

## Economic Purpose of Futures Markets and How They Work

- Futures markets allow commodities producers and consumers to engage in “hedging” in order to limit the risk of losing money as commodity prices change
- For example, a Kansas wheat farmer who plants a crop runs the risk of losing money if the price of wheat falls before harvest and sale
- The farmer can minimize this risk by selling wheat futures contracts, which guarantee that the farmer will receive a predetermined price
- Hedging helps the economy function by allowing commodities producers (such as farmers) and consumers (such as millers) to conduct their businesses with greater certainty over how much they can expect to earn from and pay for commodities

## Futures Contracts

### Features

- Futures contracts typically are traded on organized exchanges that set standardized terms for the contracts (see “Exchanges” below)
- Futures contracts allow hedging without contract negotiations
- For example, a farmer who wants to deliver wheat to a grain elevator near Topeka might find Chicago Board of Trade (CBOT) wheat futures contracts useful for hedging, but would not want to make delivery on the contracts because the nearest CBOT delivery point is St. Louis.
- Instead of making delivery, the farmer will buy back or offset the contracts before the delivery date and sell the wheat locally on the spot market
- Most futures contracts (by volume) are liquidated by offsetting and do not result in delivery
- The purpose of the delivery provision is to ensure convergence between the futures price and the cash market price
- Futures contracts are different from forward contracts, which cannot be offset; i.e., if a purchaser buys a forward contract and then sells an identical forward contract to a different person, the purchaser now has obligations under two contracts, one long and one short

### Exchanges

- Exchanges set standardized contract terms, including the amount of the commodity to be delivered (the contract size), delivery months, the last trading day, the delivery locations, and acceptable qualities or grades of the commodity
- The exchange specifies that different varieties and grades can be delivered at various fixed differentials (premiums or discounts) to the contract price
- This standardization enhances liquidity by making it possible for large numbers of market participants to trade the same instrument
- This liquidity makes the contract more useful for hedging, but standardization reduces the usefulness of a futures contract as a merchandising vehicle
- Futures trades made on an exchange are cleared through a “clearing house,” which acts as the buyer to all sellers and the seller to all buyers
- When a futures contract is bought or sold, it is technically bought from or sold to the clearing house rather than the party with whom the transaction was executed on the trading floor or through an electronic trading platform
- Since the contract is ultimately bought from and sold from the same party, if a futures contract is bought and subsequently sold, the position has been offset and the contract is extinguished

### Margin

- Futures traders are not required to pay the entire value of a contract. Instead, they are required to post a “margin” that is typically between two and 10 percent of the total value of the contract
- Margins in the futures markets are not down payments like stock margins, but are performance bonds designed to ensure that traders can meet their financial obligations
- When a futures trader enters into a futures position, he or she is required to post initial margin of an amount specified by the exchange or clearing house. Thereafter, the position is “marked to the market” daily
- If the futures position loses value when the market moves against it—if, for example, you are buying and the market goes down—the amount of money in the margin account will decline accordingly
- If the amount of money in the margin account falls below the specified maintenance margin (which is set at a level less than or equal to the initial margin), the futures trader will be required to post additional variation margin to bring the account up the initial margin level
- On the other hand, if the futures position is profitable, the profits will be added to the margin account
- Futures commission merchants (FCMs) often require their customers to maintain funds in their margin accounts that exceed the levels specified by an exchange

## Margin Example

- Suppose the initial and maintenance margins on a wheat contract are \$650 per contract
- A farmer who sells 10 contracts must deposit at least \$6,500 with the clearing house through an FCM to cover the margins
- Each day the position is marked to market. If the market moves in the farmer's favor—the futures price declines on a particular day—the farmer's margin account is credited with the accrued profit for that day. If the futures price rises, the margin account is debited with the accrued loss
- On any day when the margin account falls below \$6,500, the farmer is required to post variation margin to bring the account back up to at least \$6,500

## Hedging Example

- A CBOT contract provides for delivery of 5,000 bushels of wheat in Chicago
- A farmer plants wheat during the spring with an expected harvest of 50,000 bushels
- Currently, the CBOT contract for delivery during December (the first new crop contract month for spring wheat) is trading at \$3.50 per bushel
- The farmer knows that he or she can earn a reasonable profit at \$3.50 per bushel
- By planting, the farmer is effectively “long,” betting that the price of wheat will not decline before sale
- The farmer can hedge this bet by establishing a “short” futures position at the current price of \$3.50 per bushel
- Since each futures contract provides for delivery of 5,000 bushels and the expected harvest is 50,000 bushels, the farmer would sell 10 futures contracts
- At harvest, the weather has been ideal and the farmer harvests 50,000 bushels of wheat
- In fact, there has been a bumper crop and the price of wheat has declined to \$3.00 per bushel
- The farmer now has 50,000 bushels in his silo and is short 50,000 bushels on the futures market
- The farmer now needs to get out of this hedged position. There are two ways to accomplish this:
- One way is to make delivery pursuant to the terms of the 10 futures contracts at a specified delivery location during the delivery period
- However, delivery would require paying to transport the wheat to one of the locations specified in the futures contracts, which would be cost prohibitive from Kansas
- The farmer is better off taking an equal and opposite position in the futures market by buying 10 contracts at the current price of \$3.00 per bushel