Soybeans, Corn And Food Price Inflation

We can summarize much of human history with the sentence, "People leave the land and never return." This should not be a surprise; farming, especially in temperate zones such as the U.S. Corn Belt with its one crop per year, is a difficult and risky business. Once agricultural productivity rose to the point where we did not need close to 90 percent of the labor force working on farms to keep everyone fed, people migrated to cities.

In fact, the present migration of Chinese farmers into urban areas is thought to be the largest migration in human history in terms of absolute numbers. And while we are in the factoid department, two other observations about labor are offered. The first is people leave factory jobs and never return, either. The percentage of the U.S. labor force involved in manufacturing has been declining since consistent data began in 1939, the World War II years excepted. The second is that original 90 percent-plus of the American population once involved in agriculture has shrunk to less than 2 percent.

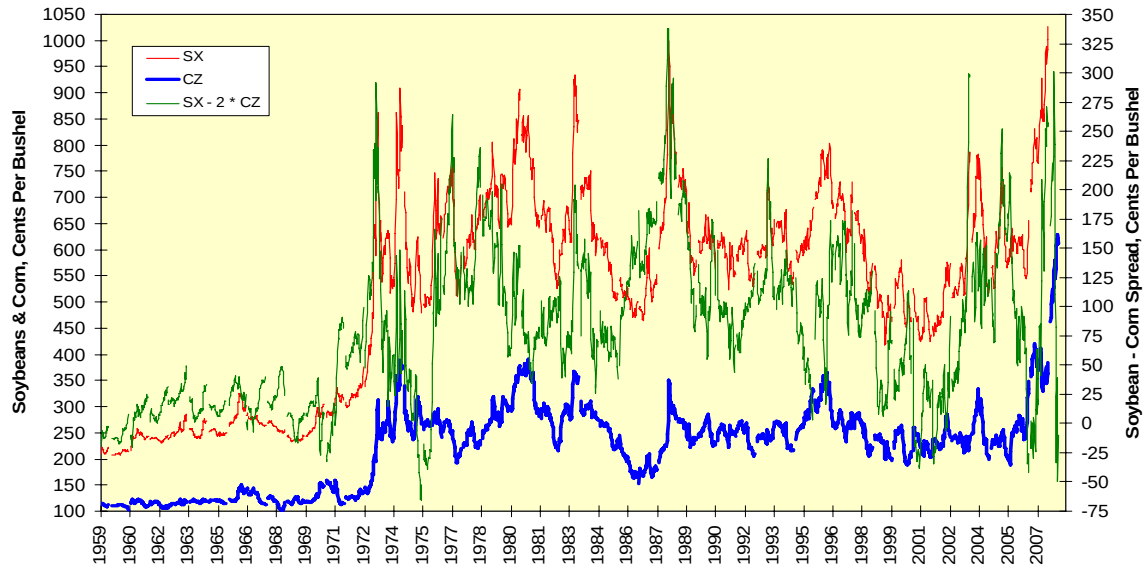
Miracle Interrupted

While risk can be quantified, uncertainty cannot be, and nothing injected uncertainty into the U.S. agricultural economy like the various incentives to produce ethanol as a motor fuel. Farmers had decades of experience deciding the relative acreage to be devoted to soybeans vs. corn or to soybeans vs. cotton, but life was simple then. You either fed corn to livestock or to people; now an increasing percentage of that corn crop is being fed to yeast so that we may burn their metabolic waste in our vehicles. We can say the same for soybean and other vegetable oils being diverted into biodiesel and for sugar being fed to yeast to make still more ethanol.

Uncertainty not only complicates the farmers' pricing problems, it injects an element of uncertainty into planting decisions as well. In game theory, players in a multiple-player non-cooperative game makes their moves not in response to some objective standard but rather to their opponents' anticipated best move. The U.S. Department of Agriculture aids this process by releasing planting intention reports in March; in other industries this would be considered price signaling and a violating of antitrust law, but who are we to quibble?

We saw this effect in operation in 2007 when the USDA reported the largest postwar planting intentions for corn in March and then larger than expected actual plantings in June. Farmers had unwittingly and understandably acted badly in light of the ethanol-induced changes, and the prices for new-crop corn and soybeans fell and rose, respectively, on the acreage figures. As we can see in Chart 1, the spread between November soybeans and December corn moved toward historic highs, with November soybeans hitting nominal prices unseen since the Nixon administration.

Chart 1: The New Crop Soybean - Corn Spread



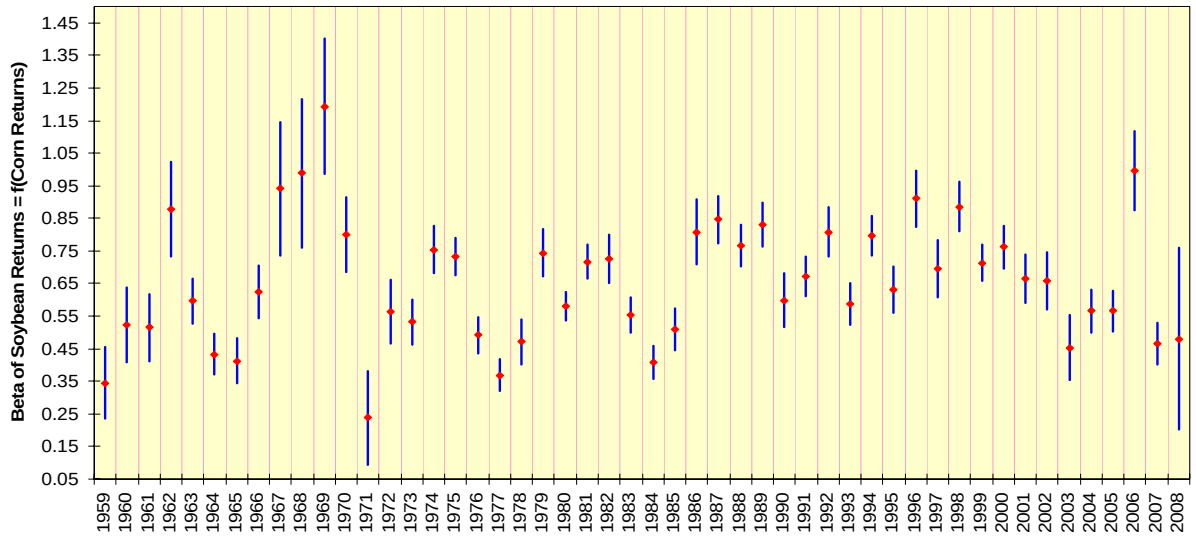
The effect was repeated in the other direction in early 2008. Fewer acres than expected were earmarked for corn and more than expected for soybeans. This pushed new crop soybeans to a new nominal record and caused the soybean-corn spread to collapse.

The movement of the spread between one contract of November soybeans and two of December corn is of more than just academic interest. Even though many traders treat spreads as less risky than outright positions, risk reduction depends on the future looking much like the past. All agricultural traders need to do is look at their Wall Street brethren and see how well statistical risk-management systems have served them through episodes such as Bankers Trust, Long Term Capital Management, Enron and the 2007 subprime mortgage crisis.

There is a reason why a standard question on the NASD Series 3 exam for futures trading asks whether spreads are less risky, the correct answer being, "No." Risk is reduced only when the covariance between two markets, the degree to which they move together, increases and the standard error of estimation of the beta, or relative volatility, between these two markets moves toward zero.

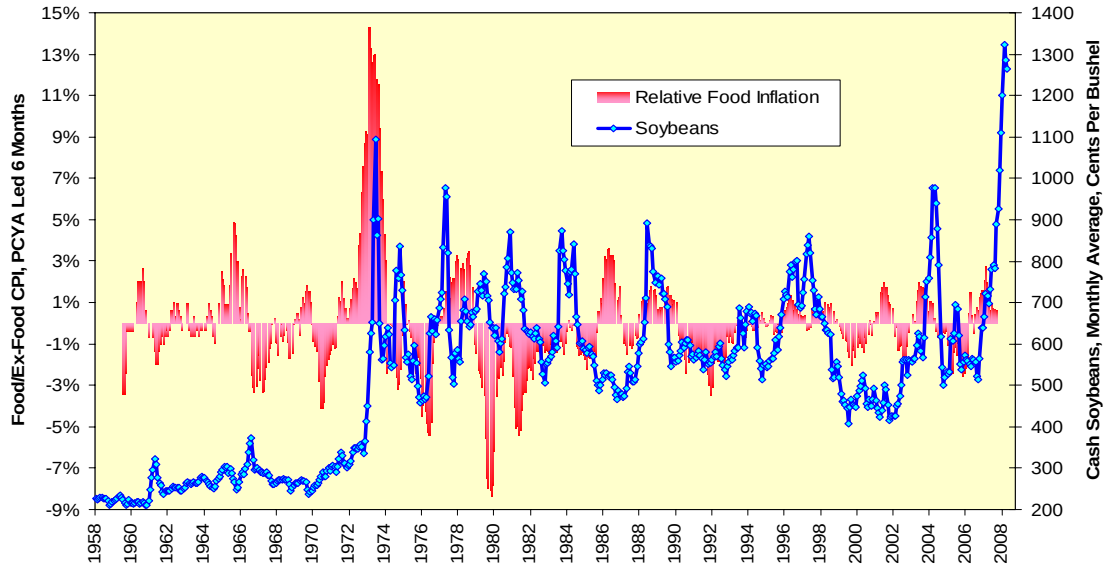
Has this been happening? No, as we can see in Chart 2, the trend in recent years with the prominent exception of 2006 has been for the betas to be declining. The blue 90 percent confidence bands around those betas have not shrunk in compensation. Farmers and grain traders thus are faced with greater uncertainty about their planting and trading decisions.

Chart 2: Uncertainty Increasing For New Crop Corn & Soybeans
Beta ± 90% Confidence Interval



This uncertainty has macroeconomic consequences. Any producer faced with the decision risks of planting in addition to the normal risks of farming is going to seek insurance, either from the market in the form of higher prices or from the government in the form of subsidies. If we combine this with the huge upward shift in demand created by ethanol and biodiesel, we have the makings of relatively high food price inflation. The Bureau of Labor Statistics keeps indices for both foodstuffs and for all prices ex-food. If we take, as in Chart 3, the difference between their year-over-year percent changes led six months, we find they are a strong function of cash soybean prices.

Chart 3: Soybeans And Relative Food Price Inflation



We cannot say for sure whether we will head into the same sort of high relative food price inflation in the coming years as we saw during the Nixon era with its embargo on soybean exports to Japan and its various price controls, but how many people ever really thought we would see $100 crude oil, either?

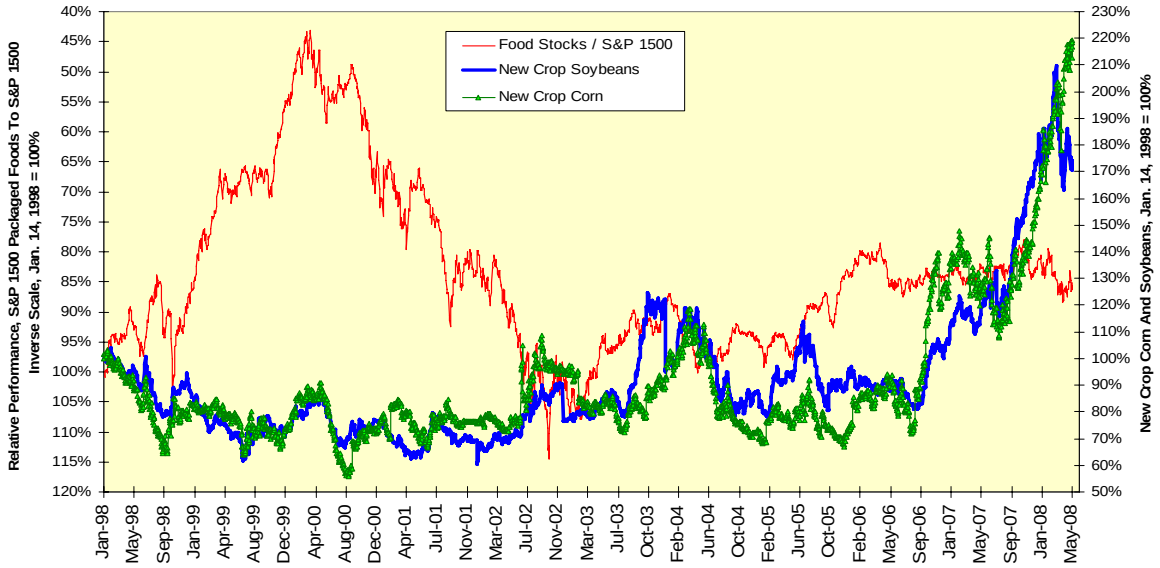
Impact On Food Companies

All Americans should consider themselves blessed to live in a country whose government calculates inflation indices ex-food, ex-energy and ex-food and energy. If you want to save money, do not eat and do not heat. What could be easier?

The rest of us have to rely on a huge food and food products industry, one that works astonishingly well considering the volume of supplies it has to move under demanding conditions. Most of us take packaged and prepared foods for granted and would not be able to comprehend how much of our ancestors' time must have been devoted to food preparation.

How do rising corn and soybean prices affect the stocks of this industry? Standard & Poor's has an index of food stocks that includes Kraft Foods, General Mills, HJ Heinz, ConAgra, Kellogg, Sara Lee, Wrigley, Hershey Foods, Campbell Soup, Tyson Foods, Dean Foods and Smithfield Foods, amongst others. This index rose significantly relative to the S&P 1500 Supercomposite (plotted inversely in Chart 4) between 1999 and 2002, but has struggled to keep up with the broad market since that point.

Chart 4: Food Companies Not Much Of A Play On Food



Higher grain prices lead to higher prices for dairy products, meat and nearly all processed foods. They are a direct cost increase for all of these food companies, and there is only so much each of them can do to hedge themselves. Size matters: Just as the integrated oil companies have no counterparties capable of offsetting their massive price exposures or the major utilities have no one big enough to take on their price risk, the major food companies have to pay a good portion of these higher costs to their suppliers and hope they can pass on most of these cost increases to their customers.

Those old enough to remember the 1970s remember how McDonalds' and Hershey Foods had trading setbacks involving cattle and cocoa, respectively. Given enough time and a wide enough set of exposures, we should expect at least one of these food giants to encounter similar difficulties if for no other reason than this is what happens during commodity bull markets.

Until and unless we stop feeding yeast with what used to be food for us and our livestock, we can expect the upward price spiral for food to continue. You can change your diet somewhat but past a point you are stuck with a certain demand level. In a reversal of the pattern that dominated the 1990s, the winning side of the trade remains being long the primary food commodities and short everyone and everything that buys them.