Seen And Unseen In Natural Gas

The price collapse in natural gas over the past two weeks has prompted something unusual in the world of physical commodities, frantic discussion in a declining-price environment. Normally chatter picks up for any commodity when its price rises, as was the case for crude oil and various foodstuffs in 2008 or, to a lesser extent, sugar recently.

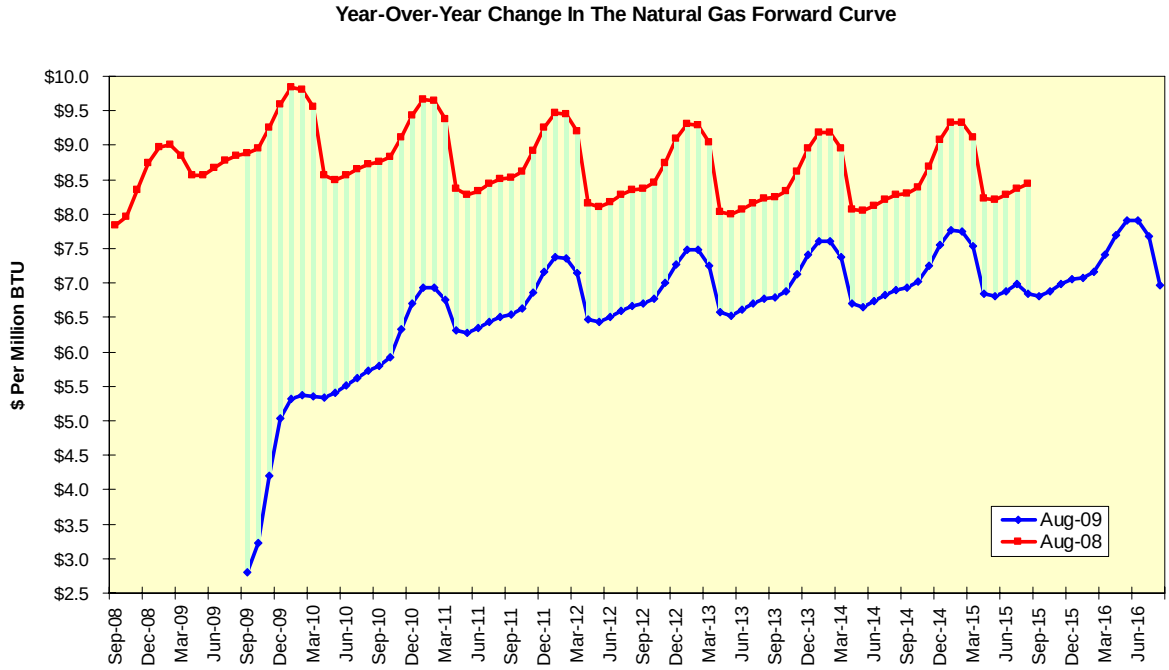
Many who are bullish on the commodity for the long-term see the price drop as some sort of buying opportunity. Others look at the stocks of large natural gas buyers in the metals, glass, chemicals and food-processing businesses and wonder why the price plunge is not reflected in the buyers' stock prices. Finally, many look at the stocks of energy companies and wonder why the stocks of those on the "upstream," or exploration and production side, of the business can be doing so well.

Time-Dependent Price Expectations

The key to understanding these issues is to separate the differences between physical and financial markets. Let's take the case of a stock index future. Its fair value will be the index plus the short-term interest rate cost of carry minus the future value of expected dividends. As the interest rate forward curve is well-known and highly visible, the only variance in the equation comes from dividend expectations. These are stochastic enough for the market to back away from predictions, and those who really need exposure to a stock index for a period of time beyond the next quarter's expiration find they are better off holding a cash market position in the index rather than a futures position. As a result, only one month of a stock or bond future ever is active at any point in time other than during contract rolls.

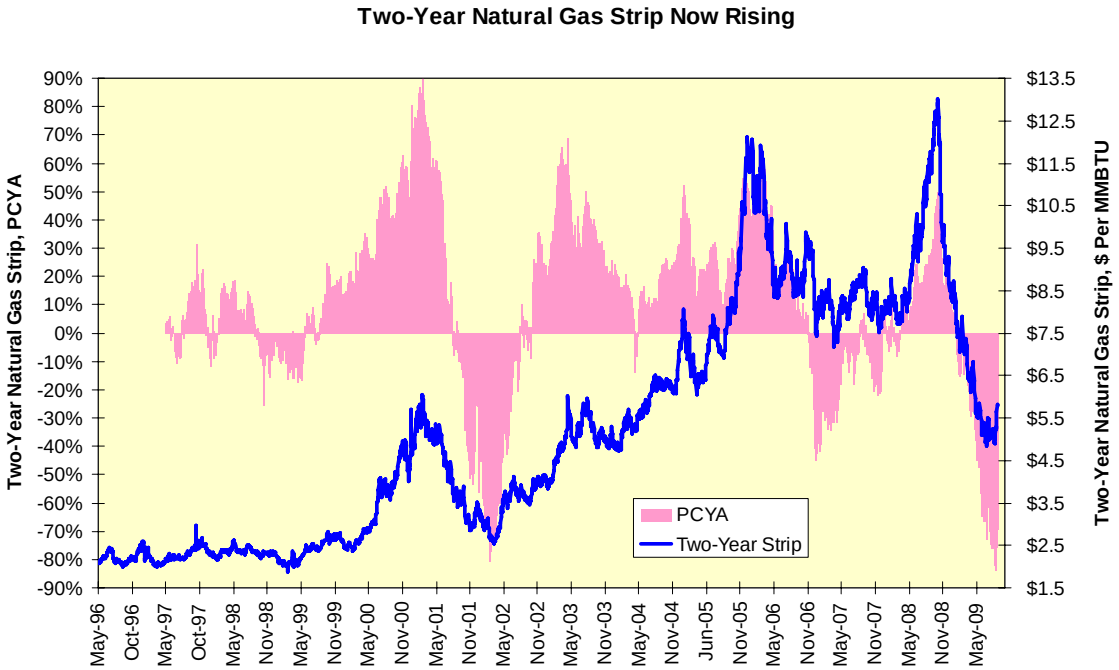
Physical commodities such as natural gas are very different. Demand is seasonal, supply is constrained by logistics, and unlike financials, both supply and demand change with various elasticities to price, which in turn changes both the supply and demand balance. Instead of having a single spot price, such as the current value of the stock index, serve as the basis for any subsequent futures price, the markets have a forward series of what are referred to as "future expected spot prices." As a result, multiple contract months are active at any time.

Moreover, the physical constraints come into play. The collapsed price for September futures applies only for natural gas priced at expiration for ratable delivery across the month of September. Any buyer who takes this delivery better have a place to store 10 billion BTU of natural gas. Your local gas utility may do this, but the list of those with storage facilities gets very short very quickly. The collapse of the front-month in natural gas is in fact nothing more than advertisement for additional buyers to step in and pay incrementally high storage fees for natural gas delivered in September if they have the physical capacity to do so.



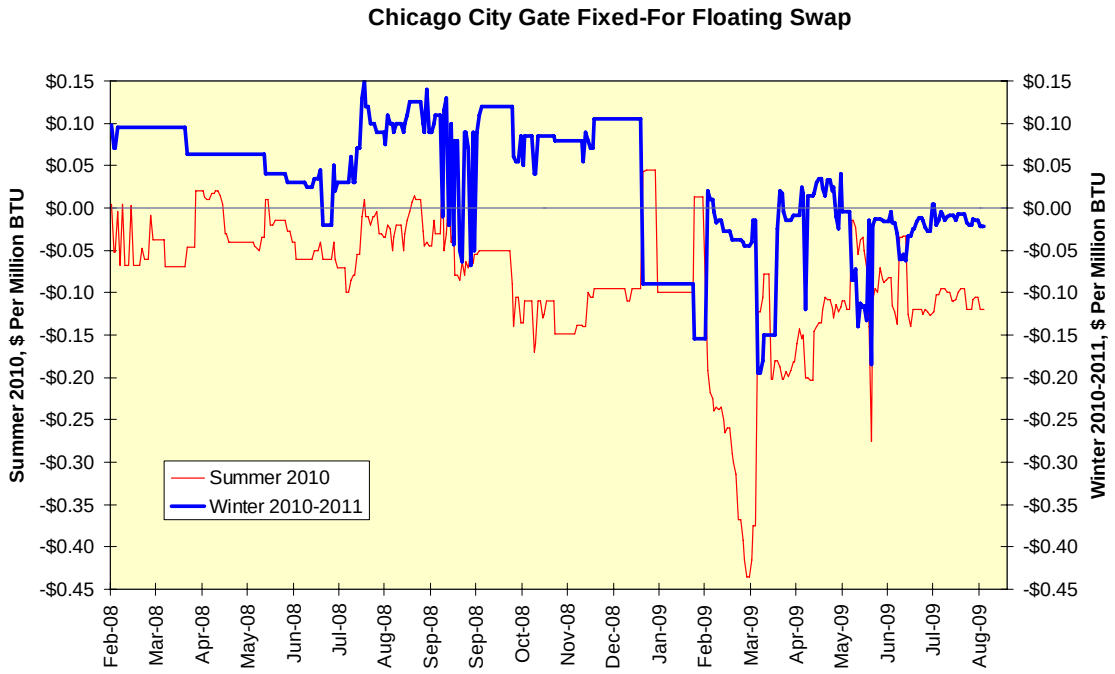
Strips And Swaps

Both producers and buyers of natural gas are in a continuous business for an indefinite period of time. They want to be able to floor or cap, respectively, their prices for a one- or two-year planning period. They can achieve this not by devoting their time and attention to a price collapse just before delivery but rather to a term market such as a one- or two-year strip of prices. Here the market can look strikingly different from the front-month future.



While the two-year strip is 69.8% below its year-ago level, it has been rising in price since August 7, 2009. Any large-scale buyer of natural gas can see this and know the gift of low prices is about to end. Any seller can see the same thing and know the pain of low prices is about to end. As these prices are visible, equity analysts and market commentators should be able to recognize the implications, too.

These futures prices are for delivery at Henry Hub in Louisiana. While many regional prices are linked to Henry Hub, the basis can fluctuate significantly, especially in those markets served by multiple pipelines. A dizzying array of swaps for local markets, for seasonal markets and for the switch between fixed and floating price exposures exists. Consider the following fixed-for-floating swap for the summer 2010 and winter 2010-2011 Chicago city gate markets. The buyer of a fixed-for-floating swap will pay a fixed price for natural gas and receive the floating price; this is a bullish position as it benefits when prices move higher in the future.

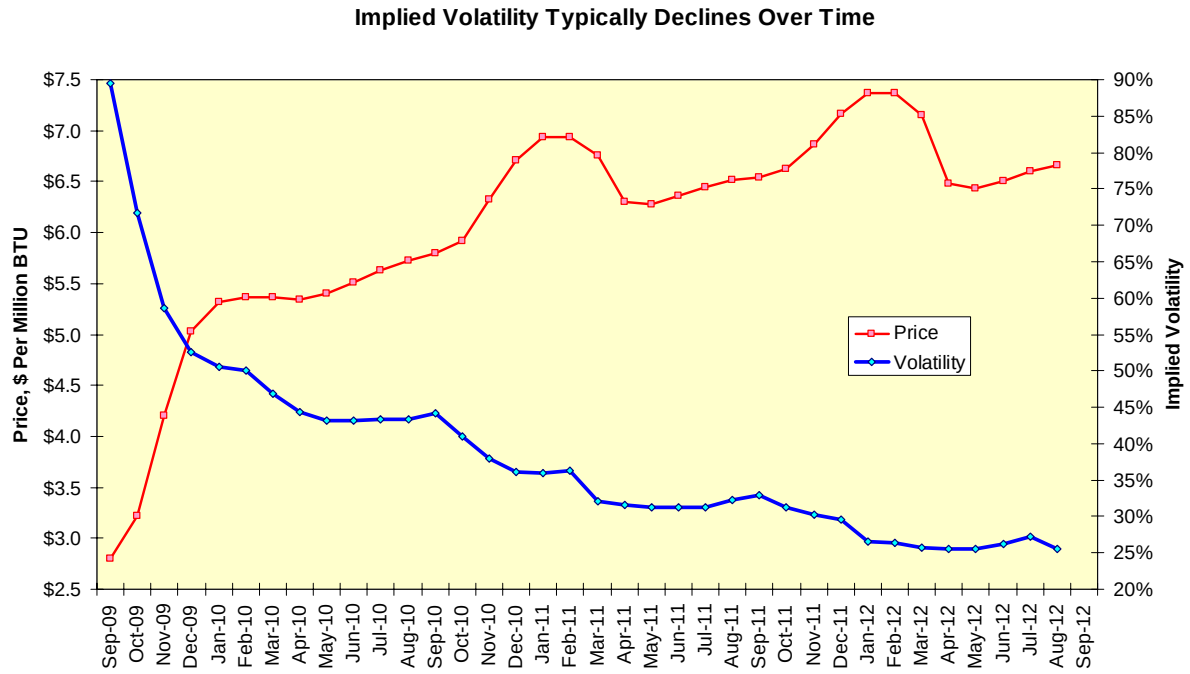


These prices fell sharply during the financial crisis of last fall and winter, but have stabilized since then. Their recent stability is a tipoff the market regards the current price collapse as short-lived.

The prevalence of such swap arrangements always leads to horror stories about hedging. A natural gas buyer should be buying purchases with a call option-like structure. They tend not to for cost reasons, including the volatility issue addressed below. A more common structure involves the buyer selling a put option-like structure. As a result, they must pay during a price collapse. This is exactly what happened to several airlines during last winter's oil price collapse. It is also why lower spot prices for natural gas may not be the unmitigated boon for buyers some think.

A Capping Component

The implied volatility of physical commodity futures tends to fall over time for reasons we will step over here. Anyone familiar with the role of volatility in options pricing will look at the chart below and know a call option on natural gas for the first few months will be very expensive indeed. These costs often preclude natural gas users from capping their short-term costs. Their lack of insurance against a price rebound often creates the very conditions under which one will happen.



If all of this sounds like a lot of moving parts, it is. If it also sounds like a caution to those who assume there must be a direct stock market play on every commodity movement, it is as well.