The Failure of Multi-Year Hedge-to-Arrive Contracts

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In the late 1980s, grain elevators in Ohio developed the hedge-to-arrive contract (HTA) to induce farmers to use their grain handling facilities and/or merchandising services. Farmers wanted to use HTAs to lock in abnormally attractive price levels for more years of expected production. Supposedly, the multiple-year HTA would lock in those attractive prices without farmer margin calls (money required by commodity brokers as security against default) if futures prices rose further. A National Grain and Feed Association survey in early 1996 found that 45 percent of responding elevators offered single or multiyear HTAs, accounting for 6 percent of their grain volume. Many multiyear HTAs proved to be an economic disaster in 1996 when corn prices skyrocketed to unprecedented levels. The false premise underlying the contract design, which we discuss in this article, became exposed in dramatic fashion. How did this disaster happen? How might it be prevented in the future?

How HTAs work

The story begins with the contract design and implementation process. In an HTA, grain elevators or merchandisers, on the farmer's behalf, would sell current high-priced futures contracts for the current crop (old crop) on the Chicago Board of Trade (CBOT). If the futures prices went higher after the futures were sold, elevators, not farmers, were to pay margin calls. Farmers hedged the current crop and, in some cases, even crops to be harvested in several subsequent years.

Multiyear HTAs attempted to carry over those current-year high prices to crops harvested in later years. To this end, elevators needed to shift the initial hedge positions into future year contracts at price levels similar to the price levels for the soon-to-expire initial futures contract. Elevators would keep shifting from a closer to a more distant futures contract at similar price levels until the farmers' final delivery. The sometimes false presumption of similar old-crop–new-crop futures prices, when elevators shifted futures positions to the next crop year, proved to be the Achilles' heel of the multiyear HTA contract design.

Despite HTA's underlying purpose of "locking in" high prices for farmers' production one or more years ahead, in 1996 many farmers with multiyear HTAs received prices closer to $1 per bushel of corn than the near $3 per bushel which they expected. How could this have happened?

With similar old-crop–new-crop corn futures price levels, a $3.00 July futures price can be shifted to a December contract at the same price, or at a small positive spread reflecting storage costs. Assuming July and December futures both at $3.00 when the shift occurred, and a futures-cash price difference at time of delivery of minus 20¢, the net cash price without commissions or service charges would be $2.80 (= $3.00 + $0 + [–$0.20]).

After record corn yields in 1994 and very low prices, July futures moved into the $3.00–$3.50 range in mid and late 1995 as adverse weather influenced yields and market prices (figure 1), prompting many farmers to enter into multiyear HTAs. Corn prices surged toward record levels in the first

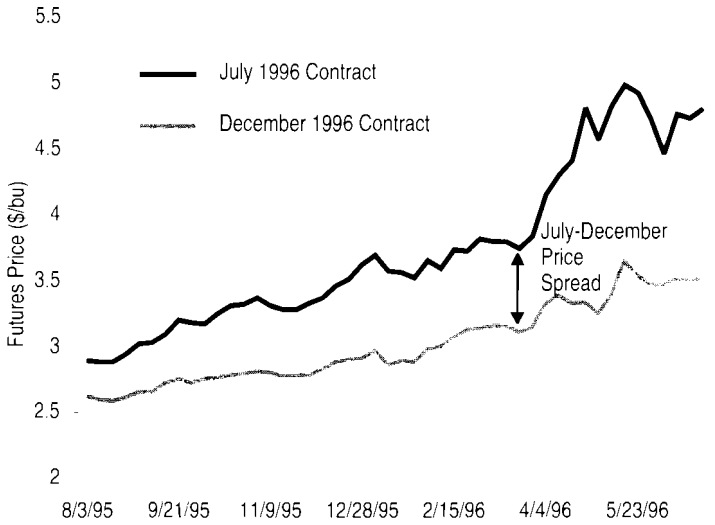

Figure 1. Settlement prices corresponding to July 1996 and December 1996 corn futures contracts

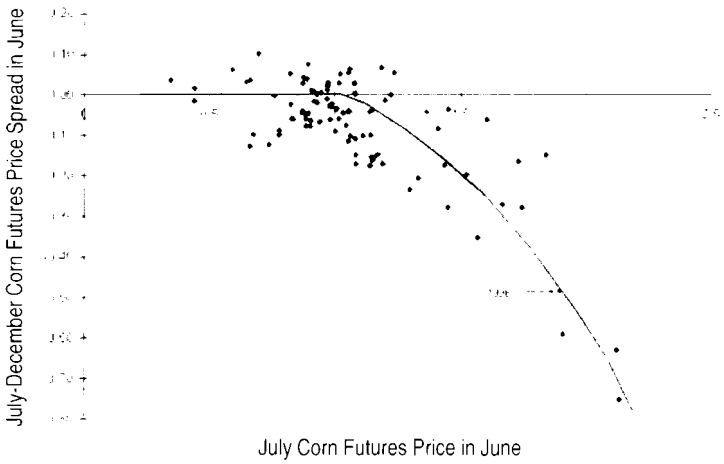

Figure 2. July–December corn futures price spread versus July corn futures price in June, 1895–1997 (deflated by average of prices in previous five years)

half of 1996, as livestock feed demand remained high and unexpectedly strong export demand from China and other Asian countries (due partly to the weak dollar) pushed projected ending stocks to dangerously low levels.

Disaster strikes

By the time July futures prices peaked at over $5 per bushel, the national press reported a number of problems with HTAs across the Corn Belt. The abrupt rise in corn futures prices led to extremely large margin calls and cash shortages for elevators. As figure 1 shows, December futures prices rose much less than those for July, so shifts from high-priced old-crop futures to low-priced new-crop futures led to sharply lower prices for farmers than expected, sometimes for several years' crops. A multiyear HTA initially hedged at $3.00 with the goal of locking in a cash price of $2.80 per bushel shown above could have resulted in cash prices as low as $1.59 (= $3.00 + [–$1.21] + [–$0.20]) per bushel, with service charges still to be deducted. The sharp difference between the desired and realized cash prices occurred because the actual July-December futures price difference (spread) in late June 1996 was very large and negative (the average was –$1.21), not close to zero.

Some elevators canceled their futures positions and/or imposed changes in the contract terms, sometimes requesting that farmers cover margin calls or deliver all the grain contracted within a short time period. Many farmers elected to defer delivery under the contract to the next crop year and sell that year's crop at the high cash prices rather than the lower contract prices. Some farmers decided not to deliver their grain, or they got extremely low prices if they did deliver. Elevators got caught in a major financial squeeze when they had large cash losses on their futures positions but had little grain coming in from multiyear HTAs and insufficient merchandising income to offset those losses. Many elevators failed or were forced into involuntary mergers when they were unable to cover contract losses.

Assessing the blame

Elevators, farmers, and others involved in multiyear HTAs began to struggle over who should bear the losses and the blame. Were elevators and market advisors to blame for duping farmers into signing these contracts? Were farmers to blame for taking on unnecessary risks or abrogating their contractual responsibilities? Were the contracts illegal off-exchange contracts, rather than forward cash contracts under Commodity Futures Trading Commission (CFTC) regulations, in cases which did not require delivery?

The CFTC began investigating possible fraud, focusing on inadequate risk disclosure to farmers. In November 1997 the CFTC charged some elevators and marketing advisory services with fraud in selling HTAs.

The failures of multiyear HTAs prompted a wave of lawsuits and countersuits that is still unraveling in 1999 (Iavarone; Harl 1996, 1997, 1998). Many HTAs were poorly drafted and extremely ambiguous about the responsibilities of the contracting parties under various contingencies. The failure of multiyear HTAs may be attributed to the unfortunate combination of grain merchandisers' contract design errors, careless contract writing, inadequate risk disclosure, insufficient capital for margin calls, and adverse market conditions. To compound the problem, some contracts required that

grain merchandisers arbitrate farmer-merchandiser HTA disputes, even though they could not be viewed as disinterested parties.

Trials have usually focused on the legal issues surrounding HTAs outlined above. The trial results have been mixed so far, some favoring elevators, some favoring farmers. Deciding factors often cannot be easily determined because of the complexity of the contracts and the subsequent actions by the contracting parties. Judges and juries with little or no background in these markets often had difficulty understanding these complexities. Courts have tended to rely upon the original written contract, rather than alleged misleading promotional materials or oral statements regarding the risks and opportunities of multiyear HTAs. Judges decided some cases based on the reasonableness of elevator demands on farmers as margin calls and financial difficulty mounted. Sometimes the decisions seem to focus on who breached the contract first. In two cases, farmers did not respond to elevators' letters demanding assurance of delivery in spring 1996; this was not considered a valid reason for elevators to abrogate HTA contracts. One jury returned a $200,000 verdict against the elevator (which included punitive damages) because of unfair and improper actions and statements against the producer.

A recent district court decision favored the National Farmers Organization, a marketing firm offering the multiyear HTA contracts. The judge concluded that the precise scope of the risk of loss that occurred was unforeseeable to all parties involved, and the market conditions resulting in the high inverse spread loss were unprecedented and unpredictable.

On August 24, 1998, the CFTC accepted a settlement offer from the market advisory firm Competitive Strategies for Agriculture ($20,000 fine and a six-year prohibition of any CFTC-regulated activities) on a CFTC complaint of fraud in marketing HTAs. The CFTC order found that the firm marketed HTAs that permitted shifting (rolling) futures positions to subsequent crop years. The advisory firm fraudulently represented to Nebraska clients that (*a*) their strategies concerning such contracts were risk-free due to the ability to "roll out" of (sharply reduce or eliminate) a losing HTA position during unfavorable market conditions, and (*b*) the HTAs could achieve better price results than were available from forward contracts or spot market sales. The CFTC found that the advisory firm failed to disclose risks inherent in speculating on inter-crop-year spreads: (*a*) the futures market might move so adversely that the producer might not be able to "roll out" of HTAs profitably, and (*b*) in a period of rising prices, the contracting elevator might not be willing or financially able to permit producers to shift futures contracts indefinitely. In addition, the CFTC order concluded that the advisory firm solicited clients to enter into a type of HTA which was an off-exchange futures contract which violated the Commodity Exchange Act. A similar case resulted in a November 6, 1998, CFTC administrative law judge finding that Grain Land Cooperative, an elevator offering HTAs, was offering illegal off-exchange contracts because delivery was not required (cancellations could be for any reason and were frequent). Forward cash contracts must require delivery of the product, and the HTAs in these two cases did not meet that requirement. Some other cases currently in litigation involve allowing farmers to sell or buy options as an add-on to HTA contracts; since options may not involve delivery, that is an additional related issue requiring CFTC and/or court decisions regarding their legality.

The two cases brought by the CFTC bring a new dimension to the decisions made in this series of cases. The CFTC order in one case found the risk disclosure to be misleading. Further, contrary

The Empirical Analysis

Figure 2 was constructed using the average of the highest and lowest price (the price midrange) for each month the July and December CBOT corn futures contracts traded in 1890–1997. In figure 2, old-crop futures prices and old-crop–new-crop spreads are expressed as fractions of the "normal" corn price. Because farmers would gauge the attractiveness of the current price relative to their recent price experience, we defined the "normal" corn price as the average of the same futures contract's prices in the same month over the five previous years. For example, the July corn futures price in June 1996 was 1.90 times the "normal" price (for example, $4.74 per bushel in June 1996 versus $2.50 per bushel for the July futures average in the month of June from 1991 through 1995), or 90 percent higher than recent experience. Similarly, a –48 percent July–December spread in June 1996 indicates that the July–December futures price spread in June 1996 (–$1.21 per bushel) was (minus) 48 percent of the average July futures price in June from 1991 through 1995 ($2.50 per bushel). Similar analyses of other old-crop–new-crop futures price spreads showed similar patterns.

to some earlier U.S. district court decisions, the HTA contract not requiring delivery in both cases violated the Commodity Exchange Act. The results of these CFTC cases, along with future court of appeals decisions in the cases decided to date, will provide valuable guidance on whether some or all of the various HTAs offered are legal under the Commodity Exchange Act.

What were the risks?

Even if the contracts had been more completely specified or if futures margin requirements had not created major cash flow problems for elevators in 1996, multiyear HTAs could not have succeeded in "locking in" unusually high prices several years ahead. The crux of the issue is the old-crop–new-crop futures price spread risk (the difference, for example, between the December new-crop futures price and the July old-crop futures price when the July contract position must be shifted to the December contract).

Fundamental price analysis and contract design

Common sense about grain markets should have led analysts to conclude that there is no good reason to expect new-crop futures prices to be as high as old-crop futures prices in short crop years. Normal weather expectations should lead to lower cash prices next year, and futures traders will reflect those expectations in the new-crop futures prices.

In years with either low or normal prices, the positive old-crop–new-crop futures price spread will be, at most, equal to the storage cost. CBOT corn futures data from 1890–1997 confirm this observation. To illustrate, figure 2 shows that whenever this year's July futures price is similar to or lower than the last five years' average price (a ratio of 1 or lower), the July–December spread is near zero or slightly positive (also expressed as a ratio to the last five years' average futures price).

In contrast, the old-crop–new-crop futures price spread was negative in all years with well above normal prices. Furthermore, such negative spreads were extremely large when futures prices were very high (and farmers would have the greatest incentive to enter into multiyear HTAs). In years in which the corn price was 50 percent or higher than the "normal" level, the old-crop–new-crop spread ranged from approximately minus 10 to minus 75 percent of the "normal" crop price. The 1996 corn spreads fit well into the historical pattern, and our analysis of soybean futures prices shows similar results (Blue et al.). As a result, it is nearly impossible to lock in current high old-crop prices for crops to be harvested in future years by means of multiyear HTAs.

Analysis errors?

Why did the designers of multiyear HTAs reach the wrong conclusions about such contracts? In some cases, no analysis was done. In others, perhaps a naive analyst asked the wrong question: What are typical old-crop–new-crop futures price spreads? Since most years in the fifteen to twenty years before 1996 exhibited "normal" prices, and old-crop–new-crop futures price spreads were near zero, a naive analyst might have (erroneously) concluded that current futures prices could be used to lock in similar prices several years in advance by using multiyear HTAs.

In contrast, the correct question is: What are typical old-crop–new-crop futures price spreads when prices are high enough to motivate farmers to "lock in" prices for several years' crops? Because abnormally high prices seldom occur, analyzing old-crop–new-crop futures price spreads over the last ten or twenty years falls short. The appropriate sample would only involve the prices in those years where farmers would likely have sufficient incentives to initiate multiyear HTAs. This probably would be the years in which prices were 20 percent or more above normal, and old-crop–new-crop futures price spreads were negative to extremely negative. Previous work (some over fifty years ago) by Working (1948 and 1953), Tomek and Gray, and Tomek and Robinson shows that negative spreads in short-crop–high-price years have no limit, theoretically, while storage costs limit the positive spreads.

What can we conclude?

Multiyear corn HTAs did not fail in 1996 because of record prices or because they behaved in an unpredictable fashion. Multiyear HTAs failed because their design was based on faulty economic reasoning and analysis. The very high prices in 1996 led to very negative old-crop–new-crop futures price spreads, in contrast to faulty expectations.

The failure of multiyear HTAs may be attributed to the unfortunate combination of grain merchandisers' contract design errors, careless contract writing, inadequate risk disclosure, insufficient capital for margin calls, and adverse market conditions.

Some industry analysts and merchandisers probably failed to pay attention to the futures market literature, ask the correct questions, or get enough pertinent data to determine potential multiyear HTA risks in analogous historical situations. If risks had been adequately disclosed by those designing and offering these contracts, fewer would have been written. Should farmers with little advanced economic education on futures market behavior have known about these risks? The courts still wrestle with this issue.

The present analysis highlights the importance of designing and entering risk-management contracts with full knowledge of expected outcomes under the entire spectrum of potential market situations. Based on theory and looking at corn price behavior over one hundred years, we conclude that it is nearly impossible to lock in current high old-crop prices for crops to be harvested in future years by means of multiyear HTAs. Litigation continues on a large number of HTA cases, but the late 1998 CFTC decisions may lay the groundwork for resolving many of these cases if the district and appeals courts subscribe to their reasoning and analysis. ■

For more information

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Hayenga and Lence served as consultants and expert witnesses in cases involving HTAs and related contracts. The empirical evidence presented here was prepared for that litigation.

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