CHAPTER 1

Futures and Forwards

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INTRODUCTION

While commodity futures contracts are seen by many market participants as strictly financial instruments, commodity futures contracts are truly an evolution of market efficiency. Commodity futures contracts have allowed the producer and user of commodities to operate their business more efficiently and to manage risk associated with changing prices.

THE SPOT MARKET

Before the development of financial instruments and contracts, commodities were bought and sold in cash transactions. The transactions between the producer or seller of the commodity and the user or buyer of the commodity took place in the cash or spot market. In the spot market the producer of the commodity would bring his crop to the marketplace and sell the wheat or corn to any buyer with cash in hand. The spot market gets its name from the fact that the commodity is delivered and paid for "on the spot." The producer of the commodity who has the commodity on hand is said to be long the cash commodity. If the grower of corn has 100,000,00 bushels of corn stored in their silo, the farmer (producer) is said to be long 100,000 bushels of cash corn. The user of the commodity who does not have the commodity on hand but who needs to acquire the cash commodity in order to produce their product or to conduct their business is said to be short the cash commodity. A grower of cattle who needs the corn to feed his cattle would be considered to be short cash corn because the grower does not have the corn on hand and needs the

corn to conduct his business and to feed his cattle. Alternatively, someone who has a contractual obligation to deliver the underlying cash commodity but who does not own the cash commodity would also be considered to be short the cash commodity. If a U.S. exporter has contracted to deliver 50,000 bushels of corn to a cattle grower in Mexico in 120 days but has not acquired the 50,000 bushels of corn, the exporter would be considered to be short cash corn.

FORWARD CONTRACTS

The first advancement in commodity trading was the development of cash forward contracts or forwards. Forward contracts are privately negotiated contracts for the purchase and sale of a commodity or financial instrument. The first forward contracts were developed for agricultural commodities like wheat and corn. The establishment of forward contracts allowed the buyer and seller of commodities to lock in prices for a delivery date in the future. The forward contract gave both parties the ability to manage their businesses more efficiently. Farmers could now grow crops knowing that they had locked in a sale price for the crop. The forward contract also allowed the farmer to sell their crop without having to haul it to market, hoping there were buyers waiting with cash in hand. The buyer or users of the commodities through the use of a forward contract now knew that they had locked in the supply of the commodity to meet their demand at a set price. Both parties to the forward contract have an obligation to perform under the contract. The buyer is obligated to accept delivery of and pay for the commodity at the agreed-upon time and location. The seller is obligated to deliver the stated amount and quality of the commodity at the agreed-upon time and location. Because the terms and conditions for each forward contract are negotiated on an individual basis, it is extremely difficult to find another party to take over the obligation under the contract should circumstances change between the contract date and the delivery date. There is no secondary market for forward contracts. Another drawback to the forward contract is counterparty or performance risk. The individual counterparty risk is borne by both parties to the forward contract. For the seller or producer of the commodity it is the risk that the buyer will not be able to make payment or take delivery. For the buyer of the commodity the counterparty risk is that the farmer may not be able to produce or deliver the commodity. If one party defaults on their obligation to perform under a forward contract there is no entity to step in to ensure

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that the other party is made whole. In modern financial markets, forwards are often used in the currency markets by corporations and banks doing business internationally. If a corporation knows that it needs to make a payment for a purchase in foreign currency three months from now, the corporation can arrange to purchase the currency from a bank the day before the payment is due.

FUTURES

As the use of forward contracts evolved, the need to offset obligations through a secondary market and to eliminate counterparty risk led to the development of commodity futures contracts. Futures, like forwards, are a two-party contract. The specific terms and conditions of the contracts are standardized and set by the exchanges on which the futures contracts trade. The contract amount, delivery date, and type of settlement vary between the different types of futures contracts. Many futures contracts are an agreement for the delivery of a specific amount of a commodity at a specific place and time such as 5,000 bushels of wheat during the delivery period of the contract month. Futures began to trade for commodities such as wheat and gold and over the years have expanded to include financial futures such as futures on Treasury securities and most recently single stock futures. The standardized contract terms allows for a very liquid secondary market. The counterparty risk has been eliminated through performance guarantees. So even if one party to a contract defaults and does not meet their obligation, the other party will be made whole. Investors and hedgers can establish both long and short positions in commodity futures contracts. A person who has purchased the futures contract is long the contract, and until the buyer executes an offsetting sale the contract remains open. Alternatively a person who has sold the futures contract to open the position is considered to be short the futures contract, and until the seller closes out the contract with an offsetting purchase the contract remains open.

THE ROLE OF THE FUTURES EXCHANGE

The futures exchange at the most basic level provides a centralized location where buyers and sellers come together to transact business in futures. The exchange provides a centralized location where producers and users of commodities can lock in prices, manage their business, and hedge their risks. A farmer can lock in a sales price for his corn production by selling corn

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futures. A baking company may lock in a price for wheat by purchasing wheat futures. By engaging in futures transactions, the producer of corn and the buyer of wheat have both hedged their risk and can now operate their businesses more efficiently and without immediate concern over large price swings. The use of futures contracts has resulted in a reduction in business risk and commodity costs. These cost savings are passed along to the economy as buyers of the finished product enjoy the lower prices for finished goods like a loaf of bread. Additionally, because futures reduce the business risk to the producers and users of commodities, these companies are now able to obtain credit at lower rates. A lender reviewing the loan application of a farmer who grows corn will be more confident in making the loan if the lender knows that the farmer has locked in a sale price for his product. Finally, the exchange provides a place for risk capital to speculate on the direction of various commodities. These speculators provide a significant level of liquidity to the marketplace and make it easier for producers and users to hedge their business risk in the underlying cash commodity. These speculators are willing to assume the risk that producers and users want to eliminate.

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TRADING FUTURES ON THE FLOOR OF THE EXCHANGE

Only individuals who own a membership on the exchange may conduct business on the floor of the exchange. A firm must be associated with an individual who owns a membership to qualify as a member firm. Futures exchanges, like other exchanges, are self-regulatory organizations and are responsible for establishing rules for their members and ensuring members adhere to just and equitable trade practices. The futures exchanges have the authority to investigate members and assess fines and penalties if the exchange finds that a member has violated its rules. The exchange establishes the margin requirements that must be deposited to establish a position for each futures contract. This is known as *original margin*. The exchange also establishes the minimum amount of equity or margin that must be maintained to continue to hold the position. This is known as *minimum maintenance margin*. Futures trading on the floor of the exchange takes place in the futures *pit* for the specific contract. No trades for futures contracts may take place away from the pit or outside the ring. While many securities listed on a stock exchange also trade in the over-the–counter (OTC) market, futures contracts may not trade OTC. All trades are executed on the floor of the exchange in the pits. As the trades occur, the floor reporter will report

the trades to the tape for dissemination to the marketplace. The report to the tape is sent throughout the world to interested parties who transact business in futures contracts, much the same as a trade in the stock of an NYSE-listed company is disseminated. Orders for each type of futures contract will be directed to the pit for execution. Floor brokers and floor traders come together in an open outcry market to announce their respective bids and offers for the contracts. A floor broker is an employee of a member organization and will execute orders for the member's customers and for the member's own account. A floor trader is a member of the exchange who trades for his or her own account. Floor traders are also known as locals or scalpers. These members stand in the pit to trade futures contracts for their own profit and loss. Some locals will simply day trade to make the spread on the contract or try to earn a quick profit on a small move in the price of the contract. The practice of day trading on small moves is the origin of the term *scalper*. Other floor traders will take positions overnight or for longer periods of time. These floor traders are known as position traders. Floor traders are not obligated to take on positions nor are they required to buy or sell in the absence of orders or if the spread in the contract price becomes excessive. The exchange's floor committee sets the rules for trading futures on the floor of the exchange and will resolve trading disputes between members.

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CLEARINGHOUSE

All commodity exchanges must have a clearinghouse to clear all commodities futures transactions executed on the floor of the exchange. The clearinghouse guarantees contract performance and eliminates all counterparty risk. If one party to a contract defaults, the clearinghouse will ensure that timely delivery of the underlying commodity or the payment for the underlying commodity is made. All transactions in futures contracts are two-party contracts and each party accepts an obligation at the time the trade is executed. Neither the buyer nor seller of the contract knows the identity of the other party to whom they are now obligated. The clearinghouse is the ultimate counterparty for each buyer and each seller of futures contracts. If the buyer of a futures contract did not wish to take delivery of the underlying commodity, the buyer could simply offset his futures position with an offsetting sale of the contract. All offsetting transactions must be executed on the floor of the same exchange and in the same futures contract month to close out the position.

EXAMPLE A gold miner in Colorado who is concerned about the value of gold falling before the gold can be extracted sells a gold futures contract to a speculator in New York who believes that the price of gold is likely to increase in the next few weeks. Both the miner and speculator have now taken on an obligation to each other. The miner is obligated to deliver the gold and the speculator is obligated to purchase the gold. If the speculator determines that the price of gold is not likely to increase any further and does not want to accept delivery of the gold the speculator would simply sell the gold contract. This offsetting transaction in no way affects the miner in Colorado who is still obligated to deliver the gold. The clearinghouse will assign the delivery to another market participant who is long the gold futures contract at the time the miner sends notice of intent to deliver the gold.

When a buyer or seller of a futures contract offsets his or her position they have effectively exited the market and are no longer obligated to any party.

Firms that transact business in commodity futures who are members of the clearinghouse will report all of their transactions to the clearinghouse. The clearinghouse will net the purchases and sales for all transactions executed during the trading session. Based on the trades that are reported to the clearinghouse by clearing member firms, the clearinghouse will calculate the original margin requirement that must be deposited by each member firm. Trades in futures contracts settle the next business day and the member firm must deposit the required margin by the open of the next trading day.

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EXAMPLE ABC commodities is a clearing firm member. During the course of the trading day ABC had customers establish new long positions in gold futures of 100 contracts. During the same trading day ABC also had customers who established new short positions in gold futures of 60 contracts. ABC would report to the clearinghouse that it had established 100 long contracts in gold futures and had established 60 short contracts in gold futures. The clearinghouse would then calculate the original margin that must be deposited by ABC commodities for these positions. Most clearinghouses will net the positions to determine the amount of original margin that must be deposited. In this case ABC customers went long 100 contracts while other ABC customers when short 60 contracts. If the clearinghouse nets the positions, ABC will only be required to deposit the original margin for 40 long gold contracts.

ABC would still be required to collect the original margin from its customers in the above example for all 100 long contracts and all 60 short contracts.

All commodities futures merchants must clear all transactions through the clearinghouse. The merchant may do this by becoming a member of a clearinghouse or the merchant may find it easier to have another clearinghouse member provide the clearing functions for its transactions and will pay the clearinghouse member a fee for this service.

CLEARING MEMBER MARGIN CALCULATIONS

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Original margin refers to the amount that a member firm must deposit to establish a position in a futures contract. The amount of the original margin requirement is set by the exchange. Once the position has been established the clearinghouse will measure the amount of margin (equity) on deposit in relationship to the market price of the futures contract to determine if the position remains above the minimum maintenance for the contract. This process is known as *marking to the market*. As the price of the futures contract changes, the amount of margin on deposit will change in relation to the change in price of the futures contract. If the price of the futures contract moves against the member firm the amount of their margin deposit will be reduced. Should the contract move sufficiently against the firm, causing the deposit to fall below the minimum maintenance level, the clearinghouse will issue a call for additional or variation margin. A call for additional margin must be met by the next business day. When the clearinghouse marks to the market, the price for the contract is based on the official settlement price established and published by the exchange at the close of each trading day. In the rare event that no trades have taken place in a particular contract, the exchange will select the midpoint of the spread between the bid and the ask to determine a settlement price. During times of extreme volatility a clearinghouse could issue a call during the trading day for additional margin. In these extreme events a margin call issued during the trading day must be met within one hour.

Alternatively if a futures position moves in favor of the clearinghouse member, causing an increase in the margin (equity) on deposit for the contract

to be in excess of the original margin requirement, the clearinghouse will send the excess back to the clearinghouse member.

Unlike a margin account for equities there is no loan being made to the customer and there is no debit balance or interest charged.

BASIS GRADE

The exchange sets a minimum standard for the quality of a commodity that may be delivered under the settlement of a futures contract. This standard is known as the basis grade for the commodity. Having a minimum quality standard ensures a buyer that he or she will receive a grade of commodity suitable for their needs. The basis grade also informs the seller or delivering party of the minimum quality that may be accepted for delivery under the contract. If a seller delivers a commodity in an inferior grade, the exchange may allow the seller to deliver the inferior or substitute grade at a discounted price to the buyer. Alternatively if the seller delivers a substitute grade of the commodity that is superior to the basis grade the seller may demand a premium upon delivery. The exchange will set limits as to what substitute grades (inferior and superior) may be delivered to settle futures contracts.

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CORNERING THE MARKET

Futures exchanges will allow for the delivery of a substitute grade to settle a contract to help ensure that no one corners the market in any given commodity. If a person or group controls all or substantially all of a commodity they are said to have cornered the market. While this is extremely hard to do, if accomplished, it could have significant consequences for not only market participants but for the economy as a whole. Should a group corner the cash market in a commodity they would be able to demand almost any price for that commodity. Sellers of futures contracts would be forced to pay extraordinary prices for the underlying commodity to complete delivery, or they would be forced to offset or cover their short futures position at equally high prices

DELIVERY

The delivery process for each commodity is set by the exchange where the futures contract trades. The delivery of the underlying commodity is not delivered to the buyer but rather to a warehouse that has been approved by the exchange to accept delivery on behalf of all buyers. Once the seller deposits

the commodity in the approved warehouse, that commodity will be inspected to make sure that it is in the proper grade and quantity. If the exchange has more than one approved delivery location the seller of the commodity will determine to which facility delivery will be made. The buyer of the commodity must accept delivery at whichever location the seller chooses. The buyer of the commodity has no authority to select the delivery location. Delivery may only take place during the contract month. For example, a seller who established a short position in June corn futures in April could not deliver the corn to settle the contract until the settlement period in June. The first day in a contract month when delivery may be made is known as the *first notice day*. A seller who wishes to deliver the commodity will notify his broker of the intention to deliver the commodity and the broker will in turn submit the notice of intention to deliver to the clearinghouse. The notice will contain specific details regarding the delivery including:

- The date when delivery will be made
- The location where delivery will be made
- The quantity or weight to be delivered
- The grade (basis, premium, or discount) to be delivered

Once the clearinghouse member receives the notice from the seller of the contract, the clearinghouse must determine which customer with an established long position will be assigned the delivery notice to take delivery of the cash commodity. The method under which a notice is assigned to a buyer who is long futures varies from exchange to exchange. The notice may be assigned to the buyer with the oldest open long position or the largest net long position. Certain exchanges require that the buyer accept delivery of the commodity and do not allow the buyer to offset the delivery requirement by selling the same futures contract. This is known as a *stopped* delivery notice. Other exchanges will allow a person who is long the futures and who has been assigned a delivery notice to sell futures contracts in the same delivery month and pass or retender the delivery notice to the buyer. By selling the same futures in which the assigned party was long, the buyer has offset or eliminated the requirement to take delivery.

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SPECULATORS AND HEDGERS

The exchanges provide a liquid marketplace where both speculators and hedgers can readily transact futures trading. The role of the speculator is to take on the risk that the hedger is seeking to reduce or offset. The flow of

risk capital to the futures markets allows the speculator to profit from a move in the futures market based on their belief about the price action in the commodity. A speculator who thinks that the price of the underlying commodity is likely to appreciate will purchase the futures contract to establish a long position. The long position will become profitable if the value of the futures contract appreciates. Alternatively, a speculator who feels that the price of the commodity is likely to fall will sell the futures contract to establish a short position. The short position will become profitable if the price of the commodity futures contract declines. A hedger who transacts business in futures contracts is seeking to manage or offset the price risk associated with either producing or using the commodity. A producer of the commodity who is long the cash commodity is seeking to protect the value or sales price of their inventory and is hedging against a price drop in the commodity. The producer would sell futures to hedge their long cash commodity position. Alternatively, a user or purchaser of the underlying commodity who is considered to be short the cash commodity is trying to protect their business from rising prices. In order to protect their business from a price increase in the underlying cash commodity, the user or purchaser of the commodity would buy futures. The hedger is not seeking to profit from trading futures, the hedger is simply looking to eliminate the risk of loss as the result of a move in the price of the underlying commodity.

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Pretest

1. The minimum quality grade that may be delivered to fulfill the obligation of a futures contract is known as:
   - **a.** premium grade.
   - **b.** basis grade.
   - **c.** minimum grade.
   - **d.** standard grade.

2. Most exchange-traded futures contracts may be traded in the pit on the floor of the exchange or between dealers electronically.

   True
   False

3. Which of the following sets the rules for trading futures on the floor of the exchange and will resolve trading disputes between members?
   - **a.** Floor committee
   - **b.** NFA
   - **c.** CFTC
   - **d.** Floor official

4. Forward contracts are privately negotiated contracts for the purchase and sale of a commodity or financial instrument and offer a high degree of liquidity.

   True
   False

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5. The transactions between the producer or seller of the commodity and the user or buyer of the commodity take place in the
   - **a.** forward market.
   - **b.** futures market.
   - **c.** exchange market.
   - **d.** spot market.

6. The counterparty risk in all futures contracts has been eliminated through performance guarantees.

   True
   False

7. The delivery process for each commodity is set by the exchange where the futures contract trades. The delivery of the underlying commodity is delivered to:
   - **a.** the buyer.
   - **b.** the exchange.
   - **c.** an approved clearinghouse.
   - **d.** an approved warehouse.

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8. A seller who wishes to deliver the commodity will notify his broker of the intention to deliver the commodity and the broker will in turn submit the notice of intention to deliver to the clearinghouse. The notice will contain all of the following except:
   - **a.** the date when delivery will be made.
   - **b.** a margin release form.
   - **c.** the location where delivery will be made.
   - **d.** the quantity or weight to be delivered.

9. All investors with open long positions who receive a delivery notice may offset the delivery by selling the futures contract and tendering the delivery notice to the new buyer.

   True
   False

10. A seller who wishes to deliver the commodity may notify his broker of the intention to deliver the commodity on:

a. the first delivery day.

b. the week prior to the delivery month.

c. the last business day of the preceding month.

d. the first notice day.

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