FUTURES AND FORWARD MARKETS

Futures and forward contracts are similar to options in that they specify the purchase or sale of some underlying security at some future date. The key difference is that the holder of an option to buy is not compelled to buy and will not do so if it is to his or her disadvantage. A futures or forward contract, on the other hand, carries the obligation to go through with the agreed-upon transaction.

A forward contract is simply a deferred delivery sale of some asset with the sale price agreed upon now. All that is required is that each party be willing to lock in the ultimate price to be paid or received for delivery of the commodity. A forward contract protects each party from future price fluctuations. It is not an investment in the strict sense that funds are paid for an asset—it is only a commitment today to transact in the future. Forward arrangements are part of our study of investments, however, because they offer a powerful means to hedge other investments and generally modify portfolio characteristics.

Forward markets for future delivery of various commodities go back in time at least to ancient Greece. Organized *futures markets*, though, are a relatively modern development, dating only to the nineteenth century. Futures markets replace informal forward contracts with highly standardized, exchange-traded securities.

This chapter describes the workings of futures markets and the mechanics of trading in these markets. We show how futures contracts are useful investment vehicles for both hedgers and speculators and how the futures price relates to the spot price of an asset.

This chapter deals with both principles of futures markets in general and specific futures markets in some detail.

19.1 THE FUTURES CONTRACT

To see how futures and forwards work and how they might be useful, consider the portfolio diversification problem facing a farmer growing a single crop, let us say wheat. The entire planting season's revenue depends critically on the highly volatile crop price. The farmer can't easily diversify his position because virtually his entire wealth is tied up in the crop.

The miller who must purchase wheat for processing faces a portfolio problem that is the mirror image of the farmer's. He is subject to profit uncertainty because of the unpredictable future cost of the wheat.

Both parties can reduce this source of risk if they enter into a **forward contract** requiring the farmer to deliver the wheat when harvested at a price agreed upon now, regardless of the market price at harvest time. No money need change hands at this time. A forward contract is simply a deferred-delivery sale of some asset with the sales price agreed on now. All that is required is that each party be willing to lock in the ultimate price to be paid or received for delivery of the commodity. A forward contract protects each party from future price fluctuations.

Futures markets formalize and standardize forward contracting. Buyers and sellers trade in a centralized futures exchange. The exchange standardizes the types of contracts that may be traded: it establishes contract size, the acceptable grade of commodity, contract delivery dates, and so forth. Although standardization eliminates much of the flexibility available in forward contracting, it has the offsetting advantage of liquidity because many traders will concentrate on the same small set of contracts. Futures contracts also differ from forward contracts in that they call for a daily settling up of any gains or losses on the contract. In the case of forward contracts, no money changes hands until the delivery date.

The centralized market, standardization of contracts, and depth of trading in each contract allows futures positions to be liquidated easily through a broker rather than personally renegotiated with the other party to the contract. Because the exchange guarantees the performance of each party to the contract, costly credit checks on other traders are not necessary. Instead, each trader simply posts a good-faith deposit, called the *margin*, in order to guarantee contract performance.

The Basics of Futures Contracts

The **futures contract** calls for delivery of a commodity at a specified delivery or maturity date, for an agreed-upon price (called the **futures price**), to be paid at contract maturity. The contract specifies precise requirements for the commodity. For agricultural commodities, allowable grades (e.g., No. 2 hard winter wheat, or No. 1 soft red wheat) are set by the exchange. The place or means of delivery of the commodity is specified as well. For agricultural commodities, delivery is made by transfer of warehouse receipts issued by approved warehouses. For financial futures, delivery may be made by wire transfer; in the case of index futures, delivery may be accomplished by a cash settlement procedure similar to those for index options. (Although the futures contract technically calls for delivery of an asset, delivery in fact rarely occurs. Instead, traders much more commonly close out their positions before contract maturity, taking gains or losses in cash.)

Because the futures exchange completely specifies the terms of the contract, the traders need bargain only over the futures prices. The trader taking the **long position** commits to purchasing the commodity on the delivery date, while the trader who takes the **short position** commits to de-