Introduction to Grain Hedging with Futures and Options

By Josef Habsburg
Introduction to Grain Hedging with Futures and Options

For farmers and end-users, the futures markets provide the necessary tools to mitigate the recurring risk of price fluctuations. Many producers and end-users have come to realize that an unhedged cash position is a speculative one, and using futures or options is the best way to transfer price risk from one market participant to another.

Who Hedges Grains with Futures and Options?

Hedgers in grain markets will typically be one of two individuals or entities:

A) Farmers (short hedger):

A short hedger is someone who is long the cash crop, meaning anyone who sells the physical grain they grow and harvest (e.g., a farmer). They either have or will have the physical grain for sale in the future. To transfer the price risk, they will take a short position (sell futures, buy put options) in the futures market.

B) End-User (long hedger):

A long hedger is someone who is short the cash crop, meaning anyone who needs to buy the physical grain (e.g., miller, feed producer). To transfer price risk, a long hedger will take a bullish position in the futures market (buy futures, sell put options, buy call options).

Both of these individuals will generally lift their hedge (offset their positions), when buying or selling their respective grains.

Why Do Producers and Users Hedge?

Producers and users hedge because they do not want to face the risk of unforeseen price fluctuations between now and the time of purchase or sale of their grain. Transferring the risk and setting a price for grain provides a form of financial security for the hedger. This facilitates operational and financial planning, resulting in potentially more efficient capital management and product pricing.

WHEN INVESTING IN THE PURCHASING OF OPTIONS, YOU MAY LOSE ALL OF THE MONEY YOU INVESTED. WHEN SELLING OPTIONS, YOU MAY LOSE MORE THAN THE FUNDS YOU INVESTED. COMMODITIES TRADING INVOLVES RISK. ONLY RISK CAPITAL SHOULD BE INVESTED. PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.
EXAMPLE 1: Corn Futures

In June, a corn farmer, expecting a crop of around 20,000 bushels to be harvested in October, would like to reduce his risk of price fluctuation. He does this by hedging using the futures markets.

The farmer calls his broker and places an order to Sell 4 December corn futures contracts (5,000 bu./contract) at the market. He is filled at 3.80 $/bu. “on the board” when the cash market is at 3.66 $/bu.

What happens if prices fall?

The ultimate goal is always to sell high and buy low. The farmer would therefore benefit if the futures prices fell, as he will have to buy them back to offset his position, while at the same time cash market prices rose. Generally, cash market and futures markets will move in the same direction but not necessarily to the same extent. The farmer would benefit if the difference between the cash price and the futures price approaches zero. This difference is known as the basis.

Come November, the farmer has harvested his crop and is ready to sell it in the cash market. He lifts his hedge to avoid delivery by buying 4 December corn futures. Since June, the price has fallen to 3.70 $/bu. where he is filled.

The cash market has also fallen and the farmer sells his corn for 3.61 $/bu.

Let’s look at the result of this hedge:

<table>
<thead>
<tr>
<th>Date</th>
<th>Cash Market ($/bu.)</th>
<th>Futures Market ($/bu.)</th>
<th>Basis ($/bu.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/01</td>
<td>3.66</td>
<td>3.80</td>
<td>-0.14</td>
</tr>
<tr>
<td>11/01</td>
<td>3.61</td>
<td>3.70</td>
<td>-0.09</td>
</tr>
<tr>
<td>Change</td>
<td>-0.05</td>
<td>+0.1</td>
<td>+0.05</td>
</tr>
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The loss of 0.05 $/bu. in the cash market has been more than offset by the 0.10 $/bu. gain resulting from the sale in the futures market. The net gain on the transaction is $1,000 ($0.05/bu. x 20,000 bu.). Through the hedge, the farmer effectively sold his crop for 3.71 $/bu. (3.61 + 0.10).

COMMODITIES TRADING INVOLVES RISK. ONLY RISK CAPITAL SHOULD BE INVESTED. PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.
What if prices would have gone up?

Rising prices mean that the farmer can sell his crop for more money. His cash market position will therefore make a gain. The farmer will lose some money buying back the futures contracts at a higher price. However, like in the example below, the profit in the cash market will often completely offset the loss in the futures market, generating a net profit.

Net Profit $400 ((12-10 ¢/bu.) x 20,000 bu.).

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</tr>
<tr>
<td>11/01</td>
<td>3.78</td>
<td>3.90</td>
<td>-0.12</td>
</tr>
<tr>
<td>Change</td>
<td>+0.12</td>
<td>-0.1</td>
<td>+0.02</td>
</tr>
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THE RISK OF LOSS IN TRADING FUTURES CONTRACTS OR COMMODITY OPTIONS CAN BE SUBSTANTIAL AND THEREFORE INVESTORS SHOULD UNDERSTAND THE RISKS INVOLVED IN TAKING LEVERAGED POSITIONS AND MUST ASSUME RESPONSIBILITY FOR THE RISKS ASSOCIATED WITH SUCH INVESTMENTS AND FOR THEIR RESULTS. YOU SHOULD CAREFULLY CONSIDER WHETHER SUCH TRADING IS SUITABLE FOR YOU IN LIGHT OF YOUR CIRCUMSTANCES AND FINANCIAL RESOURCES.

Rising futures prices have the negative impact that they will lead to margin calls. The farmer has to be able to provide the market with such margin calls on short notice, which requires a certain amount of available funds.

Generally, price movements in any direction are not a problem for a short hedger as long as the basis does not weaken, meaning that the cash and futures markets move further apart. A loss in the cash market will usually at least be partially offset by a gain in the futures market and vice versa. The positive impact of a hedge varies in magnitude, but is advantageous at all times as a tool for risk reduction.
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Why use Futures over Forwards?

A) Liquidity:

It may not always be possible to withdraw from a forward contract. In contrast, the futures markets provide extensive liquidity, which allows for easy offsetting of positions. For every buyer there is a seller!

B) Exchange Regulated:

All trades on the futures exchange are subject to Federal regulations and all market participant trades are guaranteed. This is generally not the case for forward contracts.

C) Standardized Contracts:

Futures contract terms are standardized so you always know exactly what you buy or sell. Forward contracts are negotiated between the buyer and the seller.

EXAMPLE #2: Corn Options

The same farmer, again expecting a harvest of 20,000 bu. of corn to be harvested in October, decides that he likes the current cash market price in June. This time he decides to use options to hedge his price risk.

He calls his broker and places an order to buy 4 December corn put options (5,000 bu./contract) at-the-money. He is filled at a strike price of 380 ¢/bu. for a premium of 26 ¢/bu. when the cash market is at 366 ¢/bu.

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What happens if the prices go down?

A fall in the price of futures will move the farmer’s option ‘in-the-money’, making it more valuable.

Let’s say the futures market fell to 370 ¢/bu. and the premium of the put rises to around 39 ¢/bu. As shown in the table below, if he sells the options, this would offset the fall of the price in the cash market to 361 ¢/bu. and lead to a gain of $1,400 on the options (7 ¢/bu. x 20,000 bu.). When taking into account the cash grain, the farmer has an overall profit of $400 ((7 put option gain – 5 cash market loss) x 20,000 bu.). Using put options in this example saved the farmer from a $1,000 loss (5 ¢/bu. x 20,000 bu.).

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<td>380</td>
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</tr>
<tr>
<td>11/01</td>
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<td>33</td>
</tr>
<tr>
<td>Change</td>
<td>-5</td>
<td></td>
<td>+7</td>
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EXAMPLES OF CERTAIN PRICE MOVES ARE NOT MEANT TO IMPLY THAT SUCH MOVES OR CONDITIONS ARE COMMON OCCURRENCES OR ARE LIKELY TO OCCUR.

What happens if the prices go up?

If prices rise, the initial reaction is positive as the farmer will be able to sell his crop at a higher price. The put option is an insurance against falling prices; therefore, if prices rise, the option moves out-of-the-money and loses value. However, the gain in the cash market will often offset that loss. After harvest, the farmer can still sell his option at a lower premium, and sell his corn in the cash market for a higher price. As seen in the table below, the increase in prices in the cash market has completely offset the loss suffered on the option premium and even generates an overall profit of $1,400 ((12-5 ¢/bu.) x 20,000 bu.).

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</tr>
<tr>
<td>11/01</td>
<td>378</td>
<td>390</td>
<td>19</td>
</tr>
<tr>
<td>Change</td>
<td>+12</td>
<td></td>
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One key benefit of a put option strategy is that potential profits are not capped when the markets experience a strong rally. A rallying market has the effect that the farmer’s option will expire worthless, resulting in a loss of the premium he paid for the put. However, if grain markets rally like they did a few years ago ($8/bu. Corn, $15/bu. Soybeans, $10/bu. Wheat) then the premium is a small loss in comparison to the tremendous gain in the cash market. If the farmer had used futures or sold calls to finance puts, his profits would have been limited.

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Why Use Options Over Futures or Forwards?

Along with all the benefits futures provide over forwards, options offer the following advantages over futures:

A) Lower Margins:

To trade options, the required margin will be smaller than for the underlying future as the total contract value is much lower.

B) Less Risk:

When buying a put option, the loss on the futures market is effectively limited to the premium paid. Even if the futures prices would rally 35 (¢/bu.), one would only lose the premium paid on the option, and could potentially benefit from the increase in prices in the cash market.

C) More Strategic Alternatives:

When you sell a put, you have a large variety of strike prices to choose from and will generally always be able to find a buyer or seller at the right price. Of course, the further you move out-of-the-money, the thinner the market will become. Also, one can implement more strategies than simply buying puts or calls. For instance, one could buy a put and sell a call at the same strike price to reduce the net premium paid and to profit more from falling prices with both the call and the put. This strategy is more speculative in nature as it has more risk to the upside, yet it exemplifies the variety of strategies that can be implemented using options.
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How To Get Started!

The first step to start managing your risk in the futures and options markets is to open a hedge account at Daniels Trading. Remember that an unhedged cash position is a speculative one and using futures or options is the best way to transfer price risk from one market participant to another. Your Daniels Trading market advisor can help you come up with a marketing plan, make suggestions for cash sales, and show you how to manage risk utilizing futures and options. You can’t take advantage of all the DT risk management tools available if you don’t have an account. To learn more about us, please click here for Why Daniels Ag Services.

About the Author

Josef Habsburg

Josef is an Austrian with experience in cash market trading. He worked for a Spanish trading company through 2014, where his main task was to analyze agricultural market volumes and create regional and national supply and demand balances to identify market opportunities. In addition, he is currently pursuing a degree in Business Economics at the University of Exeter in the United Kingdom.
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