

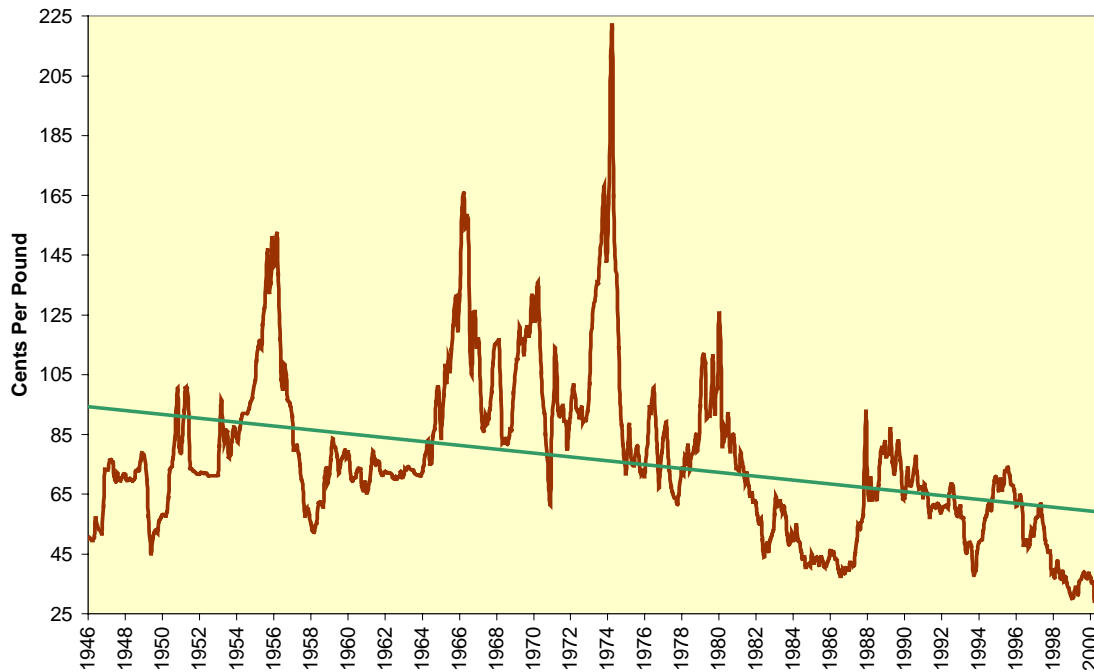
## No Delinquency For This Miner

Copper is Old Economy. The island of Cyprus is named after the Greek word for the metal and was the location of King Solomon's mines. But the New Economy, including wireless devices and optical fibers, absolutely depends on it and its central role in the generation and distribution of electricity. In this sense, we're all still in the Bronze Age.

Copper is vital to the construction industry as well. As a result, copper demand is one of the better barometers of current economic activity. The plunge to historic lows in the late 1990s is directly attributable to the Asian economic crisis; nearly all of the growth in copper demand in the first half of the decade came from Asian markets.

As has been the case in so many of the physical commodities we have examined in this series, the real price of copper has been declining for years as seen below, the usual punctuation by short-term price spikes notwithstanding. Clearly, mining companies have gotten much more efficient in their ability to locate and develop copper deposits and bring copper to market. In any other industry, low-cost producers are rewarded for their efforts when the price of their basic product subsequently rises. Will this be the case for copper mining firms?

**Inflation-Adjusted Price of Copper, 1946 - 2000**



### An Either/Ore Situation

The cheapest place to store copper is in the ground, and the ability to bring more supply to market quickly is constrained by transportation capacity. As a result, spot prices surge whenever demand jumps, while futures prices reflect expectations for declining price expectations in the midst of current rising prices. This market environment is known as backwardation, and can be recognized readily from a quote screen: Just look to see whether the front month of copper futures, September at present, is greater than the next month, December at present. The correlation between copper backwardation and copper prices over the past decade is a strong .74, which confirms that backwardation increases as a function of price.

The long-term trend of declining commodity prices, the aforementioned backwardation, and the large swings in copper prices underscore the risks involved in primary commodity production. It is not surprising, therefore, that many copper mining firms have been merged and/or acquired out of business over the past quarter century; the list includes such stalwarts as Cyprus Amax, Anaconda, Asarco, and Kennecott. One of the best ways for firms to manage commodity price risk is to bury it within a larger corporate portfolio.

### Red Metal Rumba

As the global economy continues to expand, copper's supply/demand balance is starting to tighten, and the long-term chart for copper prices is signaling a potential upside surge in price. A price projection based on Fibonacci retracement is 125 cents per pound, a 45% increase over the present 86 cents. While this may sound unrealistic, in 1989 copper approached 165 cents from a similar starting point.

Prompt Copper Futures



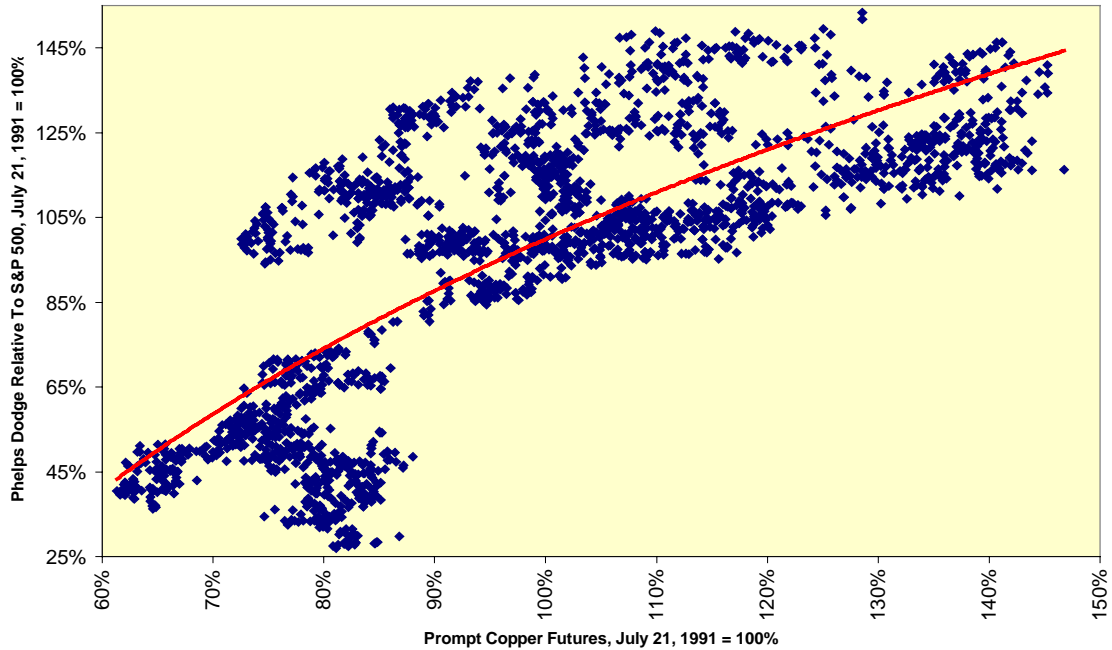
We have seen in the case of crude oil the best time to buy oil stocks is when prices are low and backwardation is absent (see "Backwardation Oil Stocks Rewards Patience," March 8, 2000). These conditions are present in copper today. However, there are significant differences between the copper and crude oil markets, not the least of which is copper frequently is consumed in its pure form, while crude oil always is processed into other products. Thus higher backwardation in copper should not affect the miner's profit margins the same way higher crude oil backwardation tends to squeeze a refiner's margins.

We can examine the history of Phelps Dodge, the most significant "pure" copper play in the U.S., since July 1991 to see whether this relationship holds for copper as well. First, let's note the poor relative performance of Phelps Dodge over this period; it has captured only 29.8% of the S&P 500's gain. Considering how the firm's revenue picture is tied to the price of copper and other metals, this is not surprising. Silicon chips have Moore's Law and its exponential productivity curve on their side, while mining efficiencies arrive at a much slower rate.

However, we're at historic real dollar lows for copper, and the short-term price chart is quite positive. The relationship between Phelps Dodge's relative performance to the S&P 500 and copper prices is what we

should expect it to be. Relative to the index, the stock captures nearly 97.6% of the gain in copper prices, which makes it something of a rarity so far in our exploration of equity-commodity pairs.

**Relative Performance Of Phelps Dodge To S&P 500  
As A Function of Copper Prices, 1991 - 2000**



Given the inexorable decline of commodity prices in the long run, any foray into Phelps Dodge or other copper miners should be viewed as a short-term trading play, and not a real cheap one at that. The stock, which has lost 39.7% year-to-date, is trading at a forward-looking P/E of 62.5, which is pretty hefty for a basic materials issue with a very low beta of .65 to the S&P 500 itself. Maybe being bullish on copper isn't such a lonely position after all.