and vice-versa. The market maker has an incentive to offset the trade in an orderly manner to minimize price impact so as to minimize slippage and maximize the profit of the arbitrage.

DMO staff also learned, through trader interviews, that some traders use blocks in place of swaps and this could add liquidity when those blocks are offset in the CLOB. In that case, it could be that blocks are adding to total liquidity and volume of the CLOB or, at a minimum, not causing any harm.

Exhibit 6: Block Pricing

(Futures Only - No Options)

% Off-Market	# of Blocks	% Blocks	Cumulative Block %	Within Days Price Range
0.0%	248	63.8%	63.8%	YES
0.1%	64	16.5%	80.2%	YES
0.2%	19	4.9%	85.1%	YES
0.3%	25	6.4%	91.5%	YES
0.4%	14	3.6%	95.1%	87.5%
0.5%	8	2.1%	97.2%	80.0%
0.6%	4	1.0%	98.2%	YES
0.7%	1	0.3%	98.5%	YES
0.8%	2	0.5%	99.0%	YES
0.9%	2	0.5%	99.5%	YES
>=1.0%	2	0.5%	100.0%	YES
Grand Total	**389**	**100.0%**		**99.5%**



The top table in Exhibit 6 displays the distribution of the variance of the block price from actual market prices in a 15 minute period just prior to the block trade. The first column on the left hand side displays the percentage that the block price varies from the market price ("off-

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