



## What Are Futures and Options?

Futures contracts are standardized, legally binding agreements to buy or sell a specific product or financial instrument in the future. The buyer and seller of a futures contract agree on a price today for a product to be delivered or settled in cash at a future date. Each contract specifies the quantity, quality and the time and location of delivery and payment.

The value of a futures contract is derived from an underlying financial measure or market, such as commodity prices, equity index levels, foreign exchange rates or interest rates – hence the term *derivatives*. As the value of the underlying measure or market changes, the value of the futures contract based on that measure or market also changes. Institutions and individuals that face financial risk based on the movement of the underlying measure or market can buy or sell futures that will change in value to offset that financial risk. Such transactions are known as *hedging*. Institutions and individuals also buy and sell futures hoping to profit from price changes. These transactions are considered *speculation*.

CME also offers investors options on futures. Options can be thought of as insurance policies. The option buyer pays a price for the right – but not the obligation – to buy or sell a futures contract within a stated period of time at a predetermined price. The combination of options and futures – both risk-management tools – can give market participants the leverage of futures and the more limited risk of options. Options provide the opportunity to limit losses while maintaining the possibility of profiting from favorable changes in the futures price.



# Global Leadership in the Financial Marketplace

CME is the largest and most diverse financial exchange in the world for trading futures and options – handling nearly 800 million contracts worth more than \$460 trillion in a single year. Founded in 1898, we serve the risk-management needs of customers around the globe by offering the widest range of benchmark financial products available on any exchange, traded via our CME Globex electronic trading platform and on our trading floors.

Our innovative products cover major market segments – including commodities, interest rates, equities, foreign exchange and alternative investment products – and improve the way these markets work for customers everywhere. In addition, our clearing house matches and settles all trades and guarantees the creditworthiness of every transaction that takes place in our markets.



## Overview of CME Commodity Products

CME agricultural products help farmers and agribusinesses manage the constant price risks they face. Their risks stem from numerous sources. Extreme weather affects feed costs, availability of forage and animal survival. Disease, governmental policies, political decisions, wars, natural catastrophes, and public sentiment also add to uncertainty in these markets. Even the most skillfully managed commodity operations can face loss in the cash markets if conditions work against them at marketing time.

CME commodity products, however, offer a way to manage these risks, by making it possible for farmers and agribusinesses to lock in profits, enhance business planning and more effectively serve their markets. Commodity-related businesses that use CME commodity products to support and strengthen their operations are able to provide products to their customers at better prices.

CME commodity products include futures contracts based on cattle, hogs, pork bellies, dairy products and lumber. These products, which are the origin of our exchange, remain in a growth mode and continue to achieve new volume records. Last year, for example, CME commodity products reached the highest annual volume they had achieved in more than a decade, in a second consecutive year of double-digit growth. Average daily volume of CME Class III Milk more than doubled in 2004, while CME Lean Hog and CME Live Cattle futures, the first-ever futures based on a non-storable commodity, continue to set new volume records. For a complete list of CME commodity products, see page 8 in this brochure.

#### Why Use CME Commodity Products?

CME agricultural commodity futures are financial instruments that are used to hedge price risk or to speculate on commodity price fluctuations.

As the delivery month on a contract approaches, the pressure of possible delivery causes the futures price to line up with the cash market price of the commodity. With futures prices thus reflecting cash market prices, producers can use the commodity futures market as a temporary substitute for a cash sale or cash purchase to be made later.

For example, a cattle rancher may be concerned about lower prices at the time his animals will be ready to bring to market. That rancher can calculate the cash price he will need to receive for his livestock and sell CME Live Cattle futures in order to ensure his profitability despite declines in the cash market price for his livestock. If in fact the cash market prices do decline, the rancher will likely lose money when he sells his livestock. But when he offsets his futures position (by buying CME Live Cattle contracts) he is likely to make a profit because he will be able to buy for less than he sold. The profit on his futures transaction helps compensate for the loss in his cash market sale.



# Who Trades CME Commodity Products?

The commodity markets are huge and complex, involving producers, processors, distributors, packagers, wholesalers and retailers. CME commodity futures and options are traded by market participants at all of these levels. Others, such as day traders or position traders, trade CME commodity products to speculate on the ongoing price fluctuations in those markets. For example:

- » A hog farmer is concerned about prices at market time due to increased production rates of hogs across the country. The farmer decides to sell CME Lean Hog futures several months before his animals will be ready for market. If cash hog prices have declined due to increased supply brought to market, the hog farmer hopes to minimize his losses in the cash market when he offsets his CME Lean Hog futures contracts, buying the futures back at a lower price than he received when he sold them.
- » A large cheese maunfacturer must purchase several tons of milk each year for processing into cheese. The corporation manages the risk of price increases in the cash milk market by buying CME Milk futures in advance of the time they must purchase the milk. This enables the company to lock in a purchase price that is in keeping with its profit margins and protects it against unanticipated price increases in the cash milk market.
- » A day trader has become interested in the U.S. housing market and decides to speculate on lumber prices, which are closely related to new housing starts. He begins trading CME Random Length Lumber futures, both buying and selling as prices fluctuate, hoping to make a profit by being on the right side of the market at the right time.
- » An investment fund manager is concerned that a slowdown in the global economy might lead to a decline in commodity prices and reduce the value of its investment portfolio. The management firm responds to this risk by selling CME Goldman Sachs Commodity Index futures contracts. This position will increase in value in the event that commodity prices decline and help to offset any commodity-related losses in the value of its portfolio. This approach allows the firm to maintain the value of the fund assets it manages while it evaluates the outlook for the global economy.

#### **Futures Terms**

Futures prices are listed in daily newspapers and other media. These are the terms you will typically see.

**Expiration month:** The month and year in which a futures or options contract will expire and be settled.

**Open:** The average price at which the first bids and offers were made or the first transactions were completed during the trading period.

**High:** Top bid or top price at which a contract was traded during the trading period.

**Low:** Lowest offer or the lowest price at which a contract was traded during the trading period.

Settlement price: The official daily closing price, typically set at the midpoint of the closing range.

**Net change:** The amount of increase or decrease from the previous trading period's settlement price.

Yield settlement: The interest rate implied by the settlement price.

**Volume:** The number of contracts traded (one side of each trade only) for each delivery month during the trading period.

**Open interest:** The accumulated total of all currently outstanding contracts (one side only). Refers to unliquidated purchases and sales.



## Advantages of CME Commodity Markets

In addition to serving as hedging instruments and as a means of capitalizing on commodity price fluctuations, CME Commodity futures markets also offer the following:

- » Price discovery The futures markets assimilate current information about the underlying commodities, and in the process of trading, prices are negotiated that indicate levels above which buyers will not buy and below which sellers will not sell. Commodity futures do not create cash prices; they do, however, generate a current view of an equilibrium price or what the market will bear. If buyers are more eager than sellers, prices tend to go up. When the opposite is true, prices tend to go down.
- » Spreading opportunities CME commodity futures can also be used with a number of spreading strategies, to take advantage of the relative out-performance of one commodity sector versus another
- » Price transparency The electronic CME commodity markets offer unprecedented price transparency, with CME market prices universally available in real time. Electronic market participants can see the top five bids and offers and the prices at which trades are executed at all times.
- » Market integrity By serving as the counterparty to every trade, the CME Clearing House virtually eliminates the risk of credit default and protects the financial integrity of CME markets. Our centralized clearing function also enables any market participant to close or modify positions independent of the other party or parties in the original trade.
- » Regulatory assurance The quality and strength of our regulatory capabilities ensure the financial security of our markets. Our integrated compliance and market surveillance functions assure market participants of the highest trading standards and supervision. CME markets are monitored by the Commodity Futures Trading Commission (CFTC), an independent federal regulatory agency.

#### **CME Commodity Products**





## Pricing of CME Commodity Futures Contracts

The value of CME commodity futures contracts is determined by multiplying the number of pounds of the commodity specified for each product (for example, 50,000 pounds of feeder cattle, 40,000 pounds of lean hogs, 200,000 pounds of milk or 40,000 pounds of butter) by the price per pound that is being negotiated in the futures market.

For example, a CME Lean Hog contract trading at 68.250 cents per pound is equal to 40,000 pounds x \$.68250 or \$27,300.00

It is important to note that CME commodity futures prices and the cash prices for the related underlying commodities are not usually the same until the futures contract expires. The difference stems from the fact that the futures prices reflect what the market expects the cash price to be on the final settlement date of the futures contract. At that point, both the futures and the cash price will converge to approximately the same amount, because (in most cases) the physical commodity underlying the futures contract could be delivered to the purchaser.

The difference between a commodity futures price and commodity cash price is called basis. Basis is calculated by subtracting the price of the appropriate futures contract from the local cash market price.

For example, if the cash price for lean hogs is 65.00 cents per pound and the futures price is 67.00 cents, then the basis is 65.00 cents – 67.00 cents = -2.00 cents, or 2.00 cents per pound *under*. With a cash price of 66.50 cents and a futures price of 65.50 cents, the basis is 66.50 – 65.50 = 1.00, or 1.00 cent per pound *over*.

Hedgers use basis to translate a given futures price (for a deferred delivery period for their livestock) into a likely cash price at that time. If the price is favorable, they establish a futures position as a hedge. If they maintain that hedge until their livestock or other commodity actually move to market, their total price risk differs by the amount that the actual basis differs from the expected basis.

#### **Calculating Profits and Losses in Trading**

Below is a sample calculation of profits and losses using a CME Live Cattle contract:

Suppose a trader buys a contract at a rate (price) of 80.50 cents per pound – equivalent to \$80.50 per hundred pounds of cattle, also known as hundredweight or "cwt." One "tick" equals .025 cents per pound, the minimum trading increment for this contract.

80.50	
+ .025 80.525 =	New price of CME Live Cattle contract trading one tick higher.
80.50 025	
80.475 =	New price of CME Live Cattle contract trading one tick lower.

What happens if the trader buys five CME Live Cattle contracts at 80.50 cents per pound and then sells five CME Live Cattle contracts at 81.00? The trader has made a profit. To determine the profit on this trade, the trader would take the following steps:

Step 1:	81.00 - 80.50 = .50 cents per pound
Step 2:	Multiply .50 cents per pound x 40,000 pounds per contract = \$200 per contract
Step 3:	Multiply \$200 per contract x 5 (number of contracts) = \$1000

Of course, if the price had dropped by .50 cents per pound, the trader's loss would be \$1,000.

Please note: These examples do not include transaction fees (brokerage fees and other fees) which would need to be part of a complete analysis of determining profit or loss on a futures trade.



## Electronic Trading Around the World

As a leader in electronically traded derivatives products, CME offers its customers access to a growing number of our commodity futures contracts on the CME Globex trading platform. CME Livestock products – CME Live Cattle, CME Feeder Cattle, and CME Lean Hogs – trade electronically simultaneously with the trading of these products on the CME trading floor. Traders are able to see free real-time price quotes in the CME Livestock markets at www.cme.com/e-livestockquotes, where current prices are posted continuously. Other CME commodity products, such as CME Random Length Lumber, trade exclusively on CME trading floors.

The CME Globex trading platform is made available to traders through 740 direct connections in 27 countries around the world. In addition, we provide direct access through telecommunications hubs in London as well as Amsterdam, Dublin, Frankfurt, Gibraltar, Milan, Paris and Singapore. This accessibility enables traders to trade when they wish – and also to take quick action whenever major market changes take place. The platform's open architecture enables customers to access CME Globex using their own proprietary trading applications or the systems provided by futures brokers and independent software vendors, as well as a CME-provided trading application. Traders are able to see the top prices and other data right on their screen and transactions are executed in less than a second. The advanced capabilities of the CME Globex platform allow traders to execute all of the traditional (outright) transactions in futures as well as a variety of spread trades, including highly complex options spreads.



# Fully Integrated Clearing

At CME, we operate our own clearing house that matches and settles all trades and guarantees the creditworthiness of every transaction that takes place in our markets. Our integrated clearing function ensures the safety and soundness of our markets and helps differentiate us from our competitors.

With the CME Clearing House serving as counterparty to every trade – e.g., in the clearing process it becomes the buyer to each seller of a futures contract and the seller to each buyer – the risk of default is virtually eliminated. Performance bond (collateral) deposits are required at each level in the clearing process – customer to broker, broker to clearing firm, clearing firm to clearing house. The performance bond is a good-faith deposit that represents the minimum amount of protection against potential losses.

The CME Clearing House handles more than 92 percent of all futures and options contracts traded in the U.S. This requires management of the substantial exposure that results from transferring more than \$460 trillion of risk and guaranteeing the performance of each of nearly 800 million contracts annually. On a daily basis, we hold nearly \$45 billion of collateral deposits to support the transactions that are being made in CME markets. Twice daily, we move between \$1.5 billion and \$6 billion of funds to and from market participants.

#### **Getting Started in CME Commodity Futures**

Today's greater need for risk management and hedging tools has required investors to become increasingly sophisticated about futures and options on futures products.

In light of growing global demand and expanding electronic accessibility, CME agricultural commodities are generating increased opportunities for hedgers and speculators in these markets.

With customers around the world; a diverse product line; deep, liquid markets; and strategic alliances with other exchanges, CME is truly a global marketplace. Why not make it yours?

For additional information about CME commodity products, please visit our Web site at www.cme.com/ trading/prd/ag. You will be able to access a number of other brochures and marketing and education materials that can answer your questions or help you to begin trading these products. Additionally, if you would like to talk to a CME representative, please call our Customer Service Line, 1-800-331-3332.



# **CME** Commodity Products

CME offers a range of futures and options on livestock – cattle and hogs – as well as on several dairy-related products. Additional commodity products are based on lumber and three types of fertilizer.

#### **CME Livestock Futures**

- » CME Feeder Cattle Futures and Options (young cattle)
- » CME Live Cattle Futures and Options (market ready animals)
- » CME Lean Hog Futures and Options
- » CME Frozen Pork Belly Futures and Options (the first futures on frozen meat products, launched in 1961)

The CME Feeder Cattle and CME Lean Hog contracts are settled in cash and not physically deliverable, while the CME Live Cattle and CME Pork Bellies are physically deliverable.

CME livestock futures are traded electronically as well as on the trading floor.

The U.S. livestock industry is big business – currently estimated at \$60 billion annually for cattle and hogs – and risky. Extremes in weather can greatly affect the cost of feed, availability of forage, rates at which animals conceive and gain weight, and how many animals survive to bring to market. Disease is always an issue, as are shifting public tastes for consuming beef and pork.

Even during periods of record-breaking prices, any number of events can take place to increase or decrease supply and demand for livestock.

#### **CME Lumber Futures**

» CME Random Length Lumber

CME Random Length Lumber futures trade on the CME trading floor. With the launch of this product in 1969 CME became the first exchange to offer price protection to the forest products industry. Individual investors trade lumber, too, due to its trending nature and close tracking of the economy.

Cash lumber prices are unpredictable and volatile. Supplies can be constrained due to mill closings, environmental policies and other factors. Demand also tends to shift rapidly, based on interest rates and other economic conditions that affect housing starts.

#### **CME Dairy Futures**

- » CME Class III Milk Futures and Options
- » CME Class IV Milk Futures and Options
- » CME Butter Futures and Options
- » CME Nonfat Dry Milk Futures and Options

At present, all CME Dairy futures trade on the CME trading floor. CME Class III Milk futures, however, will begin being traded electronically, side-by-side with open outcry trading on the CME trading floor, in 2005.

The dairy markets react dramatically to small changes in supply and demand, and against this backdrop, activity in and demand for dairy futures has increased significantly in recent years. The U.S. dairy business is a \$25 billion enterprise (at farm-level prices) with extreme volatility in pricing.

The federal government has steadily decreased its support price since the 1980s, and this has led to ever greater volatility in the dairy markets.

CME also offers CME Dairy Spot Market Products: CME Nonfat Dry Milk Spot Call, CME Butter Spot Call and CME Cheese Spot Call contracts.

#### **CME Fertilizer Futures**

- » CME DAP Futures
- » CME UAN Futures
- » CME Urea Futures

CME Fertilizer futures are the first agricultural futures products to trade completely electronically. Launched in 2004, they are based on the three most widely-used types of chemical fertilizers: DAP (diammonium phosphate), UAN (urea ammonium nitrate) and Urea (primarily nitrogen).

The U.S. fertilizer industry has faced increased risk in recent years because its production processes and costs are heavily dependent on natural gas, the price of which has been extraordinarily volatile since the late 1990s.



### IDEAS THAT CHANGE THE WORLD<sup>™</sup>

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