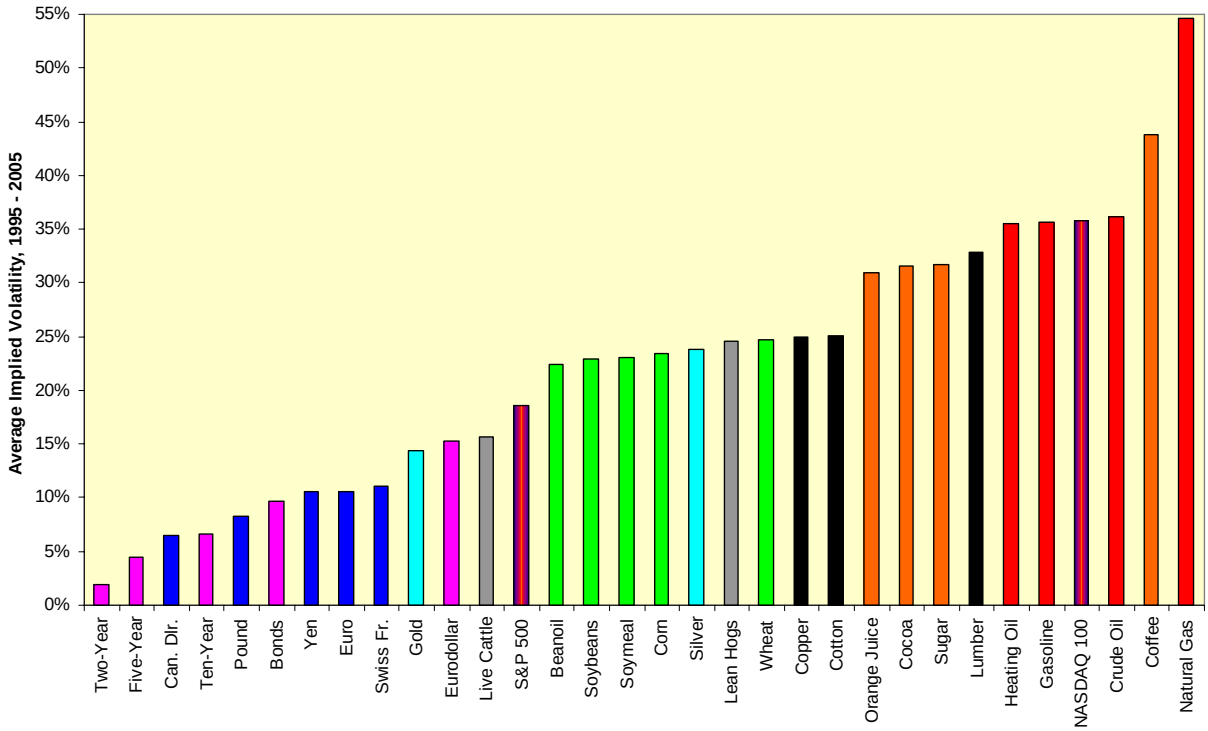
The Blue Flame of Death

Golfers everywhere are admonished, "Drive for show, putt for dough." Futures traders have a similar dictum when it comes to both the industrial economy and to household budgets: "Trade gold for flash, trade gas for cash." Natural gas is and will remain the futures market for those through playing games.

Outside of electricity, which really is more of a service than a commodity, no other futures market can turn your hair white and erode your stomach lining faster. Let's take a look at the average implied volatilities for a wide range of futures markets from January 1995 onwards by class of market.

Chart 1: A League Of Its Own



Interest rate (magenta) and currency (dark blue) futures are clustered at the left-hand side of this chart. Precious metals (light blue), livestock (grey) and grains (green) have mid-range implied volatilities. The S&P 500 (striped), surprisingly given that this time sample envelops both the late-1990s bull market and subsequent unpleasantness in 2001-2002, lies between that of live cattle and beanoil. In fairness, the NASDAQ 100's (also striped) volatility is much higher. Industrial commodities (black) and softs (orange) have higher volatility still. But it is the energy commodities (red) that dominate the high-volatility end of the curve, with natural gas at the very top.

Method Behind The Madness

Why has this been the case for natural gas, and why should we expect it to continue? Think back to the reference to electricity. In financial terms, when you walk into a room and flip the light switch, you are exercising a call option on your local utility. You expect immediately delivery in whatever quantity you want for however long you want and at a fixed price. Put in those terms, turning the lights on sounds downright selfish, does it not?

Natural gas consumers have a similar attitude problem, but natural gas suppliers are unable to respond as instantaneously as their electric utility brethren. The operators of electricity grids are able to respond to increased power demands in fairly short order either by buying power from adjoining grids or by adding additional generating capacity within their own grid. Natural gas, on the other hand, must travel through capacity-constrained pipelines. If it is cold for a prolonged period in the winter, or if electric utilities meet their summer peak load requirements by natural gas-fired generators in the summer, gas utilities will run into severe replacement problems unless they have inventories stored locally for quick withdrawal.

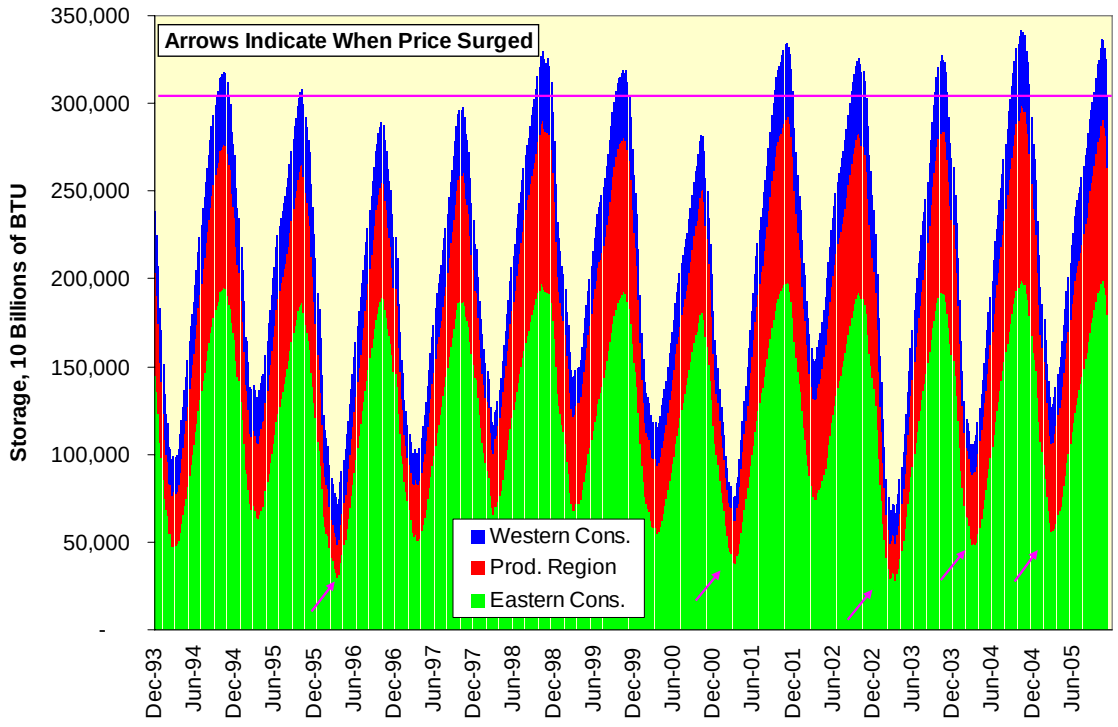
This makes the issue of inventory injections and withdrawals far more critical for natural gas than for, say, crude oil and refined products. When you see the petroleum markets bounce about on inventory reports, those inventories are what are called primary inventories. They exist at refineries and designated storage terminals. They do not include secondary inventories, the kind stored at your local gasoline station or heating oil distributor, and they most certainly do not include the tertiary inventories you are carrying in your automobile.

These secondary and tertiary inventories are important buffers in the market. They take advantage of a critical but often-overlooked attribute of petroleum and its products: They are liquids. They can be stored at room temperature and require no pressurization. Natural gas is different; only the largest industrial or utility users can even think about storing natural gas; when they say, "Do not try this at home," they mean it. As a result, minor deviations in expected inventories can produce major deviations in price as they raise the very real risk your local supplier will have to go into the spot market for natural gas and even then, they may be unable to acquire supplies in time.

Restated, if you need natural gas in February, it does you no good to lock in supplies at a favorable price for June. You will have frozen to death or closed your petrochemical plant during the interim. Natural gas is the ultimate just-in-time inventory system in the world of exchange-traded commodities. If you add in supply shocks such as Hurricane Ivan in 2004 or Hurricanes Katrina and Rita in 2005, you can get some wild price action, mostly to the upside. As these economics are unlikely to change in the foreseeable future, we should expect the consistently high volatility seen in Chart 1 to continue.

If we look at the actual storage cycle for natural gas split along the Department of Energy's regional classifications of Producing and Eastern and Western Consuming, we can highlight each and every time a large trough in inventories lead to a price spike in natural gas. The critical level appears to be 40,000 NYMEX contract-equivalents; each futures contract represents 10 billion BTU. Chart 2 includes a line representing the 304,000 NYMEX equivalents in storage at the time of this writing. Total open interest on the NYMEX Henry Hub, Louisiana, contract was on the order of 560,000 contracts spread out over monthly deliveries until December 2011.

Chart 2: The Gas Storage Cycle



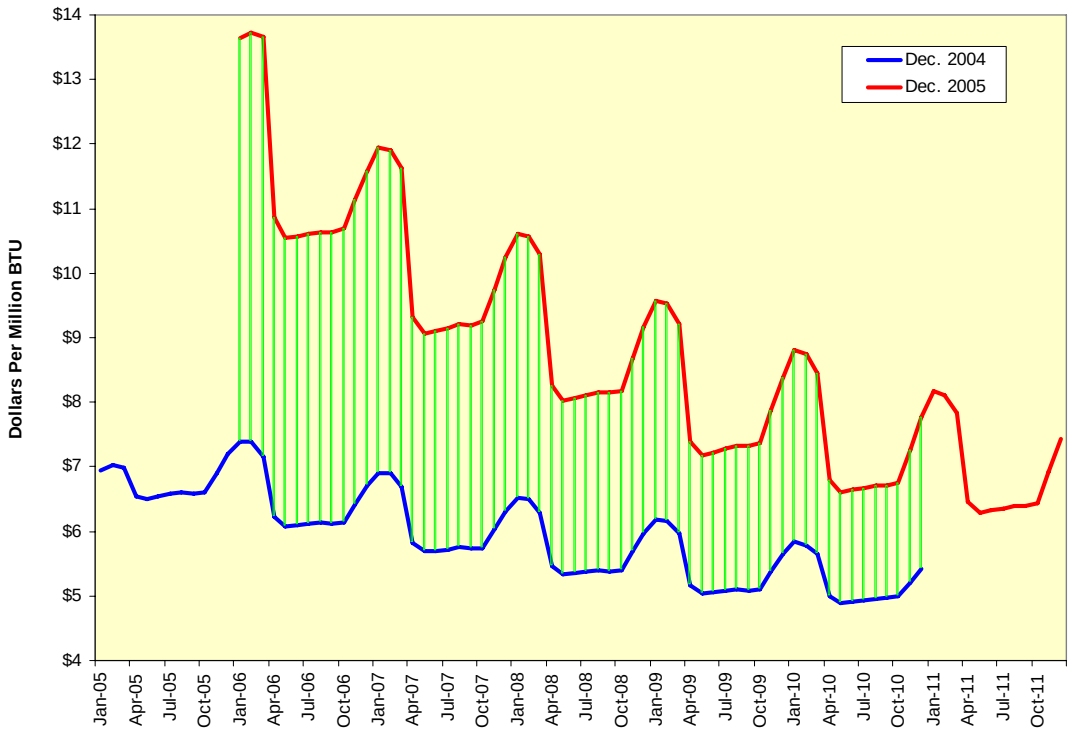
Look At Those Curves

Volatility is interesting, especially to options traders, but most futures traders like to focus on price. The production disruptions from the 2005 hurricanes pushed prices significantly higher than 2004 levels. In addition, the concentration of the price jump in the front months served to increase the backwardation of natural gas. In mid-December 2004, the then-front January 2005 contract was priced near $6.95 with a decline to $6.54 in April, the first contract outside of the heating season. In mid-December 2005, the January 2006 contract was priced near $13.635

with a decline toward $10.85 in April. Given that each $1.00 in natural gas is worth $10,000, the price increase in one year was worth more than $66,810 per contract, or more than the entire bloated value of the crude oil contract on all but the handful of days around Hurricane Katrina.

The increase in natural gas backwardation was a boon to long-only commodity indices whose total returns are linked to the monthly contract roll. In 2005, natural gas was the largest single weight in the Dow Jones-AIG index at more than 12%. While rolling a long position in natural gas from month to month still involves absorbing the rather substantial carry seen from summer to winter months, as seen in Chart 3, the additional backwardation going from winter to summer eases the pain somewhat.

Chart 3: What A Difference A Year Made



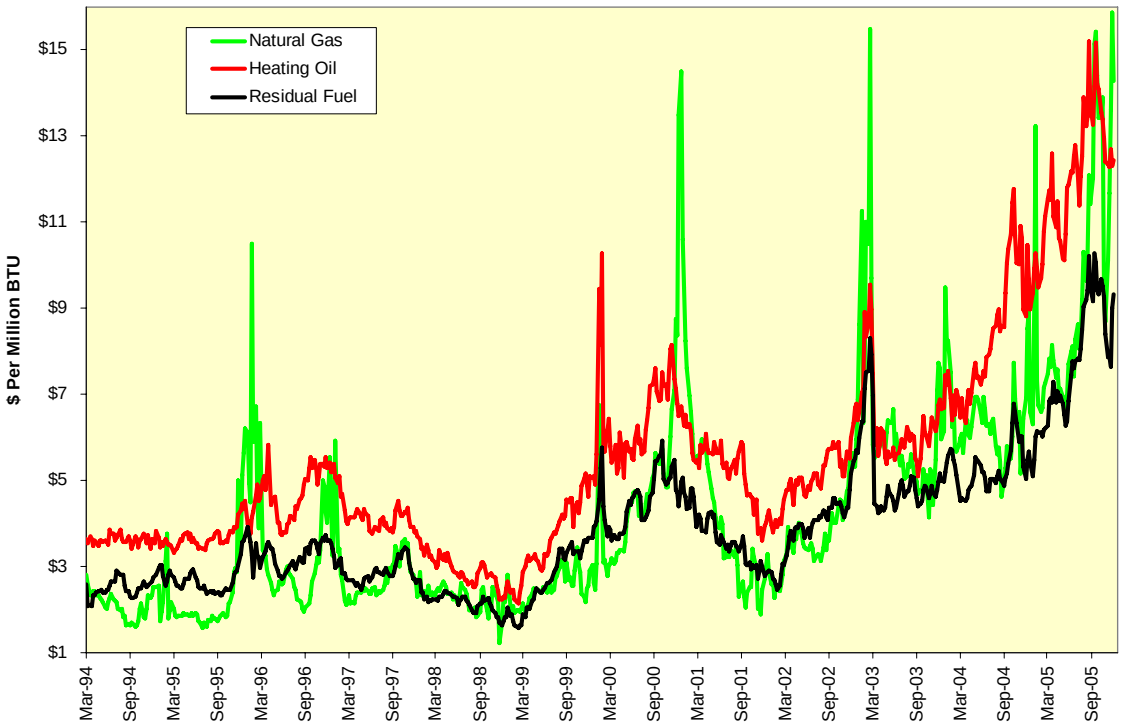
Burner Tip Parity

Economists are funny fellows, sometimes intentionally. One of their most cherished theories has been burner-tip parity, the notion that competing fuels should sell for equivalent prices in a final market. Much of the benighted economics behind the one of the worst pieces of legislation ever written, the Natural Gas Policy Act of 1978, was based on the presumed convergence between natural gas and heating oil. Too bad burner-tip parity, unlike Elvis, has never been seen in reality since that date.

The reasons for this lack of convergence are several-fold. First, many final users do not have dual-fuel capabilities; ask yourself whether your home furnace can switch between natural gas and heating oil at will. Second, environmental regulations give natural gas a preference over residual fuel in many applications such as food processing. Third, natural gas contracts often are chocked full of options such as interruptibility. If gas supplies become scarce, industrial customers will see their usage curtailed in favor of residential customers. Fourth, as discussed above, on-site storage of petroleum fuels is common, but rare for natural gas. As a result of these embedded options, natural gas is a riskier fuel to industrial users and therefore should be worth less. Natural gas should be worth more only during times of shortage when prices get squeezed higher.

We can see this in practice at the New York City market. Natural gas prices jump over heating oil prices for short periods of time and then recede. During periods of quiet, they can drop below the prices of both heating oil and the heavy residual fuel oil used in industrial applications.

Chart 4: Comparative Fuel Prices In New York



But - and this is an important "but" - rising petroleum fuel prices always provide a competitive floor underneath natural gas. If the long-term bull market in petroleum continues, we should expect natural gas prices to continue to rise. This does not mean you should run out and try to trade the spread between natural gas and heating oil in the futures market, though. The principal natural gas contract is at Henry Hub, Louisiana, and does not reflect the delivered price to final markets as seen in Chart 4. The principal heating oil contract is for New York Harbor, and while it is closer to the final consumer price, it still does not reflect the post-distribution costs paid by the final customer. The two futures contracts have an apples-to-oranges comparability.

Taming The Tiger

The late Jack Benny, whose comedic persona was based in part on being a cheapskate, used to do a radio routine in which a mugger stuck a gun in his face and demanded, "Your money or your life!" After a long pause, the mugger came back, "Well?" To which Benny responded, "I'm thinking."

There is no such thing as a list of trades you should never do. However, there is a list of trades no one in their right mind should do. It includes writing puts on stock market indices in bear market formations, taking an aggressive new position in front of a USDA crop report or any new position in front of an employment report. It also includes selling natural gas in the early winter. Those who do are short a call option in a market whose price will be set by the most desperate buyer, the residential customer who, unlike Jack Benny, is willing to pay to remain alive.