



ARE 495: Introduction to Commodity Futures Markets

Lecture 4: Jargon & Market Mechanics

***Nick Piggott & Wally Thurman
NCSU Agricultural & Resource Economics***

***January 13, 2018
10.15am – 11.30am
Gardner 3214, NCSU***



OUTLINE

- Review the jargon used to date and introduce a few **new** one's today
 - Remember this is a new language and some of the concepts take a while. This is why we are pausing now for a brief review.

- Market mechanics
 - Different: markets, contracts, participants
 - Institutions involved
 - How does one actually buy & sell in the different markets

- Exercise of tracking your assigned contract
 - Concept of settlement **marking-to-market** each day
 - Futures trading is a zero-sum-game



KEY JARGON REVIEW

Cash Prices: Sometimes referred to as “spot price”. The actual current market price for the physical commodity in a given location for immediate delivery or purchase

Forward Contract: Contract calling for the future delivery of physical commodity at a specified price and a set time period.

Futures Contract: An **obligation to buy or sell** a specific quantity and quality of a commodity or financial instrument at a certain price at a specified future date. Primary use is for offsetting price risks in the cash market or to take advantage of price movements rather than to buy the physical underlying commodity.

Long: A long position in the futures market involves **buying** the underlying asset.

- ❑ **“L” for light like a feather and float up and away**

Short: A short position in the futures market involves **selling** the underlying asset.

- ❑ **“S” for heavy like a stone and drop to the floor**

Broker: A person or firm that handles futures and options trades on the floor of an exchange for a nominal fee or commission.

Exchanges: Organized futures and options markets where futures and options contracts are traded (e.g, CME, NYMEX).



KEY JARGON REVIEW....

Hedging: Participating in the futures or options market to neutralize the effects of a commodity or financial risk. Requires taking an **opposite position** in the futures market today than you have in the cash market currently.

Speculating: Speculators participate in the futures market with the sole intention of making a profit. They play a critical role in providing liquidity to the market. Most people who speculate lose. To make a profit takes much skill and discipline.

Cash Delivery: Applies mostly to commodities. The seller delivers the actual product to the buyer.

Cash Settlement: Cash settlement applies mostly to financial contracts. There is no delivery of the financial instrument things are settled in cash.

Delivery month: The month during which the futures contract expires

Nearby: The futures contract month that is closest to expiration

New Crop: The futures crop month that is closest to when the underlying crop is next harvested

November for soybeans

December for corn



FUTURES CONTRACT SPECIFICATION

- Critical component to the functioning of futures market is there is only one variable which is price
 - ❑ Standardized: Quantity, Quality, Delivery Time and Place
- Futures contract months are represented throughout the industry

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Ticker Symbol	F	G	H	J	K	M	N	Q	U	V	X	Z
---------------	---	---	---	---	---	---	---	---	---	---	---	---

- What does C2018Z mean?
 - Corn 2018 December contract
- What does W2019U mean?
 - Wheat 2018 September contract



Quotes Corn (C) 1-22-2018

Different Contracts

Volume tends to be concentrated in early months and also at new crop months if there is one

Month	Options	Charts	Last	Change	Prior Settle	Open	High	Low	Volume	Hi / Low Limit
MAR 2018			354'2	+1'6	352'4	353'4	354'4	353'4	16,726	377'4 / 327'4
MAY 2018			362'4	+1'6	360'6	361'4	362'6	361'4	7,167	385'6 / 335'6
JUL 2018			370'6	+1'6	369'0	369'4	371'2	369'4	10,147	394'0 / 344'0
SEP 2018			378'2	+1'6	376'4	377'2	378'6	377'2	901	401'4 / 351'4
DEC 2018			387'4	+1'6	385'6	386'6	388'0	386'6	2,230	410'6 / 360'6
MAR 2019			396'4	+1'6	394'6	395'6	397'0	395'6	536	419'6 / 369'6
MAY 2019			401'4	+1'2	400'2	401'0	401'4	401'0	19	425'2 / 375'2
JUL 2019			406'2	+1'4	404'6	406'0	406'4	406'0	108	429'6 / 379'6
SEP 2019			-	-	401'6	-	-	-	0	426'6 / 376'6
DEC 2019			406'0	+1'4	404'4	405'0	406'4	405'0	111	429'4 / 379'4

Mar 18 is "Nearby contract"

Dec 18 is "New Crop" contract

Q: What does 370'6 mean?

The CME still uses cents and eights per bushel usually denoted with ^ or '. So 370'6 is 370 6/8 cents or \$3.7075



Contract Specifications

Corn Futures Contract Specs

View Another Product

Quotes Settlements Volume Time & Sales **Contract Specs** Margins Calendar

Futures Options

Contract Unit	5,000 bushels (~ 127 Metric Tons)	←	5,000 bushels per contract
Price Quotation	Cents per bushel	←	Cents/bushel
Trading Hours	Sunday – Friday, 7:00 p.m. – 7:45 a.m. CT and Monday – Friday, 8:30 a.m. – 1:20 p.m. CT		
Minimum Price Fluctuation	1/4 of one cent per bushel (\$12.50 per contract)	←	Cents/bushel (¼ of one cent is 0.25 cents/bu or \$0.0025 bu)
Product Code	CME Globex: ZC CME ClearPort: C Clearing: C TAS: ZCT	←	Product ticket symbol is “C”
Listed Contracts	March (H), May (K), July (N), September (U) & December (Z)	←	New Crop Contract
Settlement Method	Deliverable		
Termination Of Trading	The business day prior to the 15th calendar day of the contract month.		Contract expires 15 th day of the month



Settlement Corn (C) 1-22-2018



5,000 bushels per contract

Month	Open	High	Low	Last	Change	Settle	Estimated Volume	Prior Day Open Interest
MAR 18	353'4	354'4	351'2	352'0	-4	352'0	165,400	806,028
MAY 18	361'4	362'6	359'6	360'4	-2	360'4	36,639	270,956
JULY 18	369'4	371'2	368'0	369'0	UNCH	369'0	31,868	248,328
SEP 18	377'2	378'6	375'4	376'2	+2	376'6	5,616	101,686
DEC 18	386'6	388'0	385'0	385'6	UNCH	385'6	11,640	157,866
MAR 19	395'6	397'0	394'0	394'4	UNCH	394'6	1,463	24,696
MAY 19	401'0	402'0B	399'4	400'0A	-2	400'0	179	3,326
JULY 19	406'0	406'4	404'0	404'4A	-2	404'4	232	6,746
SEP 19	402'0	402'0	402'0	402'0	UNCH	401'6	1	1,266
DEC 19	405'0	406'4	404'2	404'4A	UNCH	404'4	457	9,876
MAR 20	414'0	414'0	411'6	413'0A	UNCH	412'2	15	136
MAY 20	418'6	418'6	418'6	418'6	+2	416'4	12	66
JULY 20	421'4	421'4	420'0	420'0	UNCH	420'4	22	246
SEP 20	420'4	420'4	420'0	420'4	-2	420'2	10	66
DEC 20	410'0	412'0	410'0	411'0	+1'4	411'2	35	226
JULY 21	-	415'2B	-	415'2B	+1'6	415'4	0	66



Some **NEW** JARGON...

Zero Sum Game; A trade in which one participant's gains result only from another participant's equivalent losses. The net change in total wealth among participants is zero; the wealth is just shifted from one to another. Future contracts are examples of zero-sum games (excluding costs). For every person who gains on a contract, there is a counter-party who loses.

- ❑ Gambling like playing black-jack is also an example of a zero-sum game.
- ❑ The stock market, however, is not a zero-sum game because wealth can be created in a stock market. That is, when the stock goes up everyone who owns it gains. It is possible to lose on a stock going up if one shorts it but this is not commonly done. Most owners of stock have a buy and hold strategy like your 401k account.

Margin Deposit; A deposit made with your broker into your account that allows you to buy or sell futures. If futures move adversely against you (you have a loss), then the losses must be replenished back to the levels to meet the margin requirements.

Margin Call: A trader will receive a margin call when the market has moved unfavorably against the trader. The broker will contact the investor who must replenish their account to the original margin deposit. If the trader fails to make the margin call in time their position is liquidated to limit further losses and they are still responsible for paying for the loss incurred. This is what scares producers and keeps them up at night if they are close to a margin call.



Some **NEW** JARGON...

Mark to Market: Used in futures trading involving the process of valuing the assets covered in a futures contract at the end of the each trading day and then the profit and loss is settled between the long and the short. This ensures liquidity and the integrity of the market and the trade.

Daily Settlement: This the process that the clearinghouse (exchange) conducts daily where they take the settlement price (or closing price) and then converts the paper gains and losses to actual gains and losses in the accounts of the shorts and longs. If necessary margin calls will be made if a particular accounts balance falls below the minimum margin level.

Initial Margin: Is the amount you must have in your account to purchase a commodity futures contract. It varies based on the commodity you are trading.

Maintenance Margin: Is the amount that you must have in your account to maintain an open position. It is usually less than the initial margin. Your account value must be above this level at the daily settlement to avoid a margin call.



Initial vs. Maintenance Margin

Initial Margin Requirements

There two different kinds of margin that a market participant should be aware of. Initial margin is the up-front payment, a percentage of the trade price, made prior to a market transaction when purchasing on that margin. After the initial margin is met, a market participant is required to keep up maintenance margin. This is the amount of equity required to retain an open position.

Speculative ("Spec") /non-member initial margin requirements for all products are set at 110% of the maintenance margin requirement for a given product. Hedger/member initial margin requirements for all products are set at 100% of the maintenance margin requirement for a given product.

The following table¹ depicts the aforementioned logic in practice:

CC	Rate Type	Description	ISO	Current Initial	Current Maintenance
Outright Rates					
CRUDE OIL SPREADS - Outright Rates					
CANADIAN HEAVYCRUDE(NET ENERGY) FUT(WCC)					
WCC	Spec	Mnths 3 - 6	USD	1,540	1,400
WCC	Hedge/Member	Mnths 3 - 6	USD	1,400	1,400

The maintenance margin requirement for Canadian Heavy Crude (Net Energy) Futures Months 3-6 is \$1,400. The Hedge/Member initial margin requirement is \$1,400, while the Spec initial margin requirement is \$1,540 ($\$1,400 \times 1.1$).

¹ For illustration purposes only



Corn Maintenance Margin

Corn Margins

View Another Product

Quotes | Settlements | Volume | Time & Sales | Contract Specs | **Margins** | Calendar

Outrights/Vol Scans | Intras | Inters/Intex/Supers | Short Option Minimum

Exchange: CBT

XLS Download Data

Asset Class: AGRICULTURE

Product: C-CORN FUTURES

Exchange	Asset Class	Product	Product Code	Start Period	End Period	Maintenance	Maint. Vol. Scan
CBT	AGRICULTURE	CORN FUTURES	C	03/2018	03/2018	550 USD	0.01
CBT	AGRICULTURE	CORN FUTURES	C	05/2018	12/2018	550 USD	0.01
CBT	AGRICULTURE	CORN FUTURES	C	03/2019	12/2021	450 USD	0.01

About This Report

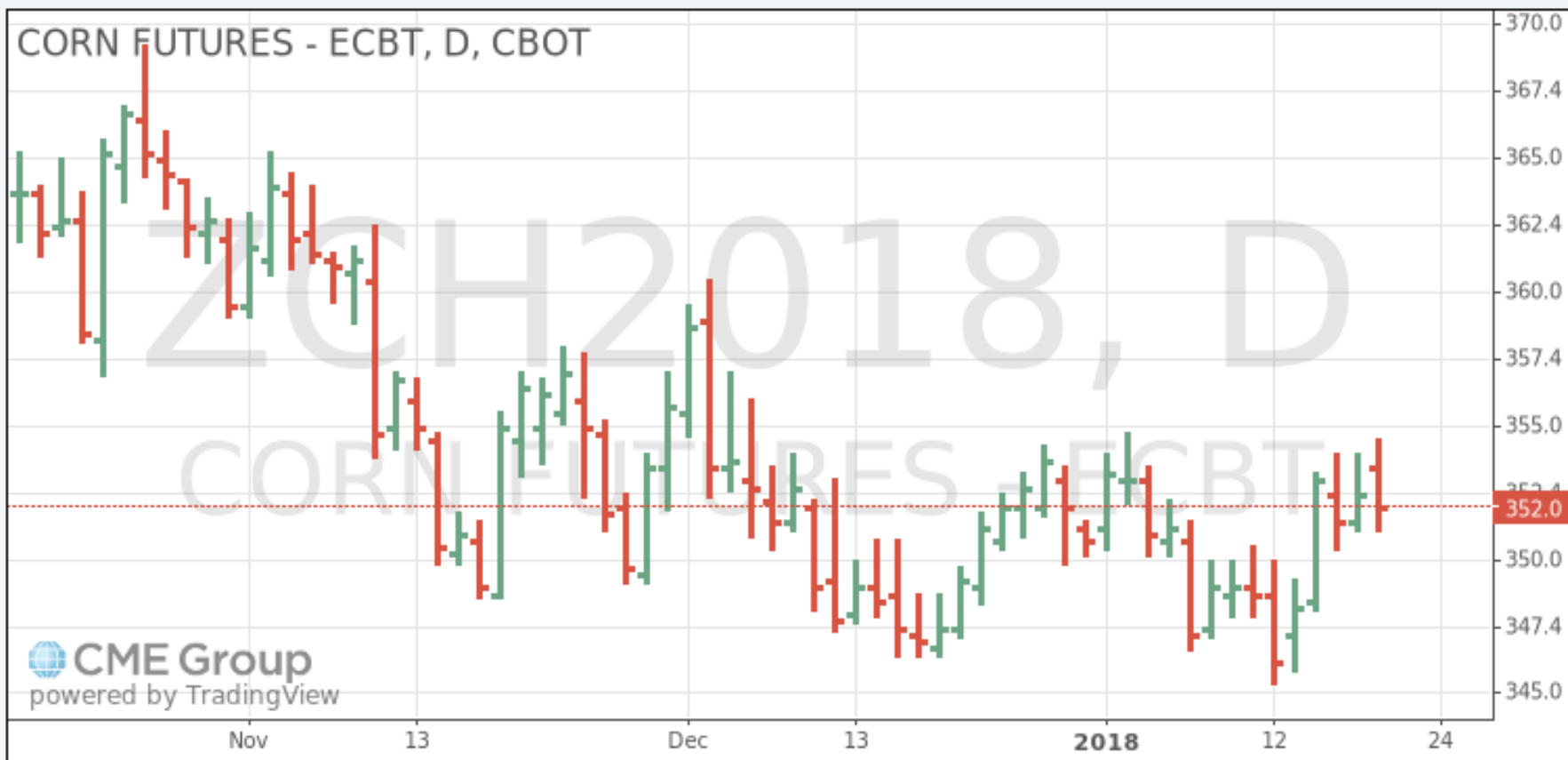
Go to:

<http://www.cmegroup.com/clearing/margins/outright-vol-scans.html#sortField=exchange&sortAsc=true&pageNumber=1>



NEARBY CORN (C2018H)

CBOT:ZCH2018 O:353.4 H:354.4 L:351.2 C:352.0

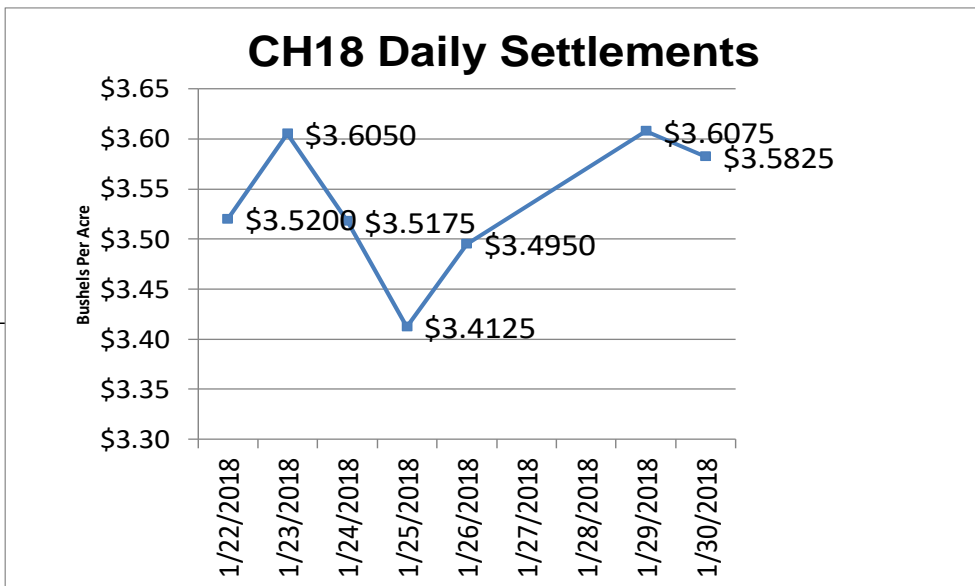




Simple Example of Mark-to-Market

Quick Check:

$$\begin{aligned}
 \text{Gain/Loss} &= \Delta \text{Price} \times \text{Quantity} \\
 &= (\$3.5825 - \$3.5200) \times 5,000 \\
 &= \$0.0625 \times 5,000 \\
 &= \$312.50
 \end{aligned}$$



Name	Wally (The Long)	
Commodity	CH2018 (Corn March 2018)	
Units per contract	5,000	
Bull/Bear	Bull	
Buy/Sell	Buy	
Initial Margin	\$605	= \$550 * 1.605
Maintenance Margin ¹	\$550	
Close 1/22/2018	352^0	\$3.520

Date	Day	Futures Trade	Delivery Month	# Contracts	Buy/Sell Price	Daily Settlement	Δ from Previous Settlement	Position Gain	Account Balance	Margin Call	ACCOUNT BALANCE AFTER MARGIN CALL
1/22/2018	Mon					\$3.5200			\$605.00		
1/23/2018	Tue	BUY	MAR (H)	1	\$3.5200	\$3.6050	\$0.0850	\$425.00	\$1,030.00	\$0.00	\$1,030.00
1/24/2018	Wed					\$3.5175	-\$0.0875	-\$437.50	\$592.50	\$0.00	\$592.50
1/25/2018	Thu					\$3.4125	-\$0.1050	-\$525.00	\$67.50	\$482.50	\$550.00
1/26/2018	Fri					\$3.4950	\$0.0825	\$412.50	\$962.50	\$0.00	\$962.50
1/29/2018	Mon					\$3.6075	\$0.1125	\$562.50	\$1,525.00	\$0.00	\$1,525.00
1/30/2018	Tue					\$3.5825	-\$0.0250	-\$125.00	\$1,400.00	\$0.00	\$1,400.00
Gain/Loss								\$312.50			



Zero Sum Game: Mark-to-Market

The market has increased \$0.0625 meaning the **long has made a gain & the short has made a loss on paper**

Name	Wally (The Long)		
Commodity	CH2018 (Corn March 2018)		
Units per contract	5,000		
Buy/Sell	Buy		
Initial Margin	\$605	= $-\$550 \times 1.$	605
Maintenance Margin ¹	\$550		

Date	Day	Futures Trade	Delivery Month	# Contracts	Buy/Sell Price	Daily Settlement	Δ from Previous Settlement	Position Gain	Account Balance	Margin Call	ACCOUNT BALANCE AFTER MARGIN CALL
1/22/2018	Mon					\$3.5200			\$605.00		
1/23/2018	Tue	BUY	MAR (H)	1	\$3.5200	\$3.6050	\$0.0850	\$425.00	\$1,030.00	\$0.00	\$1,030.00
1/24/2018	Wed					\$3.5175	-\$0.0875	-\$437.50	\$592.50	\$0.00	\$592.50
1/25/2018	Thu					\$3.4125	-\$0.1050	-\$525.00	\$67.50	\$482.50	\$550.00
1/26/2018	Fri					\$3.4950	\$0.0825	\$412.50	\$962.50	\$0.00	\$962.50
1/29/2018	Mon					\$3.6075	\$0.1125	\$562.50	\$1,525.00	\$0.00	\$1,525.00
1/30/2018	Tue					\$3.5825	-\$0.0250	-\$125.00	\$1,400.00	\$0.00	\$1,400.00
Gain/Loss								\$312.50			

Name	Nick (The Short)		
Commodity	CH2018 (Corn March 2018)		
Units per contract	5,000		
Buy/Sell	Sell		
Initial Margin	\$605	= $-\$550 \times 1.$	605
Maintenance Margin ¹	\$550		

Date	Day	Futures Trade	Delivery Month	# Contracts	Buy/Sell Price	Daily Settlement	Δ from Previous Settlement	Position Gain	Account Balance	Margin Call	ACCOUNT BALANCE AFTER MARGIN CALL
1/22/2018	Mon					\$3.5200			\$605.00		
1/23/2018	Tue	SELL	MAR (H)	1	\$3.5200	\$3.6050	\$0.0850	-\$425.00	\$180.00	\$370.00	\$550.00
1/24/2018	Wed					\$3.5175	-\$0.0875	\$437.50	\$617.50	\$0.00	\$617.50
1/25/2018	Thu					\$3.4125	-\$0.1050	\$525.00	\$1,142.50	\$0.00	\$1,142.50
1/26/2018	Fri					\$3.4950	\$0.0825	-\$412.50	\$730.00	\$0.00	\$730.00
1/29/2018	Mon					\$3.6075	\$0.1125	-\$562.50	\$167.50	\$382.50	\$550.00
1/30/2018	Tue					\$3.5825	-\$0.0250	\$125.00	\$675.00	\$0.00	\$675.00
Gain/Loss								-\$312.50			

Daily Settlement allocates gains & losses

Wally Gain= \$312.50
Nick Loss= -\$312.50
Net Gain= 0