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Is there an Optimal Month to Forward Contract?

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Knowing when to forward contract is one of the most difficult aspects of grain marketing. If futures and forward markets worked perfectly, then this decision would not matter over the long run. Futures and forward contracts for harvest delivery should all be efficient predictors of the price at harvest and there should be no obvious trend in profitability of hedging across various months prior to harvest; however, as will be shown below, actual data for the last 20 years shows a modest but economically important pattern. Here I describe the trend and provide a suggestion as to why it exists.

Figures 1 and 2 below simulate the actual performance of hypothetical forward contracts for each of 24 months prior to harvest. The data show the average price that would have been received by producers who contracted to deliver harvested grain in each of the 24 months prior to that year’s harvest. The larger the value, the better off was the producer who routinely contracted to deliver that many months prior to each year’s harvest.

The figures are based on data from 1993–2013 and assume a constant basis between the delivery location and the CME.

The data for corn in Figure 1 shows a distinct downward trend indicating that those who forward contracted 24 months prior to harvest obtained a price $0.30 per bushel (about 10 percent) greater than those who sold in November of the harvest year. The data for soybeans also shows a $0.30 per bushel difference between the 24 month out forward contract and cash sales in October of the harvest year. Soybean data, however, indicates that the very worst time to sign a forward contract is 12 months prior to harvest.

These patterns could well be driven by random noise. It is possible that if this experiment was repeated for the next 100 years, these trends would disappear. However, it is also possible that there is something else going on.

There is a well-known phenomenon in grain futures markets called the “weather premium.” These markets typically over predict the actual harvest futures price in more years than they under predict. The logic is that the magnitude of upside price movements in the event of bad weather is greater than the downside price movement in years when weather is good. Futures market builds in a premium to account for this asymmetry up to the point in the growing season where the weather is no longer a major determinant of yield. New crop futures typically fall in July as the weather premium dissipates.

What should happen is a price increase in bad weather, such as in 1995 and 2010, large enough to compensate for several more modest price reductions in good weather years. This does not appear to have happened. It is possible that futures market participants expected more bad years than were actually observed or that the upside price increases in bad years was not as large as they expected. Of course, it is also true that the 20 years of data used here is simply not long enough to contain a complete distribution of weather patterns.

The two-year trend in corn data may simply reflect the gradual dissipation of two years of weather premium. The twelve-month pattern in the soybean data may reflect the importance of the South American soybean crop and the dissipation of the weather premium due to uncertainty about this crop.