

The language of futures markets and options

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Farm product prices have experienced increased volatility in recent years as the federal government has reduced income and price supports. The Federal Agriculture Improvement and Reform Act of 1996, or the 1996 Farm Bill, will reduce or eliminate price and income support programs by 2002.

To reduce the risks from fluctuating prices, more farmers and agribusiness firms are considering alternatives such as futures markets and options.

Farmers face two types of risk: physical (crop failure) and market (price changes). Production risks from weather, pests and disease are an accepted part of farming, and many farmers insure against them. But tighter profit margins and price fluctuations in recent years have increased the amount of market risk. Because insurance companies don't cover market risk, both farmers and the financial institutions that provide their loans are seeking marketing strategies to reduce it. Three tools they can use are:

- 1) cash forward contracts;
- 2) hedging on the futures market; and
- 3) options.

This publication discusses how futures and options developed, their language and their value to traders.

How did futures and options develop?

Organized trading in commodity futures in the United States dates back more than 100 years. This type of trading also exists in several other countries. Buying and selling on these markets developed to help protect producers and agribusiness firms from future price fluctuations.

There are 12 commodity exchanges in the United States where traders buy and sell futures contracts for products ranging from agricultural commodities to metals to petroleum products to interest rate and currency contracts.

Four exchanges trade products that are especially relevant to Midwestern agriculture. These are:

- 1) the Chicago Board of Trade (CBT);
- 2) the Chicago Mercantile Exchange (CME);
- 3) the Mid-America Commodities Exchange (MACE); and
- 4) the New York Coffee, Sugar, & Cocoa Exchange (CSCE).

The oldest and largest of these exchanges is the Chicago Board of Trade. Cash commodities trading began on the CBT in 1848, and futures trading began in 1865. This exchange is especially important in trading wheat, corn, oats and soybeans.

The Chicago Mercantile Exchange also began as a cash exchange, and has gained prominence by developing futures contracts for live cattle, live hogs and frozen pork bellies.

The growing Mid-America Commodities Exchange, also located in Chicago, offers contracts similar to those on the CBT and CME but with smaller trading units. Futures and options trading on cheddar cheese and nonfat dry milk began in June 1993 on the New York Coffee, Sugar, & Cocoa Exchange. Both the CSCE and the CME now offer Grade A raw milk and butter contracts.

The volume (number of contracts) and value of futures trading has grown continually for the last decade. Increased price stability and government price supports would reduce futures trading volume because farmers would have less need to reduce market risk.

However, the government's current market-oriented policies have reduced price protection and public dollars for farm programs, upping farmers' risk and generating interest in these forward pricing alternatives.

Language of the futures markets

This section explains some of the important terms and vocabulary used in the futures markets.

Cash, or spot, market: A market where commodities are delivered and paid for immediately. Its purpose is to fulfill the immediate needs of buyers and sellers.

Cash forward sale, or forward contract: A contract where a commodity is sold on the cash market but actual delivery is scheduled for a future date. Most forward contracts are offered by food processors and purchasers of farm commodities because they need a reliable product supply and want to protect their input cost. Such a contract can also act as a market price risk management service to producers.

Futures market: A market where futures contracts are traded.

Clearing corporation: An exchange associated entity responsible for settling futures and options transactions.

Futures commission merchant (FCM): Individuals, associations, partnerships and corporations engaged in soliciting or in accepting orders for futures and options.

Futures contract: The instrument that is actually traded on the futures market. The contract for most commodities involves a commitment to either accept or deliver a specified quantity and quality of a product at a specified time and place. Certain futures contracts no longer name a delivery point. The actual product does not change hands until the contract comes due, or

matures. Contracts standardize everything about the specified commodity, delivery month and place except for price, which is determined through trading. However, the Basic Formula Price (BFP) futures contracts, offered for fluid milk by the CSCE, are cash settled and do not have a delivery commitment because delivery points vary. Trades made on the exchange floor determine prices. Trading involves open outcry in a pit on the exchange's trading floor during prescribed hours.

Standard contract quantities: The standard quantity specified in each futures contract. For example, the standard contract quantity for corn on the CBT is 5,000 bushels. For cattle on the CME, it is 40,000 pounds. For the BFP contracts, the quantity is 100,000 pounds of raw milk.

Contract grade: The standard grade of a commodity specified in a futures contract. The U.S. Department of Agriculture (USDA) sets the standards for assigning grades such as USDA choice steers or USDA No. 2 corn. The BFP contract is for Grade A milk with 3.5 percent milkfat.

The contract may allow more than one grade to be delivered with a premium for higher grades or discount price for lower grades when the product is actually delivered. Each commodity exchange establishes the grade that will settle a futures contract.

Delivery month: The month in which the futures contract expires and the physical commodity must be delivered on

open contracts. In the case of BFP contracts, the delivery month occurs when the contract is cash settled. The contracts require delivery during designated periods and usually at specified locations.

Grain delivery months are influenced mostly by planting, growing, harvest and storage conditions. However, designated delivery months change along with changing trade patterns.

Below are some examples of current delivery months for selected commodities.

Commodity	Delivery months
Cattle—Live (CME)	Feb., Apr., June, Aug., Oct., Dec.
Corn (CBT)	Mar., May, July, Sept., Dec.
BFP cash settle milk (CSCE)	The current calendar month, the next two months and each Feb., Apr., Jun., Aug., Oct., Dec.

Hedge/hedging: The purchase or sale of futures and/or options contracts to protect against unfavorable price movements in physical markets.

Hedger: A trader who tries to transfer price risk by simultaneously trading equal but opposite contracts in the cash and futures markets.

Speculator: A trader with interest in profiting from price changes rather than actually owning the commodity.

Basis: The difference between a commodity's cash price and the price of a futures contract calling for future delivery of the product. For example, on July 18 the cash price of No. 2 yellow

corn in Central Illinois was \$2.85 per bushel. On the same day, the December corn futures contract on the CBT opened at \$2.96 per bushel. It is very common in the grain trade to express basis as: CASH (MINUS) FUTURE (\$2.85 - \$2.96 = -\$0.11). Thus, in a normal market for grain, the basis would be negative, meaning the cash price is less than the futures price. The basis for cheese and nonfat dry milk is also negative, but the basis for BFP cash settle milk is positive.

An understanding of basis is essential for both speculators who want to profit from price fluctuations and hedgers who simply want to transfer price risk. The basis for stable commodities measures storage, interest, insurance and transportation costs. Government programs, export markets and growing conditions also affect the basis.

Historically, basis has been easier to forecast than price. Experienced hedgers know what the local basis will be at a given time of the year. The risk-transfer possibilities in a hedge require this initial assessment of the basis.

Basis risk: The risk that the final basis will differ from the initial estimated basis. The net outcome of a hedge (the difference between the result and the objective) is equal to the change in the basis. Hedging transfers market risk to basis risk. Since the basis changes less than market prices, basis risk is less than market risk. This is how futures contracts can help insure a farmer against market fluctuations.

Weakened basis: The cash price decreases relative to the futures price, or the cash price increases less than the futures price does.

Strengthened basis: The cash price increases relative to the futures price, or the cash price decreases less than the futures price does.

Inverted market: The market situation in which futures contracts for nearer months are selling for more than distant delivery month contracts. In a normal market for commodities that require storage, contracts for distant delivery months sell for more than contracts for nearer months. However, extraordinary demand for delivery in nearby months can cause the unusual, inverted situation.

Arbitrage: The simultaneous purchase and sale of cash commodities or futures in the same or different markets to profit from price differences. A speculator referred to as a spreader will monitor price changes among markets and attempt to profit from the different prices.

Long: When the initial trade is the *purchase* of a futures contract, the buyer is "long" in the market. The buyer has *purchased* a commitment to receive delivery of a commodity.

Short: When the initial trade is the *sale* of a futures contract, the seller is said to be "short" in the market. The seller has *sold* a commitment to make delivery of a commodity.

Good 'til canceled order (GTC): Order to buy or sell contracts at a particular price that remains valid until it is canceled or expires.

Limit order: Order to buy or sell a contract at a stated price or better.

Market order: Order to buy or sell a contract at the ten-best available price.

Stop order: An order to buy or sell contracts at the market once a certain price level is reached. Often referred to as a "stop loss" order.

Open position: A contract that has been neither delivered upon nor offset.

Offset, or cover: To close out or offset a previous position by making an opposite transaction of an equal contract before the original contract matures.

In "short coverage," a seller (short) of a futures contract covers a position by purchasing a new, identical contract before the original matures. In "long liquidation," a purchaser (long) of a futures contract covers by selling a contract before the original matures.

Most futures traders are trying to either profit or transfer risk rather than actually deliver or receive the commodities. Therefore, traders settle fewer than one percent of all futures contracts by delivery; they cover them instead.

Round turn: A completed futures transaction involving both a purchase and a liquidating sale, or a sale followed by a covering purchase.

Broker: An agent who executes a futures contract or option order for the customer and charges a commission for the services.

Commission: The broker's fee for executing a trade. In the commodities market, commissions are "round-turn," entitling the broker to buy and sell the customer's contract. The customer pays the commission only once. Brokerage firms can provide information on current commissions.

Initial margin: The amount of money buyers and sellers deposit with the broker to ensure performance on contract commitments. This is like the earnest money in a real estate deal; it is intended to offset any losses incurred if a contract is liquidated.

Margins normally range from 2–20 percent of the contract's value and are set by each futures exchange. They are based mostly on historic price fluctuations, and they are adequate whenever the deposit can cover the probable price change. For example, if corn is selling for \$2.60, history shows that it will likely fall to \$2.30 or rise to \$2.90. Thus, it would be unrealistic to require a trader to deposit a 50 percent margin when the price only varies 10–12 percent.

When a seller instructs a broker to sell a contract, the broker makes the sale through another broker who has a buyer customer. Neither broker knows the name of the other's customer, and each broker wants to protect the customer. This protection requires the brokers to deposit a margin in cash, and, in turn, each broker asks the customer to deposit this margin.

Maintenance margin: An additional margin the broker calls for as the futures market price moves in a direction that jeopardizes the broker's position. Falling prices for a long (purchasing) position or rising prices for a short (selling) position jeopardize the broker's position. The trader must pay additional margin to restore the initial level of performance assurance. Maintenance margins normally run 60–85 percent of the original margin. If the customer refuses or defaults, the broker will close out the position at a loss to the customer.

The margins are returned to the trader when the contract either matures or is covered by an opposite transaction. When the futures price movement favors the trader, the broker returns the margin deposit plus the profits if the trader requests it. If the trader loses money with price movements, the broker deducts it from the margin. The trader has to pay the loss if his/her contract does not recover before settlement.

Marked-to-the-market: The process of updating margin accounts each day to reflect price movement in the market.

Bear: A person who believes that prices will decline.

Bull: A person who believes that prices will rise.

Futures market reporting terms: Terms used by daily newspapers and other agencies to report on futures market prices.

Change: Change in settlement price from the previous trading day.

High: The peak price of the day for one or more transactions.

Open: The price for the first contract traded that day.

Open interest: The total number of the contracts on one side of the market which have not been offset. If buyers and sellers hold 1,000 contracts for a particular delivery month, the open interest is 500 because half of the contracts are on the long side, and half are on the short side. Since contracts are all in standard volume units, the number of long contracts must equal the number of short contracts.

Lifetime high and low: The highest and lowest transaction prices recorded from the first day the contract was traded to the present.

Low: The lowest price of the day for one or more transactions.

Settlement price: The weighted average of contract prices normally measured during the last five minutes of trading. It is the official price used in determining net gains or losses, margin requirements, and the next day's price limits.

Volume: The number of purchases or sales of a futures contract made during a specified time period; often the total transactions on a given contract for one trading day.

Language of the options markets

The terms below explain commonly used terms in the options markets.

Option: The right, but not the obligation, to buy or sell a futures contract at a specific price on or before an expiration date. :

There are two different types of options—*puts* and *calls*. These are separate option contracts; for each put buyer there is a put seller, and for each call buyer there is a call seller. Puts and calls provide a different opportunity to take advantage of futures price moves without having a futures position.

Put option: The right, but not the obligation, to sell (go short on) a futures contract during a specified time period. The put ensures protection from falling prices for people who want to sell.

Call option: The right, but not the obligation, to buy (go long on) a futures contract during a specified time period. The call ensures protection from rising prices for people who want to buy.

Collar: An option combination involving the simultaneous purchase of a put and sale of a call option.

Option writer, or grantor: A person who sells an option.

Option buyer, or holder: A person who buys an option. The buyer has the right, but not the obligation, to acquire a futures contract position.

Strike price, or exercise price:

The price at which the option holder (buyer) may buy or sell the underlying futures contract during the life of the option.

Corn (CBT)

5,000 bu.; cents per bu.

Strike	Calls-Settle			Puts-Settle		
Price	Sep	Dec	Mar	Sep	Dec	Mar
270	26	31	36	1 ⁷ / ₈	5 ³ / ₈	5
280	18 ¹ / ₂	25 ¹ / ₄	29	4 ³ / ₄	9 ³ / ₈	9
290	13 ³ / ₄	21	23 ³ / ₄	9 ¹ / ₄	14 ¹ / ₈	13 ¹ / ₄
300	9 ³ / ₄	16 ¹ / ₂	18 ⁷ / ₈	15 ¹ / ₂	20	19
310	6 ³ / ₄	13 ¹ / ₂	15 ¹ / ₂	22 ³ / ₄	26 ¹ / ₂	
320	4 ⁷ / ₈	10 ⁵ / ₈	12 ¹ / ₂		33 ³ / ₄	

Est vol 24,000 17,870 calls 12,741 puts

Op Int Mon 237,929 calls 133,766 puts

Strike prices on the CBT corn futures contract are set by the Board at 10¢ intervals with a probable 50¢ range of price change, but you can trade above or below the range. CME live-stock futures contracts are set by the Exchange at \$1/cwt. intervals for live cattle with a range of \$5 from low to high.

Premium: The price the option buyer pays to the option seller for each option contract. It represents the maximum amount the option holder can lose. The premium is determined in the option market by the willingness of buyers to purchase an option sellers are willing to sell. The cost of a premium reflects market volatility, time until option expiration (time value), and strike price level relative to futures contract price level (intrinsic value).

The *Wall Street Journal* listing of futures options prices for July 18 provides an example above.

At a strike price of 280 (\$2.80) for corn, a put option buyer for March would have paid a premium of 9¢ per bushel to the option seller. Traders pay larger

premiums for puts (to sell a futures contract) at higher strike prices because they are buying more price insurance to protect against falling prices. But, for calls (to buy a futures contract), they pay larger premiums at lower strike prices; they are buying more price insurance to protect against rising prices. The *Est vol* is the volume of options transacted in the previous two trading sessions. Each unit represents both a buyer and a seller. The *Op Int* is the number of options that were still open positions at the end of the previous day's trading session.

Exercise: The option buyer acts on his right to take futures position. The call holder takes a long (buy) position on the futures contract, and the put holder takes a short (sell) position.

Expiration date: The last day that an option may be exercised or converted to a futures position.

In-the-money: An option contract has a positive value if the buyer exercises it because the current market price exceeds the strike price of a call (to buy) or is below the strike price of a put (to

sell). For example, if a hog producer buys a \$48 strike price July put option for hogs and, in late June, the July hog futures are trading at \$44, the option has intrinsic value, or is in-the-money.

Out-of-the-money: The current market price is less than the strike price of a call or is greater than the strike price of a put. For example, if a feedlot operator in March buys a \$2.80 strike price July corn call option, and, in mid-June, the July corn futures are trading for \$2.60, the option is out-of-the-money.

At-the-money: The strike price is the same as the underlying futures contract price. Options at-the-money or out-of-the-money are not worth exercising.

How do traders use futures and options?

Traders use futures contracts and options to do one of two things: to protect themselves from price fluctuations or to make money.

The first objective in futures trading is to provide protection from price fluctuations.

The trader tries to transfer price risk. This type of trader (a hedger), simultaneously trades equal but opposite transactions in the cash and futures markets, hoping a loss in one market will be offset by a gain in the other. The farmer or agribusiness firm is trying to reduce the risk of fluctuating prices.

A second objective of futures trading is to speculate. The trader, a speculator, tries to profit from changes in the price of futures contracts. The speculator usually has no interest in physical ownership of the commodity. Speculators are essential to the futures market because they assume the risk of price change and provide liquidity, or the ability to convert the contracts to cash, by buying and selling frequently.

Any attempt to classify speculators provides only a general overview because individual speculators often have overlapping roles. The following types of speculators offer an idea of speculators' potential roles in the futures market.

A "spreader" simultaneously purchases one futures contract and sells another for a different delivery month, in a different commodity, or on a different exchange.

A "scalper" provides market liquidity by buying and selling rapidly for small profits or losses. A scalper will usually buy at a fraction below the last transaction price and sell at a fraction above.

A "pit trader" operates like a scalper, but pit traders take larger positions and hold them for a longer time and for larger price changes. They watch brokers and try to anticipate the day's remaining trades. This way the pit traders can try to accommodate the trades and make a profit in the transaction.

Other speculators are outsiders that trade through brokers.

A speculator counting on rising prices will buy a call or a long position on a futures contract. A speculator who assumes declining prices will buy a put or a short position on a futures contract. If speculators limit trading to options, the most they can lose is the option premiums.

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