

A Positive Roll Model

H.L. Mencken once observed that for every human problem there was a solution – neat, simple, and wrong. He was absolutely right about this, of course.

Consider, for example, the popularity of indexing as an investment strategy (see “Real Men Don’t Index,” *Futures*, April 1996 Inside Options Trading special issue). Those snapping up index funds may or may not understand their acceptance of the full risk of a market decline or the requirement, borne of the mechanics of a capitalization-weighted index, that they must buy ever-increasing percentages of the biggest stocks in the index. What else could explain a 47 P/E ratio for Coca-Cola midway through 1997?

If indexing works for equities, why not commodities? After all, one of the biggest selling points for equity index funds is consistent inability of 85% of active fund managers to beat the S&P 500 index. Actively-managed commodity funds – the Barclay CTA index was up a lusty 6.09% in 1997 through the end of May -- must be underperforming *something*, but what? The answer is, increasingly, the Goldman Sachs Commodity Index (GSCI).

An Asset Class?

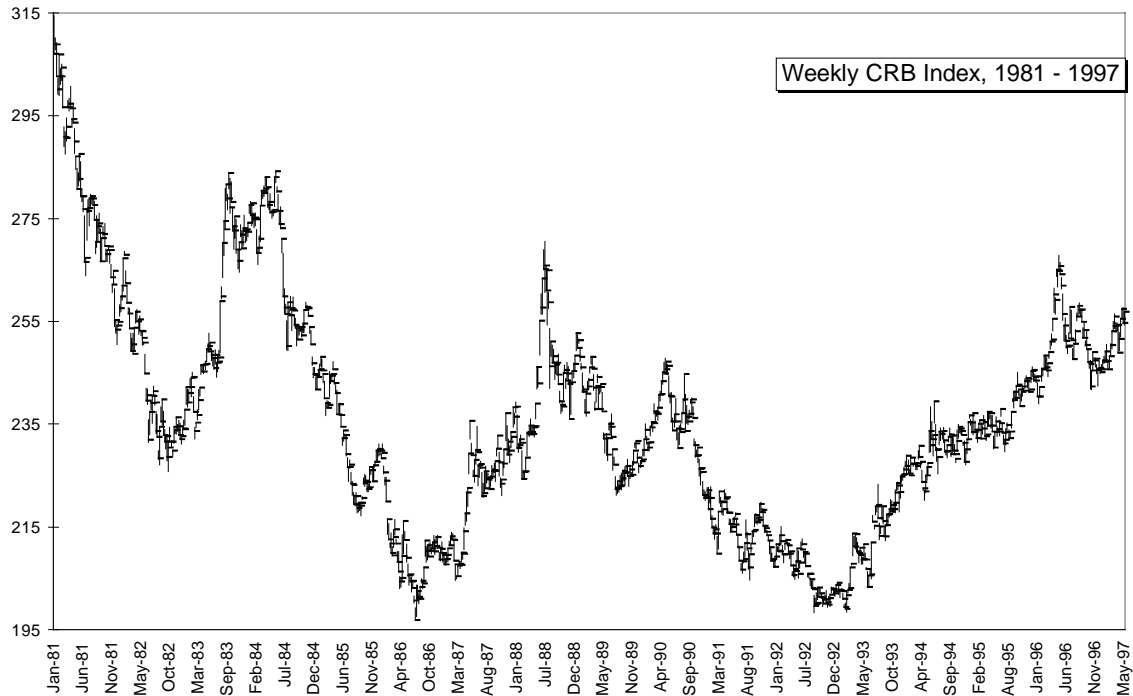
An asset class provides identifiable and consistent natural returns for all participants in the market, regardless of their economic role. Bonds, for example, provide the credit risk-adjusted return of both their coupon and principal, and can be priced according to known formulae involving interest rates, reinvestment rates, and time to maturity. Equities provide dividends and ownership rights, and can be priced in relation to other financial assets and according to forecasts of future earnings. Real estate provides a stream of ongoing rental income and ownership rights. The returns on and risks of these assets are independent of the owner, and, more importantly, not dependent upon any trader’s system or skill.

What is the natural return on 5,000 bushels of soybeans or 1,000 barrels of crude oil? A soybean crusher or petroleum refiner would have different answers to this question depending upon the level of the crush and crack spread, respectively. More importantly, soybeans may be worth a lot to a crusher but very little to someone else; the risk/return profile is dependent upon the economic role of the owner.

The argument is often made that commodities provide portfolio diversification. So does a stream of random numbers. Diversification is useful if the correlation between classes is stable over time. Consider the correlation of daily returns between crude oil and the S&P 500 over two separate eight-month periods, October 1988 - May 1989, and August 1990 - March 1991: during the first window, the correlation was .0425, but during the second the correlation was (.4615). Such unstable correlation makes the construction of a mean/variance optimized portfolio difficult.

If diversification is not the answer, then we must look to return. A physical asset, such as gold, can earn an apparent return if either the rate of inflation exceeds the carrying costs, principally short-term interest rates, or if the supply/demand balance shifts in favor of demand. However, the real price of commodities has been falling for a very long time, as seen in the weekly graph of the Commodity Research Bureau (CRB) index, “Where’s The Trend?” The true cost of commodity deflation is even more striking. A little back-of-the-envelope arithmetic using an average 4.0% inflation and an average 7.5% bond rate, both quite conservative, would yield a multiplier of $[(1+.04+.075)^{16}-1]$, or 4.70. Our CRB of 307 in January 1981 would have to be close to 1,450 today in order to qualify for a “real” inflation hedge.

Where's The Trend?

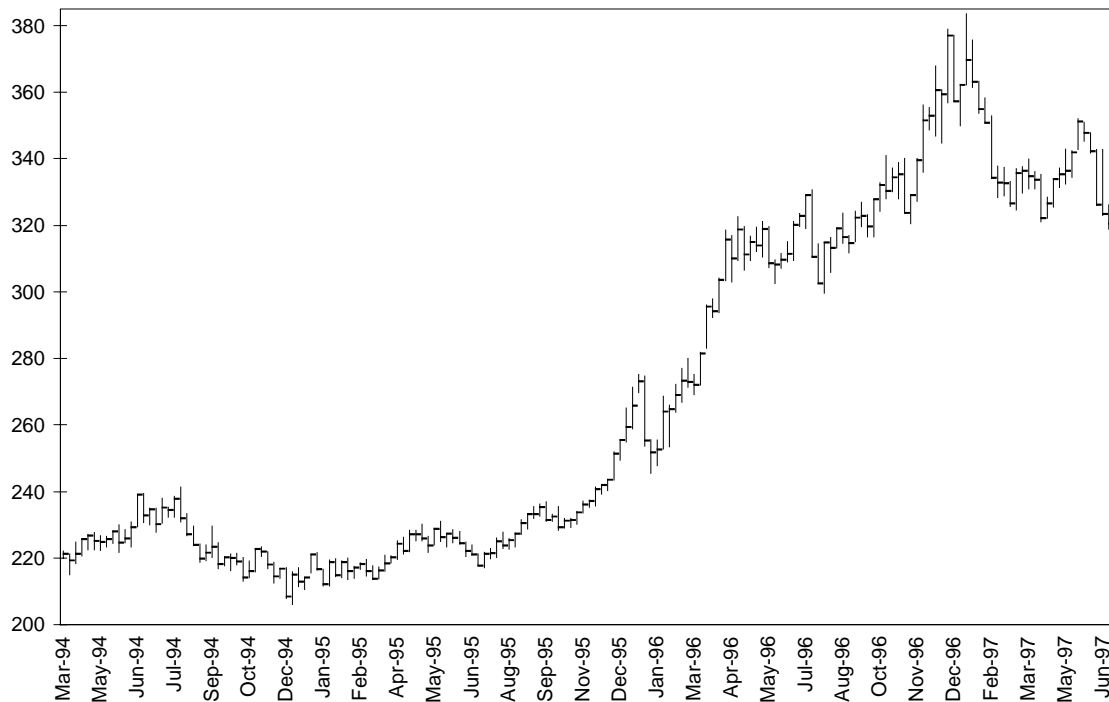


Backwardate To The Future

Without realization of all those scary "we're running out of" stories, (the Malthusians have not been right yet) and without reignition of 1970s-style inflation, how can we ever generate an asset-like return on a commodity investment? The theory of "normal backwardation" holds that risk-averse sellers need to induce speculators into buying their forward production by marking down the forward price. This provides a return to the buyers over time as the discounted forward price converges up to the cash price. Neat, simple, and wrong: what if the cash price falls, or backwardation collapses into contango, or both?

The graph "Return Of The GSCI" depicts the weekly cumulative returns on this index since 1994; the returns include price appreciation, interest on the uninvested funds, and gains and losses on the roll from the expiring spot contract to the nearby. The return on the index over 1994 and 1995 was quite low, and did not pick up until the combined price rallies and backwardation increases in the grain and energy markets during 1996. When these factors disappeared in the first quarter of 1997, so did the cumulative return.

Return Of The GSCI



Risk Management

The gains that can accrue to an equity or fixed-income index position through the use of the Dynamic Option Selection System (DOSS, see "Using Options The Spec Way," *Futures*, July 1994) derive from two factors, the foregone losses in adverse markets, and the leveraged gains in favorable markets. These gains can be duplicated in a commodity index as well. However, the construction of the GSCI injects an additional element of risk not found in conventional investments, the roll between months.

Once an investor is long the prompt month in a GSCI strategy, he is automatically long backwardation. This risk exists at all times, and needs to be managed once the long prompt month position is in place. Therefore, the roll must be presold with options. The resulting position, in its simplest form is

$$\text{Call}_{M1} + \text{Put}_{M1} + \text{Call}_{M2},$$

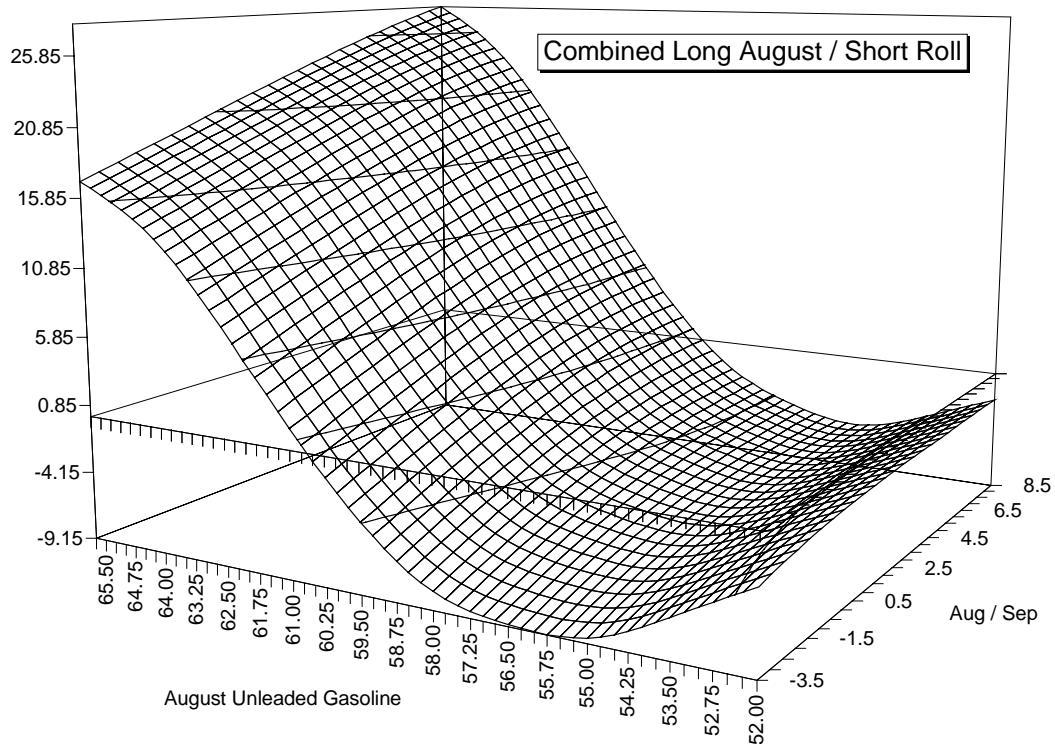
where M1 and M2 are the spot and nearby months, respectively. An actual DOSS position for 100 contracts of unleaded gasoline (the GSCI is heavily weighted toward energy, and unleaded gasoline is one of the few components of the complex still in backwardation) was:

long August: buy 274 August 58.00 puts at 1.84 and sell 274 August 64.00 puts at 6.62

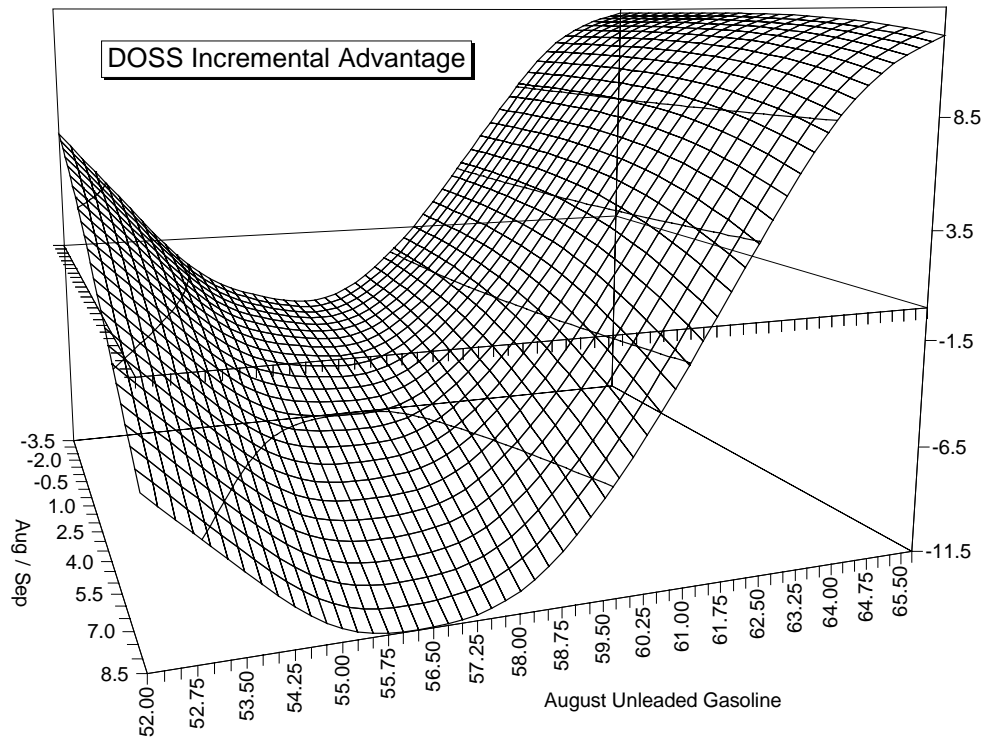
short August: buy 143 August 60.00 puts at 3.15

long September: buy 255 September 55 calls at 3.23 and sell 100 August 56 calls at 2.53

The net performance of the combined trades, the long August and short August / long September, is depicted below across the dimensions of August price and the August/September spread at the expiration of the August options.



The worst-case zone, as is always the case in DOSS positions, will occur in the static price environment and at deeper contango levels. At these deeper contango levels, however, the DOSS spread is far more likely to enjoy an incremental advantage to the base case of simply being long 100 August unleaded gasoline futures and taking your chances with the roll at expiration. While any increase in backwardation naturally restores some incremental advantage to the base case, higher backwardation generally is associated with higher price levels, and here the absolute gains on the DOSS spread become extraordinary.



Conclusion

In the end, the return on any commodity-linked investment will be dependent upon the general course of commodity prices; if prices remain flat and confined as they have for much of the past decade, then no amount of downside price and backwardation protection will produce a positive return: when you age bad wine, you get old bad wine. However, as in the conventional investment case, a combination of avoided losses and extraordinary gains should lead to a superior investment product over time.