Using Commodity Futures as a Price Forecasting Tool

Joe Parcell and Vern Pierce
Department of Agricultural Economics

Commodity futures prices can serve as a mechanism for price discovery for either present or expected future prices. A market is defined as efficient if it accounts for all public and nonpublic information in determining an equilibrium price in the market. Commodity futures markets are often considered the most efficient markets in the price discovery process. That is, the price quoted for a commodity on the futures market is thought to be the best measure of the actual price, either current or future. Therefore, if you would like a good predictor of what prices will be four months from now, the deferred (four months out) futures price quote for that commodity may be the best and easiest price forecast.

Forecasting current and future prices

Tables 1 and 2 provide closing future price quotes for corn and live cattle, respectively, for December 18, 1998. On that date these price quotes for corn and live cattle could be thought of as forecast prices for the months listed on the left side of the tables. For example, if you wanted a forecast of what the price of corn was going to be for the United States in March 1999, you could use the March 1999 Chicago Board of Trade futures closing price of $2.19/bushel as a forecast price. Similarly, if you were interested in a forecast of live cattle prices for December 1999, you could use the December 1999 Chicago Mercantile Exchange live cattle futures price quote of $64.85/cwt.

Why does someone care about forecasting price? Knowing what the grain price will be four months from now is helpful in evaluating decisions about grain storage. Knowing what the live cattle price will be next fall is helpful in making decisions about retained ownership. Also, knowing expected prices can help in making forward pricing decisions. That is, if in October 1998 you could forward price corn for spring 1999 at $2.24/bushel, you would know that the offered price is about equal to the expected price. Typically this will not be the case in forward pricing agreements, because the

Table 1. Chicago Board of Trade corn futures price quotes (December 18, 1998).

Contract month	Year	Closing price
December	1998	$2.10
March	1999	$2.19
May	1999	$2.27
July	1999	$2.33
September	1999	$2.40
December	1999	$2.45
March	2000	$2.53
July	2000	$2.62
December	2000	$2.59

Table 2. Chicago Mercantile Exchange live cattle futures price quotes (December 18, 1998).

Contract month	Year	Closing price
December	1998	$58.65
February	1999	$58.97
April	1999	$61.85
June	1999	$61.65
August	1999	$62.35
October	1999	$64.30
December	1999	$64.85

entity offering the forward price contract requires a price discount to assume your price risk. Expected prices can help grain producers decide which cropping alternative to plant in the spring. Lastly, expected prices can be useful in planning annual cash flow and loan requests.

How can I forecast a local price?

Agriculture producers and agribusinesses face a diverse array of marketing and production alternatives. Each time a marketing or production decision is made, farmers or agribusinesses must estimate how this decision will affect their risk management plan. None of these questions is more difficult to answer than, "What price can I expect?" No matter the time of year, this question always looms in the decision process of farmers and agribusinesses. With changes in the domestic farm program, producers must now ask themselves, which

crop will I plant given my known input costs and expected harvest time prices? During this same time and into crop maturity, producers then must ask themselves, should I forward price a portion of my crop? Finally, in the fall producers must ask themselves, should I store my crop? Or for the cow-calf producer, should I retain ownership on a portion of my herd beyond weaning? Similarly, agribusinesses must determine price expectations to know what forward price to offer.

Commodity futures exchange markets provide a mechanism for price discovery on an aggregate level through arbitrage between multiple buyers and sellers. However, price discovery at a given location is not as clearly defined because local supply and demand relationships are not as well known. However, historical basis provides a linkage between these two markets (see MU publication G606, *An Introduction to Basis*). Therefore, a simple, low-cost, and relatively good predictor of the local cash price is the futures contract [month] price of interest adjusted for a multiple year average basis for that time. An expected price, where E denotes an expectation, can be found in the following way:

$$E[\textit{Cash price}] = \textit{Futures price} + E[\textit{Basis}]$$

For example, consider a cow-calf producer who in December would like a forecast for live cattle prices next April in a local market. The producer's best expectation of that cash price might be the April live cattle futures price adjusted for an expected basis (say 5-year average basis). Assume in December 1998 you want to forecast the local corn price for December 1999 to analyze the expected costs and returns of growing corn in 1999. You do this because you must purchase seed in January. You know the 1994 through 1998 basis (cash − futures) for your area is − $0.20/bu. From Table 1, the expected December 1999 cash corn price is $2.45. Thus, your expected local cash price is $2.25/bu [$2.45 + (− $0.20)]

Even though the example given relates to information in 1998, a similar procedure for forecasting prices can be used anytime. Suppose you are considering in January 2001 whether to plant corn or soybeans. If you wanted to forecast the December 2001 corn and November 2001 soybeans futures price on January 15, 2001, then you would obtain the December 2001 corn and November 2001 soybeans futures price quotes on January 15, 2001. To develop a price forecast you would add the expected basis (cash less futures) to the futures price. A simple forecast such as this can be developed for all offered futures contracts.

Other Publications on Risk Management

G 601, *Agricultural Commodity Futures Contract Specifications*
G 602, *Introduction to Hedging Agricultural Commodities with Futures*
G 603, *Introduction to Hedging Agricultural Commodities with Options*
G 604, *Commodity Futures Terminology*
G 605, *Interpreting Commodity Futures and Options Price Quotes*
G 606, *An Introduction to Basis*
G 607, *Long Hedge Example with Futures*
G 608, *Short Hedge Example with Futures*
G 609, *Long Hedge Example with Options*
G 610, *Short Hedge Example with Options*

Extension Publications 1-800-292-0969