CME Group

A CME/Chicago Board of Trade/NYMEX Company

COMMODITY PRODUCTS

Managing Price Risk with Grain and Oilseed Futures and Options

All producers have market risk –
whether they realize it or not is another story.

Like most farmers, grain and oilseed producers tend to focus on production risk rather than market risk. Market risk includes two components: price and basis. Price levels are discovered via the CME Group futures market. Basis is the relationship between a local cash market price and the CME Group futures price (Cash Price – Futures Price = Basis at a specific point in time). A downturn in price and/or weakening basis can be just as financially devastating as a poor crop and, in some cases, even more so.

Unlike managing production risk, there are many alternatives available to manage market risk. This paper focuses on two common producer strategies using CME Group futures and options: short futures hedge and long put option hedge.

Short Futures Hedge

The short futures hedge is the most basic risk management strategy for grain and oilseed producers. A short position in CME Group futures is initiated as a temporary substitute for the eventual sale of the commodity to a local mill, elevator or cash merchant. The short futures position can be placed well in advance of harvest and will provide price protection until the cash crop is sold. Immediately upon the sale of the cash crop, the short futures position should be closed out (offset). Since prices in the cash market and futures market generally move up and down together over time, a loss in either of these markets will be offset by a gain in the other – thus allowing the producer to lock in a price level in advance of the cash sale.

Advantages

- Eliminates risk of lower price levels
- Establishes a selling price level in advance of cash crop sale
- Strengthening basis improves selling price
- Futures position guaranteed by CME Clearing

Disadvantages

- Weakening basis lowers selling price
- No benefit from higher price levels

Evaluation of a Short Futures Hedge

Short Futures Price
+/- Expected Basis*

Expected Selling Price

*Basis at time of cash market sale

Short Futures Hedge Example: Assumptions

Sell December Corn futures:	$5.50/bu
Expected basis for November:	-0.30/bu
Expected selling price:	$5.20/bu

November Scenario 1: Falling Prices

Buy (offset) December futures	$4.00/bu
Basis	- .30
Local cash price	3.70
Futures profit[1]	+1.50
Actual selling price:	$5.20/bu

November Scenario 2: Rising Prices

Buy (offset) December futures	$6.50/bu
Basis	- .30
Local cash price	6.20
Futures loss[2]	-1.00
Actual selling price:	$5.20/bu

[1]Sold at $5.50/bu and bought at $4.00/bu
[2]Sold at $5.50/bu and bought at $6.50/bu

Strategy Notes

As prices moved lower in Scenario 1, the lower cash price was offset by a gain on the short futures position. Without the short futures hedge, the actual selling price would have been $3.70/bu. As prices moved higher in Scenario 2, the loss on the short futures position was offset by a higher cash-selling price. In both scenarios, the actual selling price was the same ($5.20/bu) because the basis did not change.

If basis had changed in the scenarios, the results would have been different. A stronger basis in November (e.g., -.20), would have resulted in a higher selling price of $5.30/bu, whereas a weaker basis in November (e.g., -.35) would have resulted in a lower selling price of $5.15/bu.

The short futures hedge locks in a selling price level in advance of the delivery date. Since basis movement affects the hedge outcome, a good understanding of your local basis and seasonality will be helpful in deciding if and when to use this strategy. Also, when evaluating futures or options strategies, you should include the transaction costs.

Futures trading is not suitable for all investors, and involves the risk of loss. Futures are a leveraged investment, and because only a percentage of a contract's value is required to trade, it is possible to lose more than the amount of money deposited for a futures position. Therefore, traders should only use funds that they can afford to lose without affecting their lifestyles. And only a portion of those funds should be devoted to any one trade because they cannot expect to profit on every trade. All references to options refer to options on futures. CME Group is the trademark of CME Group, Inc. The Globe logo, Globex® and CME® are trademarks of Chicago Mercantile Exchange, Inc. CBOT® is the trademark of the Board of Trade of the City of Chicago. NYMEX, New York Mercantile Exchange, and ClearPort are trademarks of New York Mercantile Exchange. Inc. COMEX is a trademark of Commodity Exchange, Inc.

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Long Put Option Hedge

With the advent of commodity options in 1984, a whole new world of risk management strategies opened for agribusinesses, including the grain and oilseed producer. The long put option position gives the producer the right (but not the obligation) to sell CME Group futures at a specific price level (strike price). If prices fall below this level, the producer (buyer of the put option) has the right to sell the underlying grain or oilseed futures at the strike price level. Should prices rally above the strike price level, the producer is not obligated to the put option strike price, and therefore, can sell their commodity production at the higher market price.

The long put position eliminates downside price level risk while allowing the producer to sell at a better price level if the markets move higher. In addition to the price level, the basis level will affect the actual selling price at the time of the cash sale, just as it did with the short futures hedge. A stronger basis at the time of the cash sale improves the selling price while a weaker basis will lower the actual selling price.

Evaluation

Put Strike
\- Premium
+/- Expected Basis*

Expected Minimum (Floor) Selling Price

*Basis at time of cash market sale

Long Put Option Hedge Example

Buy 5.50 December Corn put option for $0.35/bu (premium)
Expected basis for early September: -0.30 bu
Expected minimum (floor) selling price: $5.50 - .35 - .30 = $4.85/bu

November Scenario 1: Falling Prices

December futures	$4.00/bu
Basis	- .30
Local cash price	3.70
5.50 Dec put option premium	$1.50
Put option profit[3]	+1.15
Actual selling price:	$4.85/bu

November Scenario 2: Rising Prices

December futures	$6.50/bu
Basis	- .30
Local cash price	6.20
5.50 Dec put option premium	$0.00
Put option loss[4]	- .35
Actual selling price:	$5.85/bu

[3] Buy put at $0.35/bu and sell (offset) put at $1.50/bu
[4] Buy put at $0.35/bu and put expires worthless

Advantages

- Eliminates risk of lower price level
- Establishes a minimum (floor) selling price level
- Benefits from a higher price level
- Strengthening basis improves selling price
- No margin requirements (put option buyers do not post margin)
- Option position guaranteed by CME Clearing (put option seller posts margin)

Disadvantages

- Weakening basis lowers selling price
- Premium is paid in full at time of put option purchase
- Transaction costs

Strategy Notes

As prices declined in Scenario 1, the lower cash market price was offset by a profit on the long put option position and the minimum (floor) selling price was achieved. If prices moved even lower, the option profit would have been greater, providing additional protection against the lower cash market price. However low the markets declined, the minimum selling price would be achieved. As prices rallied in Scenario 2, the put option loses value but the cash selling price increases. Although the cash selling price will continue to improve as price levels increase, the put option loss is limited to the initial premium paid. Therefore, the actual selling price continues to improve as prices move higher. Basis will have the same impact on the long put option hedge as it did with the short futures hedge.

The long put option hedge establishes a minimum (floor) selling price level and retains upside potential. This strategy is very similar to insurance in that it provides protection for a cost (premium). As with all types of insurance, the insured is protected if the risk occurs (in this case, lower prices), but they are actually better off if the risk does not occur and they don't have to rely on the coverage (in this case, higher prices).

Summary

The short futures hedge and the long put option hedge are only two of the many risk management alternatives available by using CME Group Grain and Oilseed futures and options. The flexibility of futures and options allows producers to adjust their market risk exposure to any level with which they are comfortable.

For more information, contact your broker directly or e-mail commodities@cmegroup.com.
To learn more about CME Group Commodity products, please visit www.cmegroup.com.

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