Corn, Soy and Wheat Volatility Set to Spike?

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Corn, soy and wheat futures have been trading in extremely narrow ranges the past year or so (Figures 1-3), with implied volatility on options for these products falling to extremely low levels (Figures 4-6). Such levels of realized and implied volatility are likely primarily due to increasing U.S. and global stocks of these commodities following three years of normal/above normal growing conditions. However, other factors such as the strength of the recent El Niño and strong moves in the U.S. dollar (USD) – the global currency of trade in commodities – raise questions about whether these relatively low volatility levels are justified. In light of these factors, it is possible this placid trading period in agricultural goods might not last for a variety of reasons:

• El Niño: although it is past its peak, the weather phenomenon could still impact both spring planting in the Northern Hemisphere and the harvest in the Southern Hemisphere.

• La Niña: the last similarly strong El Niño episodes (1972-73, 1982-83 and 1997-98) were followed within 12 months by powerful La Niñas. La Niña has been associated with extraordinarily high levels of volatility in crops such as corn, soy and wheat. (See our paper on El Niño, La Niña, Volatility and Options on the realized volatility in agricultural goods).

• Brazil’s political turmoil is far from over and the recent rebound in the Real might prove short-lived. Renewed weakness in the currency could create volatility in agricultural goods markets.

• The U.S. dollar (USD) could resume its upward course if the Federal Reserve raises rates. Inflation is ticking higher and the employment market continues to improve. USD stopped rising versus most currencies over the past few months as Fed Funds Futures de-priced many of the rate increases expected for 2016 and 2017 (Figure 7), but that process might be winding down, providing USD with a firmer footing on which to resume its rally.

• Debt: the world is swimming in debt. China, Hong Kong, Singapore, Australia, Canada and South Korea recently joined the U.S., Europe and Japan in chalking up total debt levels – public and private -- that exceed 250% of GDP. This is likely to make growth in those countries increasingly fragile, possibly adding to the price volatility of both financial assets and commodities such as agricultural goods. (See our recent paper, Nations Awash in Debt: Fragile to Global Shocks.)

In the face of these risks, implied volatility on corn, soy and wheat options might be pricing too placid a scenario and could be subject to an upward re-pricing. After the USDA Crop Report in late March, implied volatility on 90 day corn options dropped back to around 20%. For much of 2011 and 2012, corn implied volatility averaged around 35% and ranged from 27%-47%. Likewise, implied volatility on wheat options recently traded at around 25%, whereas back in 2011 and 2012 they ranged from 30-45%. Finally, implied volatility on soybeans has recently been around 15%, whereas in 2011 and 2012 it was in the 20%-35% range.
Continued shifts in weather patterns related to the El Niño cycle as well as the economic factors mentioned above could create a scenario where implied (and realized) volatility rises sharply for all three markets, pushing the cost of option insurance sharply higher.

**Figure 1: Corn’s Narrow Trading Range.**

![CBOT Corn 1st Nearby Future Price](image1)

**Figure 2: Soy’s Low Level of Realized Volatility.**

![CBOT Soy 1st Nearby Future Price](image2)

**Figure 3: Wheat is Also Experiencing Unusually Low Volatility.**

![CBOT Wheat 1st Nearby Future Price](image3)

**Figure 4: Corn Implied Volatility Was in The 27%-47% Range During The Last La Niña.**

![CBOT Corn Implied Volatility: 90D Constant Maturity Options](image4)
Figure 5: In 2011 and 2012 Soy Options Implied Volatility Was Often in The 20%-35% Range.

CBOT Soy Implied Volatility: 90D Constant Maturity Options

Figure 6: In 2011 and 2012 Wheat Options Implied Volatility Was Often in The 30%-45% Range.

CBOT Wheat Implied Volatility: 90D Constant Maturity Options

Figure 7: Now That Fed Funds Have (mostly) De-Priced More Rate Hikes, What Will Stop a USD Rally?

Fed Funds Futures December 2016 and 2017