

DEPARTMENT OF AGRICULTURAL ECONOMICS

Introduction To Futures Markets

James Mintert

Extension Agricultural Economist
Kansas State University

Mark Waller

Associate Professor and Extension Economist
The Texas A&M University System

Rob Borchardt

Extension Economist, Risk Management
The Texas A&M University System

Origin of Futures Trading

Futures trading has a long history, both in the United States and around the world. Futures trading on a formal futures exchange in the United States originated with the formation of the Chicago Board of Trade (CBT) in the middle of the nineteenth century. Grain dealers in Illinois were having trouble financing their grain inventories. The risk of grain prices falling after harvest made lenders reluctant to extend grain dealers credit to purchase grain for subsequent sale in Chicago. To reduce their risk exposure, grain dealers began selling “To Arrive” contracts which specified the future date (usually the month) a specified quantity of grain would be delivered to a particular location at a price identified in the contract. Fixing the price in advance of delivery reduced the grain dealers risk exposure and made it easier to obtain credit to finance grain purchases from farmers. The “to arrive” contracts were an early forerunner of the modern futures contracts traded today. Although dealers found it advantageous to trade what essentially were forward cash contracts in various commodities, they soon found these forward cash contract markets inadequate and formed futures exchanges.

The first U.S. futures exchange was the Chicago Board of Trade (CBT), formed in 1848. Other U.S. exchanges also have their origin in the last half of the 1800s. For example, the modern Kansas City Board of Trade (KCBT) traces its roots to January 1876 when a precursor to today’s hard red wheat futures contract was first traded. Similarly, a forerunner of the Chicago Mercantile Exchange (CME) was formed in 1874 when the Chicago Product Exchange was organized to trade butter.

In each case the exchanges were formed because commercial dealers in corn, wheat and butter needed a mechanism whereby they could reduce some of their unwanted price risk which hampered the day-to-day management of their business. Sellers wanted to rid themselves of the price risk associ-

ated with owning inventories of grain or butter and buyers wanted to establish prices for these same products in advance of delivery. In recent years, futures contracts have proliferated, particularly in the financial arena as businesses have increasingly become aware of the price risks they face and sought ways to reduce those risks.

What Is A Futures Contract?

A futures contract is a binding agreement between a seller and a buyer to make (seller) and to take (buyer) delivery of the underlying commodity (or financial instrument) at a specified future date with agreed upon payment terms. Most futures contracts don’t actually result in delivery of the underlying commodity. Instead, most traders find it advantageous to settle their futures market obligation by selling the contract (in the case of a contract that was purchased initially) or by buying it back (in the case of a contract that was sold initially). The trader then completes the actual cash transaction in his or her local cash market.

Futures contracts are standardized with respect to the delivery month, the commodity’s quantity, quality, delivery location and the payment terms. The fact that futures contracts terms are standardized is important because it enables futures contract traders to focus their attention on one variable, namely price. Moreover, the

standardization makes it possible for traders from anywhere in the world to trade in these markets and know exactly what they are trading. This is in sharp contrast to the cash forward contract market where changes in specifications from one contract to another might be responsible for observed price changes from one transaction to another. This is one reason why futures markets are often considered a good source of commodity price information since price changes are attributable to changes in the commodity's price level, not changes in contract terms.

In contrast to a forward cash contract market, futures exchanges provide:

1. Rules of conduct which traders must follow or risk expulsion;
2. An organized market place with established trading hours which traders must abide by;
3. Standardized trading through rigid contract specifications which ensure that the commodity being traded in every contract is virtually identical;
4. A focal point for the collection and dissemination of information about the commodity's supply and demand which helps ensure all traders have equal access to information;
5. A mechanism for settling disputes among traders without resorting to the costly and often slow U.S. court system;
6. Guaranteed settlement of contractual and financial obligations via the exchange clearinghouse.

Changes in Futures Contract's Value

A futures contract's value is simply the number of units (e.g., bushels or hundredweight etc.) in each contract times the current price. The volume of grain or livestock covered by a futures contract is specified in each contract. Both Chicago and Kansas City Board of Trade grain and oilseed futures contracts cover 5,000 bushels. The CME's live cattle futures contract covers 40,000 pounds. (400 cwt.) of live weight steers, the lean hogs future contract covers 40,000 pounds. (400 cwt.) of carcass weight pork and the feeder cattle futures contract covers 50,000 pounds. (500 cwt.) of feeder steers. To determine both contract value and changes in contract value, examine the July KCBT wheat futures contract on a day when the settlement price is \$3.00 per bushel. The total contract value would simply be 5,000 bushels times \$3.00 or \$15,000. If the July KCBT wheat futures price changes to \$3.10 per bushel the next day, the new contract value is 5,000 bushels times \$3.10 or \$15,500. The change in contract

value is \$15,500 - \$15,000, or \$500. Alternatively, you can compute the change in contract value by simply taking the price change per unit ($\$3.10 - \$3.00 = \$0.10$ per bushel) times the number of units in the contract ($\$0.10$ per bushel \times 5,000 bushels = \$500).

The impact of a change in contract value differs, depending on whether you previously sold or purchased a futures contract. A decrease in contract value, such as a price decline, is a loss to someone that previously purchased a futures contract, but is a gain for a trader that previously sold a futures contract. Conversely, an increase in contract value, such as a price increase, is a gain to someone that previously purchased (long) a futures contract, but is a loss for a trader that previously sold (short) a futures contract. Note that one trader's loss is another trader's gain. For example, in the wheat futures example outlined previously, a trader that purchased July KCBT wheat futures at \$3.00 per bushel saw the value of his futures market account increase by \$500 when the price rose to \$3.10 whereas a trader that sold a futures contract at \$3.00 per bushel saw the value of his futures market account decline by \$500. Effectively, the \$500 gain earned by the futures contract buyer came from the futures contract sellers' \$500 loss via the exchange clearinghouse, as outlined in figure 1.

Futures contract performance is guaranteed by the exchange through an institution known as the exchange clearinghouse which tracks the value of each traders position and ensures that sufficient funds are available to cover each trader's obligations. The exchange clearinghouse requires that traders (via the futures commission merchant or broker) deposit money at the outset of the trade to ensure contract performance. This deposit is usually referred to as the initial margin deposit. Each trader's margin money is maintained in a separate margin account which is adjusted daily to reflect the gain or loss in contract value that occurred that day. This process is sometimes referred to as "marking-to-market" since the account is adjusted to reflect its current market value based upon that day's closing or settlement price. Although the margin requirements are small relative to the total value of the contract (typically less than 5 percent of contract value), traders of futures contracts are relieved of the responsibility of worrying that the trader on the other side of the contract will default on their financial obligations by the mark-to-market margin system and by a series of checks and balances put in place by the exchange to ensure that sufficient funds are available to cover each account's risk exposure.

Figure 1. Marking-to-Market Buyer and Seller Accounts at Exchange Clearinghouse.

Buyer (Long)			Seller (Short)		
<u>Date</u>	<u>Action</u>	<u>Price</u>	<u>Date</u>	<u>Action</u>	<u>Price</u>
Day 1	Buy at	\$3.00/bu.	Day 1	Sell at	\$3.00/bu.
Day 2	No Action		Day 2	No Action	
	(but price increases)	<u>\$3.10/bu.</u>		(but price increases)	<u>\$3.10/bu.</u>
		\$0.10/bu. gain <u>× 5,000 bu.</u>			\$0.10/bu. loss <u>× 5,000 bu.</u>
		\$500 Gain Relative to Day 1			\$500 Loss Relative to Day 1

Futures Trading Terminology

Trading futures contracts requires that you become familiar with the terminology used in the trade. The list below provides a short definition of some of the terms used in the trade:

Long-A buyer of a futures contract. Someone that buys a future contract is often referred to as being long that particular contract.

Short-A seller of a futures contract. Someone that sells a futures contract is often referred to as being short that particular contract.

Bull-A person that expects a commodity's price to increase. If you are bullish about wheat prices it means that you expect wheat prices to increase.

Bear-A person that expects a commodity's price to decline. If you are bearish about wheat prices it means that you expect wheat prices to decline.

Market Order-An order to buy or sell a futures contract at the best available price. A market order is executed by the broker immediately. "Sell one July KCBT wheat, at the market" is an example of a market order.

Limit Order-An order to buy or sell a futures contract at a specific price, or at a price that is more favorable than the price specified. For example, "buy one March KCBT wheat at \$3.30 limit" means buy one March KCBT wheat contract at \$3.30, or less than \$3.30, since that would be favorable to the buyer. In this example, the order will not be executed at a price higher than \$3.30.

Stop Order-An order which becomes a market order if the market reaches a specified price. A stop order to buy a futures contract would be placed with the stop price set above the current futures price. Conversely, a stop order to sell a futures contract would be placed with the stop price set below the current futures price.

Using Futures Contract In A Farm Marketing Program

There are a number of ways futures contracts can be used in a farm marketing program. First, futures contracts can be useful when marketing grain or livestock because they can be used as a temporary substitute for an intended transaction in the cash market which will occur at a later date. This is a working definition of hedging. For example, if you plan on selling cash wheat at harvest, but would like to lock in the futures price ahead of harvest, you could sell a KCBT July wheat futures contract as a temporary substitute for the cash grain you plan to sell in the future. When you actually make the cash grain sale at harvest, you will no longer need the temporary substitute which was your sale of the wheat futures contract. Thus, as soon as you sell the cash wheat you would exit your temporary substitute contract by buying a KCBT July wheat futures contract. Doing so means you no longer have an open position on the futures exchange. Your actual net sale price for the wheat would be the amount you received for the cash wheat at the elevator, plus any gain or minus on loss on the futures transaction.

Second, futures contract prices can also be used as a source of price forecasts. A futures contract price represents today's opinion of a commodity's value at the time the futures contract expires. If a history of the difference between a commodity's futures contract and cash prices, for a particular grade and specific location of interest (known as the basis) is available, it can be used to estimate a futures market based cash price forecast. For example, assume that on March 15 the KCBT July wheat futures contract is trading at \$3.00 per bushel, and your local cash market price at harvest

is generally \$0.40 per bushel below the KCBT July wheat futures contract price (i.e. a basis of negative \$0.40 per bushel). In this case, a futures based local cash price forecast at harvest time would be \$2.60 per bushel. This forecast can be compared with price forecasts from other sources such university extension economists, market advisory services and the U.S. Department of Agriculture when preparing budgets and making marketing decisions.

For more details on basis and how hedging works, see the publications entitled “Knowing and Managing Grain Basis”, “Livestock Basis”, “Selling Hedge With Futures” and “Buying Hedge With Futures”, which are all components of this series of risk management fact sheets.

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