More Fun With Commodity-Linked Equities

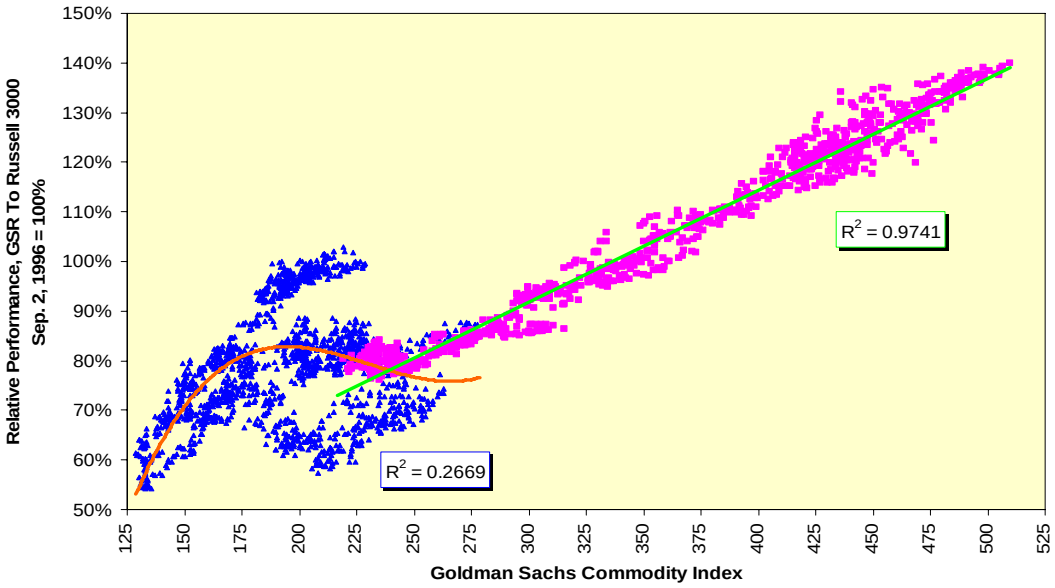
"Other than that, how'd you like the play, Mrs. Lincoln?" -- Anonymous wag

Conventional wisdom has it we have been in a long-term commodities bull market. No argument there for many individual commodities; 2006 saw a number of key markets hit either all-time or quarter-century highs in nominal dollars. But how did it fare for those investment vehicles established for the specific purpose of providing institutional investors access to the long side only of commodities markets fare? The two principal benchmarks were inferior investment vehicles in every respect; the Dow Jones-AIG index had a total return of 2.86%, while the Goldman Sachs Commodity Index lost 16.17%.

So what is an institutional investor looking for "exposure," "diversification" and other buzzwords – you can choose goodies such as "portable alpha" or "alternative beta" – to do? They very well cannot go back to their investment committees, tails between their legs, stare at their feet and mumble, "you know those commodity investments we spent two years selling internally? Yes, those. Well, upon further review we decided we [messed] up. Sorry, it won't happen again."

No, as always the best defense is a good offense. Those very same fund managers have migrated from trading physical commodities to trading the stocks of commodity producers. How can we make such a statement with confidence? Easily. Let's update a chart first displayed in an earlier discussion of commodity-linked equities (see "Ain't Nothing Like The Real Thing," June 2006) in which the relative return of commodity producers as measured by the Goldman Sachs Natural Resources index to the U.S. equity market as measured by the Russell 3000 index is mapped against commodity prices as measured by the Goldman Sachs Commodity index (see Chart 1). Prior to the May 6, 2003 declaration of a war on deflation by the Federal Reserve and the slashing of the federal funds rate to 1.00%, this relationship was both non-linear and largely random. After May 6, 2003, the relationship became so direct and so linear – an R^2 of .9741 – that no explanation other than a direct substitution of commodity-linked equities for commodities can be accepted.

Chart 1: Commodity-Linked Equities' Behavior Changed After May 6, 2003



Case Studies

If the very concept of "commodities" is a fallacy, one that involves jamming together a group of poorly correlated assets whose principal common factors are tangibility and being exchange-traded, we should move away from the index-based analysis offered above. We have a market of commodities, not a commodities market.

Let's run a set of case studies of the relative performance of various commodity producers to the broad market as a function of their underlying commodity price. In each instance, the methodology will be the same. The total return of the stock, adjusted for various corporate actions will be compared to the total return of the S&P 500 over two

different periods. The first period will extend from the earliest possible startdate of the analysis to May 5, 2003; the second will extend from May 6, 2003 onwards. The objective is to ascertain whether a position in the given commodity producer captured the price increase in the underlying commodity incremental to what could have been garnered by simple ownership of the S&P 500 itself.

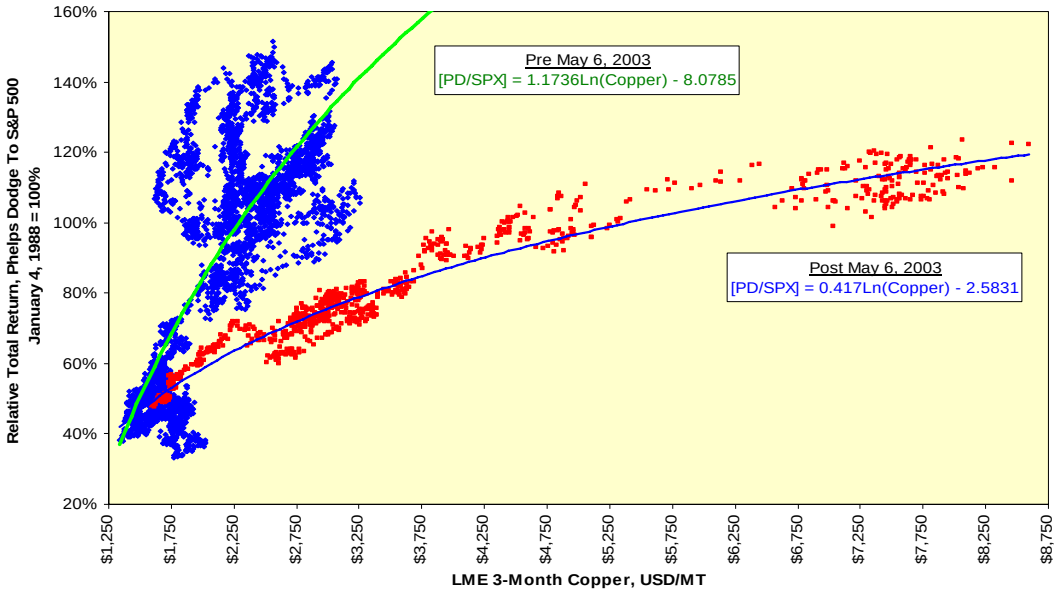
Central to the analyses below is the concept of all positions, both long and short, being decomposable into options. A long position can be duplicated with a long call option and a short put option, while a short position can be replicated with a long put option and a short call option. Many observers, present company included, argue the incremental return on equities relative to corporate bonds derives from the call option(s) embedded in a stock. These include both claims on future profits and claims on related market factors such as a commodity price. How much of a stretch is it to claim a gold stock should reflect expected price increases for gold? Stock investors should seek to maximize their exposure to as many of these call options as possible and, perhaps more important, be aware of developments corrosive to those options.

A disclaimer is in order. In no case can we attribute 100 percent of the firm's revenue to sales of a single commodity. Public corporations long ago recognized investors needed either vertical integration or a wide-ranging portfolio of commodities to dampen the volatility of single-commodity production. The four corporations examined below, Phelps Dodge, Inco, Newmont Mining and Anadarko Petroleum all have multiple commodity exposure. In addition, all four corporations have been quite active in the merger, acquisition and divestiture market. These distortions are unavoidable.

Phelps Dodge And Copper

Phelps Dodge's trading history as an independent company ended in November 2006 with Freeport McMoRan's buyout offer, which makes the case study below complete. Prior to May 2003, the incremental total return on Phelps Dodge more than captured the increase in copper prices as evidenced by its 1.1736 beta to the logarithm of copper prices. After May 2003, the relationship deteriorated badly; the beta fell to .417.

Chart 2: Was Phelps Dodge A Good Way To Play Copper?



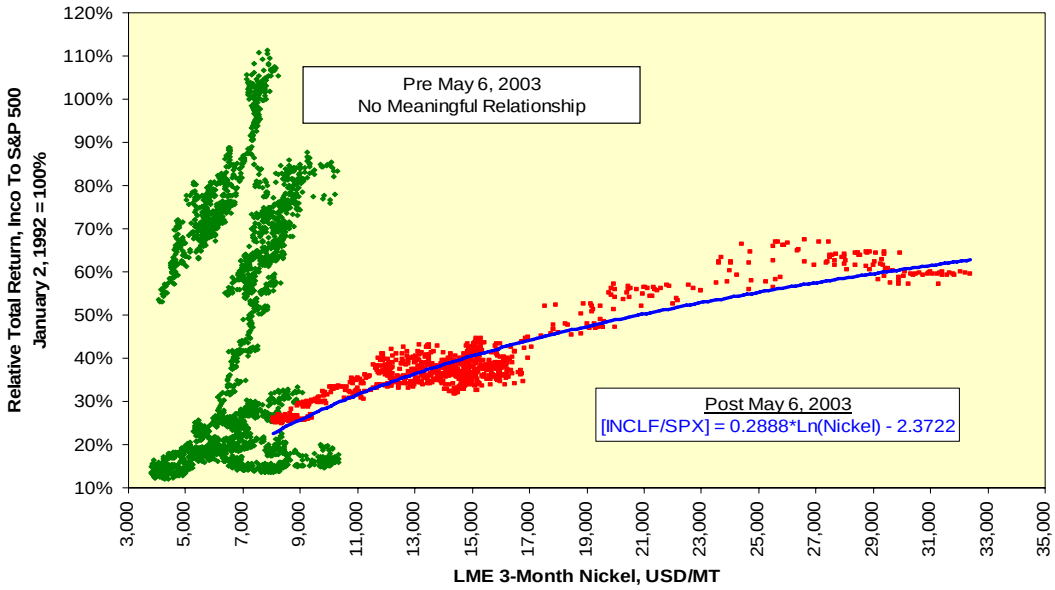
The behavior illustrated in Chart 2 is prima facie evidence of investors recognizing the loss of an embedded call option. The early phases of the copper price rally flowed straight through to Phelps Dodge's bottom line; existing production proven economic at a lower price now received a higher price. Life was good.

Once the rally proved to be more than just a short-term affair, all copper miners realized they had to expand mine capacity; as they made this recognition simultaneously, they were forced to bid against each other for sites, specialized equipment and skilled labor. Those factors of production captured the rent and embedded call option of higher copper prices. The net effect is the trend curve post-May 2003 began to resemble the profit profile of a short put option on copper prices, the residual of a long position stripped of its embedded call option. Investors would have been better off simply owning copper plus an S&P 500 index fund as opposed to Phelps Dodge.

Inco And Nickel

Inco's pattern, displayed in Chart 3, is different. Prior to May 2003, its incremental return – and yes, all appropriate adjustments between Canadian and U.S. dollars and for various mergers have been made – did not bear a meaningful statistical relationship to the price of nickel. After May 2003, however, Inco's incremental total return did a poor job of capturing the historic surge in nickel prices. Its beta to the logarithm of nickel prices was a mere .2888. The same forces that captured the embedded call option on higher copper prices in the Phelps Dodge case were at work here.

Chart 3: Was Inco A Good Way To Play Nickel?

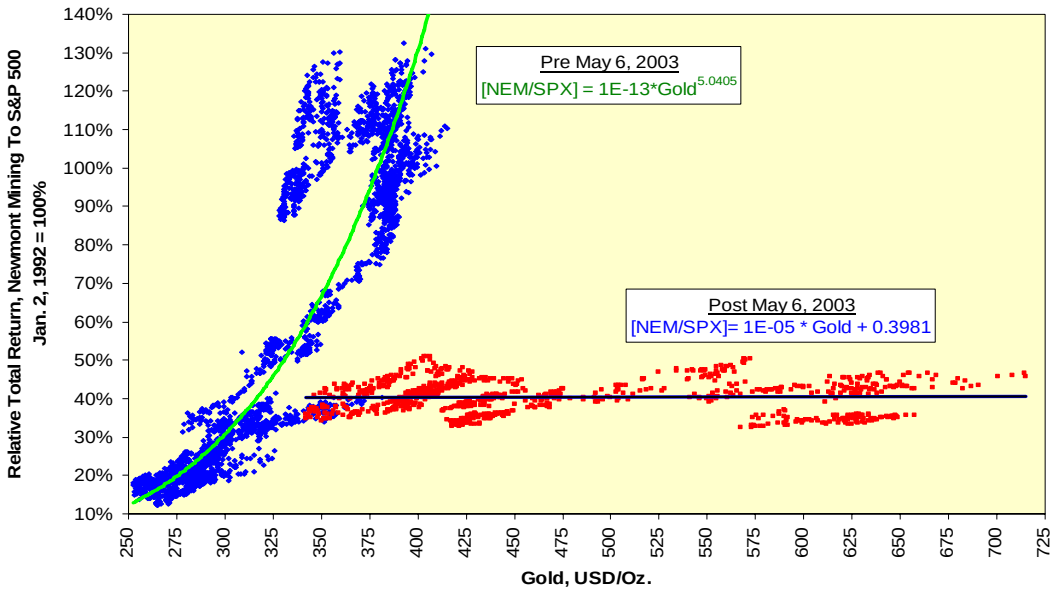


Newmont Mining And Gold

The ease with which most market conventional wisdom can be debunked is such that we should be surprised to see a market axiom demonstrated in fact. Gold investors for years claimed the stocks of mining firms moved both in advance of and more rapidly than the price of the metal itself. This certainly was true for the case of Newmont Mining prior to May 2003. Its incremental total return was an exponential function of the price of gold itself; this is equivalent to saying investors in Newmont Mining got a free call option on gold with the purchase of the stock.

After May 2003, the pattern seen in Chart 4 changed completely and utterly. Not only did Newmont Mining and other gold miners fail to capture the increase in gold prices completely, they failed to capture it at all. The beta of Newmont Mining's incremental total return as a function of gold prices is statistically equivalent to zero. Those who bought Newmont Mining to capture the price rise in gold were no better off than if they had purchased an S&P 500 index fund instead.

Chart 4: Was Newmont Mining A Good Way To Play Gold?

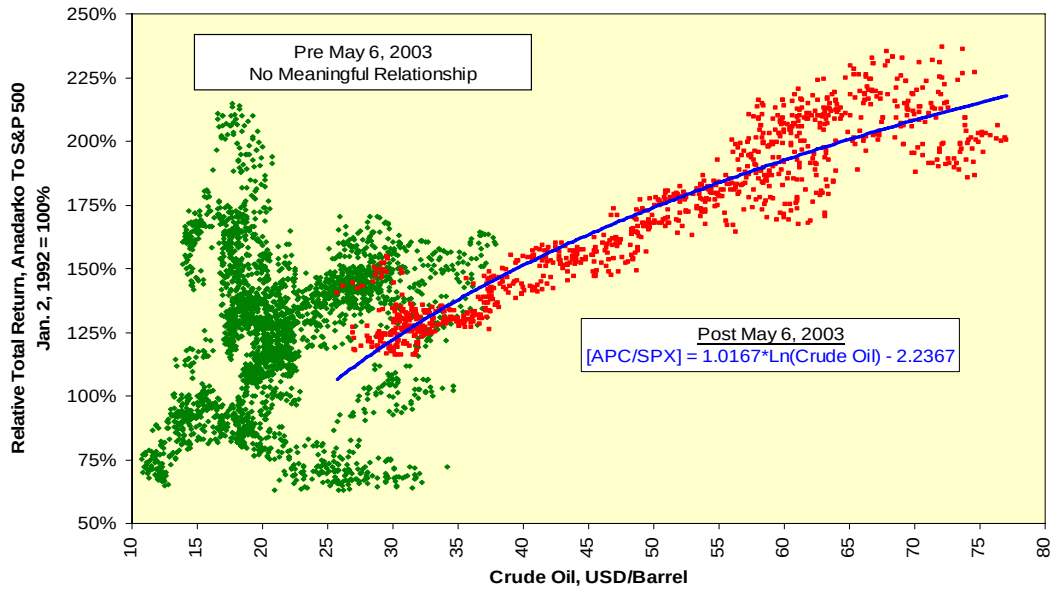


Anadarko Petroleum And Crude Oil

But, commodity investors, all is not lost. Consider the case of Anadarko Petroleum in Chart 5. Prior to May 2003, its incremental total return did not bear a meaningful statistical relationship to the price of crude oil. After May 2003, its logarithmic beta to the price of crude oil exceeded 1.00. This is evidence of Anadarko Petroleum's owners being able to capture the complete call option on higher crude oil prices and then some.

Why was this possible in the case of crude oil and not in the metals? Production costs in petroleum did not rise faster than prices did. Instead of industry suppliers, governments and labor being able to capture the embedded call option, the firms themselves did. However, the price crash of the early 1980s should remind one and all this situation could be temporary: By 1982, production costs rose to the point where petroleum producers felt squeezed.

Chart 5: Was Anadarko A Good Way To Play Crude Oil?



Regardless of how the petroleum situation plays out, the preponderance of evidence is clear: If you want exposure to the commodity, trade the commodity, not the stock. The two are different. A commodity price is a short-term equilibration between supply and demand. An equity price is the discounted stream of expected dividends from a

long-term entity. The two prices are mismatched completely in time and origin. The spot price of a lump of gold tells you nothing about its production costs, but the expected costs of mining affect the value of the stock greatly. Fund managers who substitute commodity-linked equities for commodities do their investors a great disservice; let's hope beyond reason they recognize this someday.