STRATEGY PAPER

CBOT® Agricultural Futures & Options

CROP REPORT OPPORTUNITY

When rumors flood the market in the days before a crop report, you can use options on Chicago Board of Trade (CBOT®) agricultural futures to express a market opinion for relatively small cost and relatively low risk.

The soybean market provides a useful recent example. In the weeks leading up to the October 10, 2003 crop report, market analysts struggled to sort through conflicting anecdotes about this crop. One analyst said she expected a big futures price move but couldn't figure out whether it would be up or down.

One way to trade an unsettled situation like this is to buy an out-of-the-money option that has only a short time to expiration. Such an option won't cost much, but if the market behaves as you anticipate, the gain can be large, especially in percentage terms. Conversely, if the market doesn't do what you think it might, you have little at risk.

In the case of the 2003 soybean market, if you think the USDA report will reveal a smaller than expected crop, a circumstance that will drive prices higher, you can buy a call. If you expect a bumper crop, and lower prices, you can buy a put.

The Option Option

Assume that you expect to see higher prices and, on October 9, the day before the report, are looking at the market situation depicted in the first four columns of Exhibit 1.

Exhibit 1

Futures price	693			727			
Days to expiration	16			15			
ATM implied volatility	34%			28%			
Call strike price	**Option price**	**(in $)**	**Delta**	**Price (in ¢/bu)**	**Gain/Loss (in ¢/bu)**	**(in $)**	**% Change**
700	16 1/2	825.00	0.46	53 1/8	36 5/8	1,831.25	222
720	9 3/8	468.75	0.31	20 1/8	10 3/4	537.50	113
740	4 7/8	243.75	0.19	10 7/8	6	300.00	123

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The 693 futures price is neither the high nor the low of the day, and the implied volatility traded higher and lower as well. A helpful rule of thumb is to buy an option with a delta in the 0.20 to 0.30 range. In this example, the November 720 and 740 calls qualify on that basis. Suppose, given these option prices, you bought 10 of the November 740 soybean calls at 4 7/8 cents a bushel for a total cash outlay of $2,437.50.

The next day, futures prices soared when the report disclosed a soybean yield far below anyone's forecast. They peaked at 736 and then tailed off to close the day at 713 1/2. Not surprisingly, once the news was out, implied volatilities dropped off. Suppose you decided to offset your trade on October 10 at a time when futures were trading at 727 and options were trading at 28% implied volatility. The last four columns of Exhibit 1 show possible results.

Notice that, given the 727 futures price and 28% implied volatility, this 740 call gains 6 cents a bushel for a 123% gain while the 720 call makes a 113% gain. The entire 10 call position could have returned a $3,000 gain, net of brokerage.

A Further Refinement

Another way to manage a trade like this is to offset half the position once the report comes out and the market reacts and hold on to the rest until the trade reaches some further milestone.

In this case, you might have sold 5 calls back to the market on October 10 at 10 7/8 cents a bushel. At 10 7/8, the 5 calls would bring in $2,718.75 (((10.875 ¢/bu/100¢) x 5,000 bu/option)x 5 calls = $2,718.75).

This $2,718.75 finances your entire position. At this point, you are holding 5 calls with none of your initial investment at risk. Even if the market collapses and the price of these calls goes to zero, the worst you can do is break even.

Your exit strategy for this kind of trade can target a futures price, or you can decide to wait until the calls are almost at expiration. Keep in mind that, at this point, you have no money at risk, and you have very little concern about volatility or time decay. Having achieved breakeven, you will benefit from any upward futures price movement.

If you decide to target a futures price, you might decide to sell the remaining 5 calls if November soybean futures trade at or near the 740 strike price. In fact, November soybean futures traded at 738, close to 740, on October 14, and the options were trading at 30% implied volatility. Exhibit 2 shows the call prices and the gains you could expect to see after two more trading days. The remaining 5 calls, given these data, netted $475 each, or a total of $2,375.

Exhibit 2

Futures Price	738			
Days to Expiration	11			
ATM Implied Volatility	30%			
Strike Price	**Option Price (in ¢/bu)**	**Gain/Loss (in ¢/bu)**	**(in $)**	**% Change**
700	41	24 1/2	1,225.00	148.48
720	25 3/4	16 3/8	818.75	174.67
740	14 3/8	9 1/2	475.00	194.87

Another strategy is to hold on to the 5 remaining calls until close to expiration. For example, on October 23, 2 days before the expiration of the November options, November soybean futures had soared to 765 cents a bushel, and the options were trading at the implied volatilities shown in Exhibit 3.

Exhibit 3

Futures Price	765				
Days to Expiration	2				
ATM Implied Volatility	25%				
Strike Price	**Option Price (in ¢/bu)**	**Implied Volatility**	**Gain/Loss (in ¢/bu)**	**(in $)**	**% Change**
700	65	25.00%	48 1/2	2,425.00	293.94
720	45	25.40%	35 5/8	1,781.25	380.00
740	26	35.80%	21 1/8	1,056.25	433.33

On this day, you could have sold the 5 calls for 26 cents a bushel and a net gain of 21 1/8 cents a bushel, or $1,056.25 for each 740 call. The 5 calls, given these data, earn a total of $5,281.25, net of brokerage.

A Final Word

A consideration of the dollar results shown in the three exhibits might tempt you to choose the close-to-the-money strike price—here, the November 700 call. In dollar terms, this seems to generate the biggest gains. Keep in mind that this is a highly speculative trade. As far as anyone knew at the time, the October 10 crop report could have gone either way. Had the report revealed a larger-than-expected crop, prices would have plunged, and the November calls would have been valueless.

Anyone entering into a trade like this is playing a hunch based on less than perfect information. It seems a wiser course to risk relatively little in this kind of situation and to look for the best percentage return for the trading capital at risk. This argues for an option with a delta in the 0.20 to 0.30 range—in this example the November 740 call.

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