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The 13-Year Record for Copper

A Monday Morning Musing from Mickey the Mercenary Geologist

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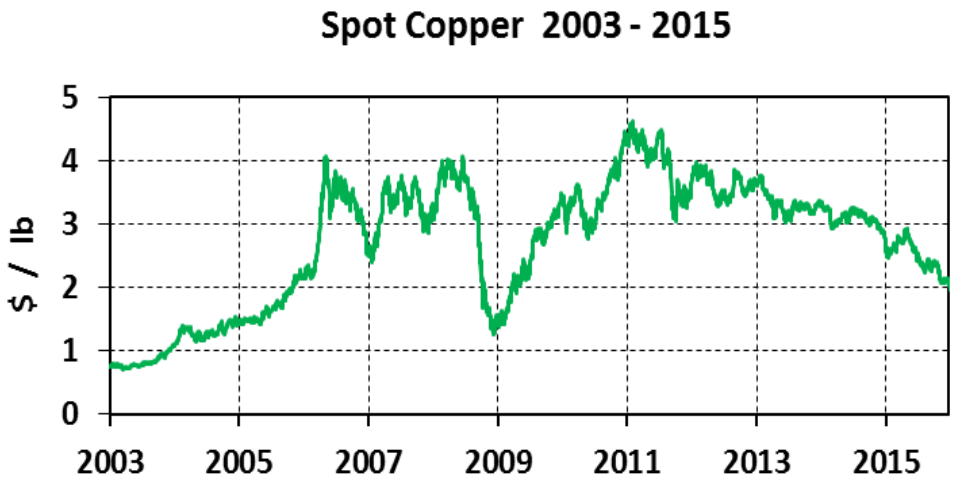
My recent work has focused on the seasonal price trends of major commodities. I previously documented year-over-year price moves of gold and oil over a period of 20 years (**Mercenary Musings:** **January 4, 2016**; **March 28, 2016**).

Once again employing a series of normalized charts, I submit our research on the price of copper from 2003 to 2015 and show, much like gold and oil, there are recurrent intra-year trends. Note that our data set is the closing Comex spot price for Grade A Copper Cathode.

We document a 13-year record for copper because data is unavailable prior to 2003:

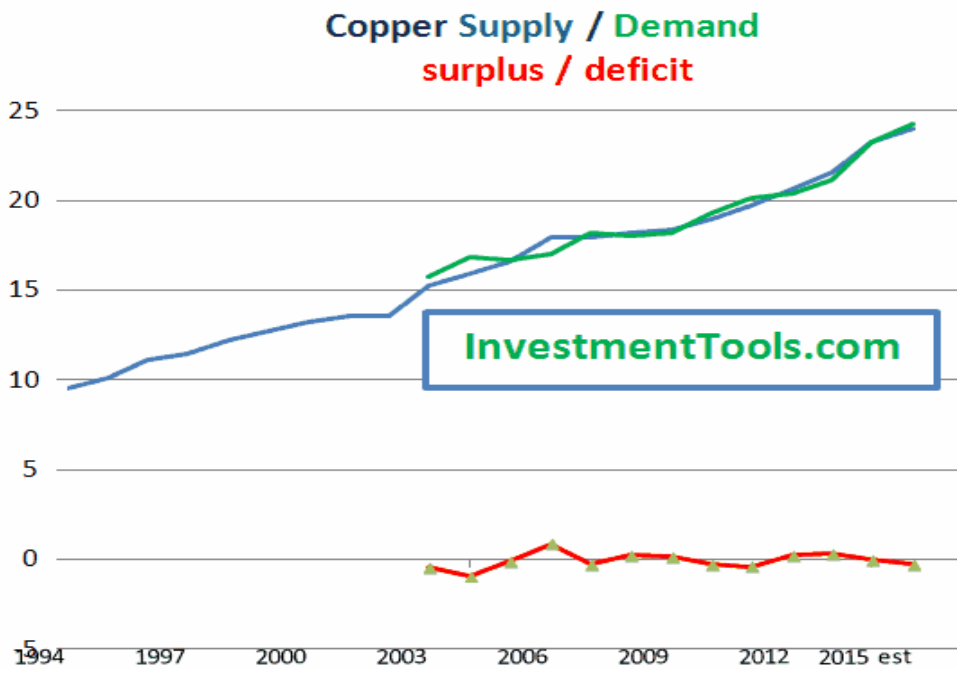


Over 13 years, the price of copper exhibits significant price swings within an overall eight-year bull market that was severely interrupted from late 2008 to late 2009 by the global banking crisis. A bear market began in late 2011 and is ongoing.

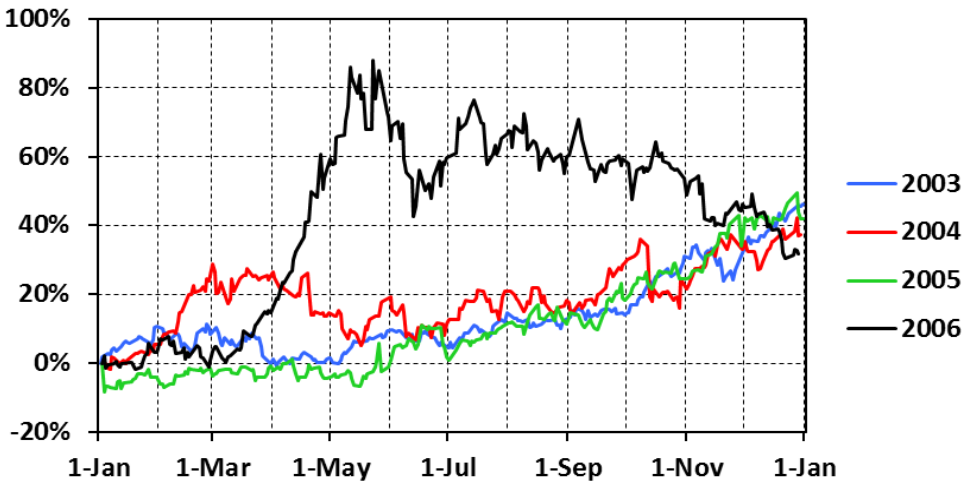
Copper demand is directly related to global industrial growth. Prices for copper are generally controlled by supply-demand fundamentals but volatility can be high and exacerbated by worldwide speculation in

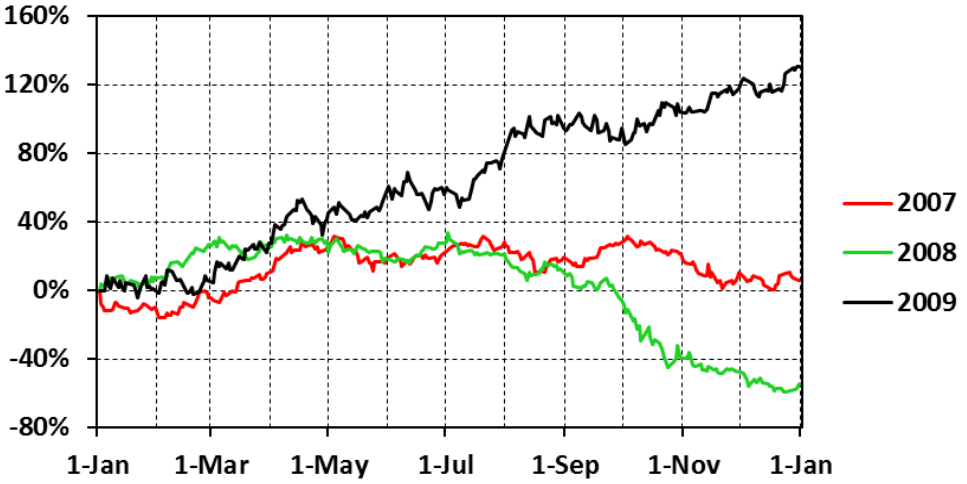
market derivatives. Numerous outside factors that affect the price are discussed below. Spot and future copper prices often serve as short-term barometers for world economic trends.

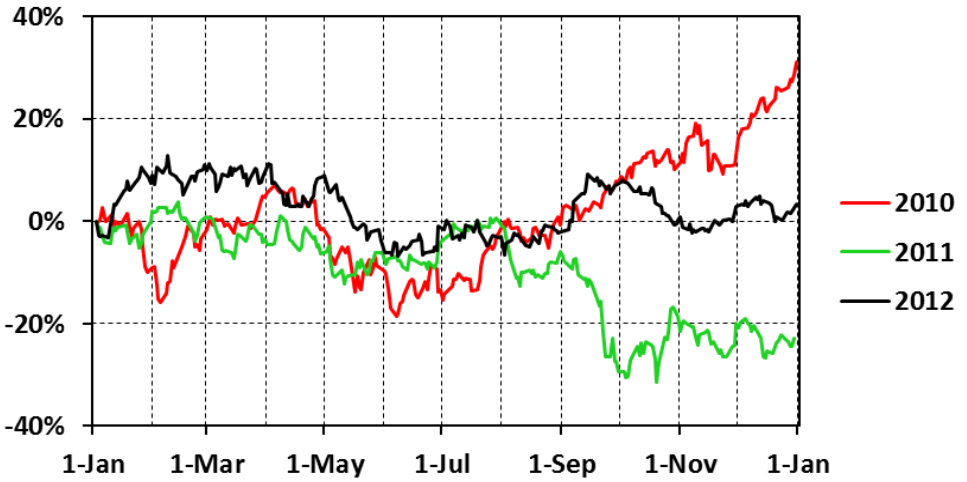
The supply and demand equation for copper is tightly balanced. To illustrate, here is a plot of yearly supply- demand since 2003. Please note the consistently strong annual growth in demand for copper. The y-axis unit is millions of tonnes per year:

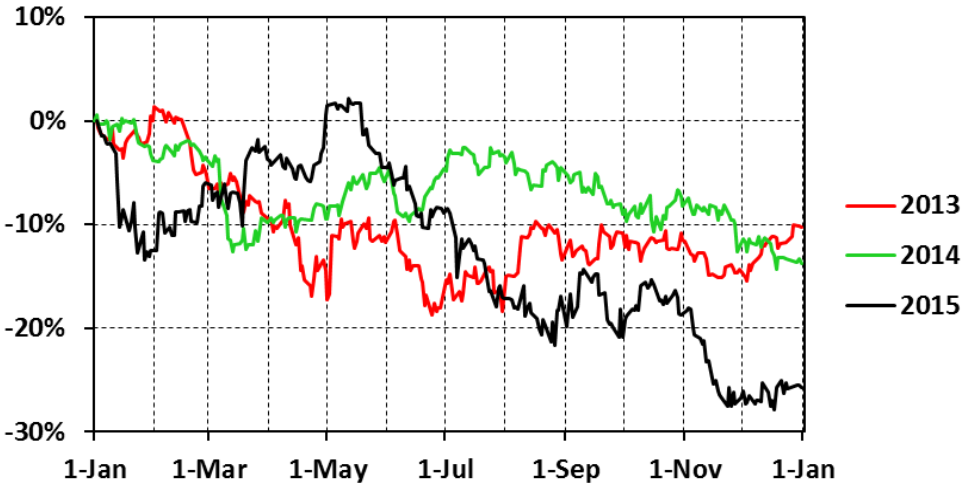


The following four charts show the percentage change in the daily price of copper normalized to January 1 for each of the 13 years in our study:









In the following tabulation of annual opening and closing prices, we define bull years for copper (**green**) as those in which the price closed the year > 10% higher than it opened; bear market years (**red**) as those

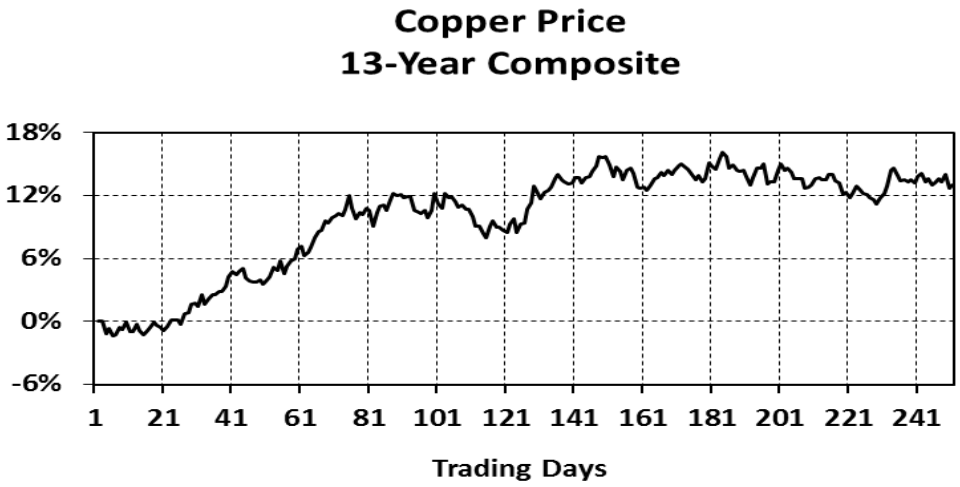
in which the price closed the year >10% lower than it opened; and neutral years (**black)** as those in which the percentage change was less than 10%:

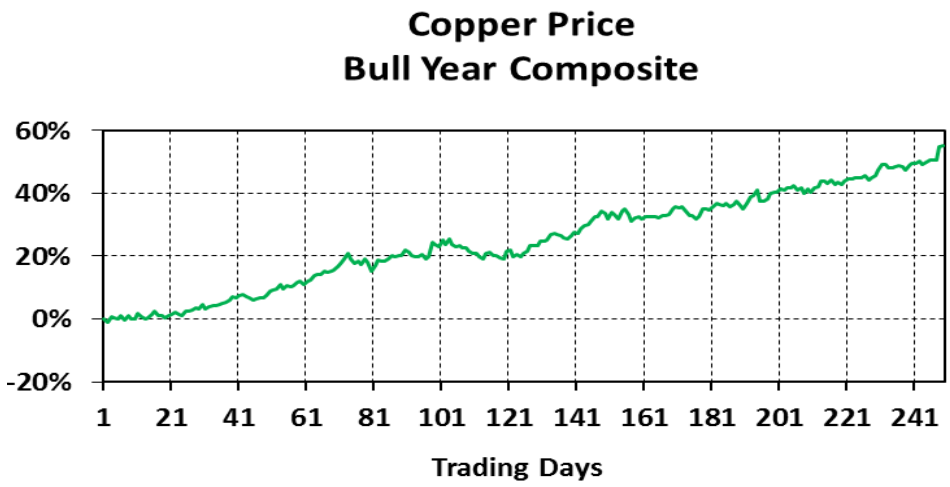
Spot Copper ($ / lb)

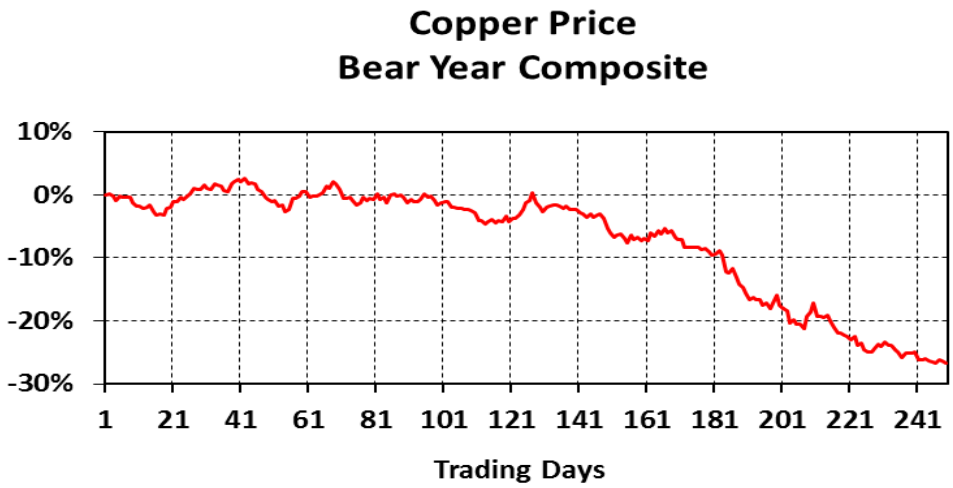
Year	Jan Open	Dec Close	% Change
2003	0.71	1.04	46.08
2004	1.08	1.49	37.30
2005	1.52	2.16	41.88
2006	2.17	2.85	31.64
2007	2.85	3.03	6.18
2008	3.05	1.40	54.27
2009	1.44	3.33	130.44
2010	3.39	4.44	31.04
2011	4.45	3.43	22.91
2012	3.53	3.64	3.29
2013	3.72	3.34	10.28
2014	3.34	2.88	13.80
2015	2.86	2.12	25.68

The price volatility from annual beginning to end averaged nearly 35% over the 13 years in this study. Copper and crude oil (at 33% over 20 years) are certainly among the most volatile natural resource commodities traded on world market exchanges.

The following three charts present composite yearly trends from January 1 to December 31 for the entire **13-year period** (2003-2015), six **bull** years (2003-2006; 2009-2010), and five **bear** years (2008; 2011; 2013-2015). Note the two neutral years (2007 and 2012) are only included in the composite chart.







These charts illustrate compelling seasonal trends for the price of spot copper:

- Copper is flat to slightly lower (in bear markets) during the first month of the year.
- The copper price rebounds significantly thru early March under all market conditions.
- After a brief dip in mid-March, copper then enters an uptick phase in the composite and bull market years and flat-lines in bear years until the end of May or early June.
- The price takes a significant hit for about a month in the early summer for all cases.
- By mid-July, copper goes on another strong run-up in bull market years that continues thru year-end. At this juncture, there is complete divergence with bear years where the price begins a long decline that again continues to the end of December. Interestingly, the second half average gain in bull years equals the average loss in bear years, at about ±25%.

  The 13-year composite shows a strong price rise until mid-August and then an oscillating pattern thru year-end. As per above, the net effect is that bull and bear years cancel each other.

Let's list some likely supply and demand reasons for the seasonal price trends documented above:

- The flat to lower price in January can be attributed to pending lower demand as the Chinese New Year season approaches in late January to mid-February.

- The late winter rally is due to increased demand following China's 15-day shut down.

- The bullish trend during the spring reflects anticipation of strong demand during the construction season in the Northern Hemisphere. Demand is weak in bear years so the price remains flat.

- I have no ready explanation for the month-long negative price regime during the early summer. If anyone out there has an idea, flip me an email: **contact@mercenarygeologist.com**.

- It appears that seasonal factors are of little consequence from mid-July to year's end. The extreme price moves and bull / bear market divergence during the second half of the year must simply be a function of demand within context of the overall economic health of the industrialized world.

Our research documents a pronounced seasonality in the copper price. There are both commonalities and differences between bull and bear markets during the first half of any given year. This recurrent seasonality reflects both demand in the spot market and speculation and hedging in the high-risk paper derivative markets. Copper price trends over the second half of a year for bull market versus bear market years are completely at odds.

Besides basic supply-demand fundamentals, there are many other factors that can skew the intra-year copper price. They include:

- Supply disruption due to strikes, natural disasters, and industrial or environmental accidents.

- Destruction of supply due to resource nationalism, unstable and corrupt governments, terrorism, coups, and civil wars. These are wild cards especially prevalent in the so-called "emerging market countries", several of which are significant copper producers.

- Energy costs and currency exchange rates that impact the profitability of marginal producers.

- Speculative hoarding or dumping of physical copper stocks.

- Stockpiling of physical copper as debt collateral by Chinese companies.

Physical copper is a commodity that is often accumulated, hoarded, traded, and dumped by speculators in both large and small amounts.

I wrote about Chinese pig farmers and their stash of copper in early 2010 (**Mercenary Musing, January 18, 2010**) and presciently predicted a market correction that culminated three weeks later.

Who can forget these images from the early days of the post-economic crisis commodities boom when copper prices were being driven by rampant speculation and hoarding?

Hoarding of Copper in China, Q3 2009

Speculation in copper is a major business via the futures and options derivative markets. Banks, commodity traders, copper producers, hedge funds, integrated mining companies, sovereign governments, sovereign-owned companies and funds, and many other speculators are participants in the worldwide copper trade. These entities can often affect if not outright determine short-term movements in the price of copper.

Copper ultimately reached $4.62/lb in early 2011. It closed at $2.12 today with the one-month future contract in significant backwardation at $2.09. That folks, is a very negative outlook for the short-term price of copper.

"Dr. Copper" has been long recognized by resource analysts and macroeconomists as having a PhD in Economics. As goes copper, so goes the world's economy.

Considering the severely depressed copper price, I submit that the world economy is none too healthy under the current paradigm of unconstrained fiat currency creation and zero or negative interest rates within an overall deflationary economic environment.

Ciao for now,

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Acknowledgment: Gwen Preston is the editor and Steve Sweeney is the research assistant for **MercenaryGeologist.com**.

The **Mercenary Geologist Michael S. "Mickey" Fulp** is a Certified Professional Geologist with a B.Sc. Earth Sciences with honor from the University of Tulsa, and M.Sc. Geology from the University of New Mexico. Mickey has 35 years experience as an exploration geologist and analyst searching for economic deposits of base and precious metals, industrial minerals, uranium, coal, oil and gas, and water in North and South America, Europe, and Asia.

Mickey worked for junior explorers, major mining companies, private companies, and investors as a consulting economic geologist for over 20 years, specializing in geological mapping, property evaluation, and business development. In addition to Mickey's professional credentials and experience, he is high-altitude proficient, and is bilingual in English and Spanish. From 2003 to 2006, he made four outcrop ore discoveries in Peru, Nevada, Chile, and British Columbia.

Mickey is well-known and highly respected throughout the mining and exploration community due to his ongoing work as an analyst, writer, and speaker.

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