



C A M B R I D G E A S S O C I A T E S L L C

INVESTMENT PUBLICATIONS HIGHLIGHTS

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Investment Publications Highlights

Summarized by the Investment Strategy Research Team

“Fundamentals or Fads? Pipes, Not Punting, Explain Commodity Prices and Volatility,” by Colin Fenton and John Waxman, J.P. Morgan, August 1, 2011

Many academic studies tend to cite quantity of production, consumption, and inventory as the fundamental drivers of commodity prices, yet overlook input costs. However, assuming that production costs remain constant would be a glaring error. Rapid input cost appreciation has been a key driver of commodity price levels and commodity price volatility since the late 1990s.

A number of studies assert that investor flows and speculative activity have contributed to higher commodity prices in recent years. Some regulators have cited these studies as justification for increased oversight of commodity futures markets, which may have the opposite impact than the one intended. The problem with these studies is that they confuse correlation with causation. Surging demand for commodities, especially from developing nations, has pushed up equilibrium prices and encouraged producers to hedge their rising marginal costs.

As in any market, a discussion of equilibrium commodity prices should include trends in input costs such as raw materials, labor wages, research and development, and insurance and licensing fees, among others. Since the late 1990s, input cost appreciation has been a key driver of commodity price levels and volatility; to meet increased demand in emerging markets, producers have had to tap less efficient sources

of marginal supply, leading to higher costs. Prices are also rising as producers take on greater risks and draw from finite inventories, not because of increased investor demand in the futures markets. With regard to oil, this means drilling deeper, into more dangerous domains, and using unconventional drilling methods that involve more steel than typical drilling. In addition, increased energy demand has forced producers to find or invest in alternative sources of supply (e.g., biofuels, solar, and wind), which also pushes up prices. By second quarter 2008, when oil prices were nearing their cyclical peak, Exxon’s cost of goods sold had risen by seven times its 1990–98 average.

It is important to note that input prices do not increase in a linear fashion. The oil cost curve, like all cost curves, rises geometrically on its right-hand side. For example, the International Energy Agency has calculated that expanding the potential supply of oil from 2 trillion to 3 trillion barrels (bbls) entails additional production costs of \$15/bbl. Yet the increase from 8 trillion to 9 trillion (an equivalent number of units) adds \$40/bbl as substitutes such as ethanol are incorporated. Costs rise quickly as demand increases.

Production cost is measured not just in unit value terms, but also in human lives and environmental impact. Any physical business managing the inherent risks in exploring for, finding, and capturing natural resources from the most hazardous environments on the planet must invest heavily in safety and insurance protocols, a reality that increases production costs as the marginal source of supply becomes ever more severe.

Rising marginal production costs for energy raise production costs for most other commodities (e.g., diesel fuel used by farm equipment to harvest wheat), and increase correlations across commodities through cost-push channels. These higher correlations are not happening because of financial flows in futures markets, but reflect the real use of physical energy supplies in the production and transport of other physical commodities, such as aluminum, pork, and wheat. If anything, the increasing use of futures has allowed producers to obtain insurance policies and hedge their rising costs; restrictions on the use of such insurance may only mean that producers need a larger cushion and may drive prices still higher. Arguments about increased speculative activity fueling volatility are also misguided. Higher absolute prices mean that price swings are greater in absolute terms, though they remain in line with historical averages in percentage terms. Again, increased regulation of futures may only serve to fuel volatility.

“More Efficient Commodity Markets Erode Returns” by John Kemp, Reuters, January 4, 2012

First-generation passive commodity indices have performed poorly since 2005, as extra money allocated to the asset class has eroded roll returns. Unfortunately, a similar story may be unfolding in second- and third-generation indices with dynamic rolls and commodity allocations. Investors have shifted significant funds to these strategies in the wake of disappointing returns from passive indices, eliminating previous pricing anomalies and thus softening returns on such strategies over the past few years.

While academic research is divided over the theoretical nature of expected returns in commodity futures, most studies generally

suggest hedgers (on net) must pay a premium to investors for assuming unwanted price risk. In a 2004–05 paper, “Facts and Fantasies About Commodity Futures,” Gary Gorton and K. Geert Rouwenhorst characterized commodities’ excess returns over bonds as a “risk premium,” given their research showed an investment in a fully collateralized equal-weighted basket of commodity futures generated a return similar to equities from 1959 to 2004.

For most of the studied period, commodity markets were small and illiquid, resulting in returns that were correspondingly high. However, the asset class has become more popular among investors, increasing liquidity and shrinking premiums. First-generation passive commodity indices have performed poorly since 2005, as extra money allocated to the asset class has been eroded by roll returns.

Unfortunately, a similar story may be unfolding in second- and third-generation indices with dynamic rolls and commodity allocations, according to a back-tested dynamic strategy by Citigroup (Citi). More precisely, Citi filtered a set of commodity futures for roll returns and then again for momentum, before going long the five with the best roll and momentum and shorting the bottom five. According to this analysis, returns for the strategy from April to December 2008 and the subsequent three calendar years were 40%, 22%, 9.5%, and 5.4%, respectively—i.e., the return was roughly halved in each subsequent year.

Citi’s findings are both intuitively plausible and consistent with the observed changes in commodity prices and futures curves since commodity investing became popular in 2005. Since the 1990s, dynamic strategies have vastly outperformed passive allocations. Further, the degree of outperformance persisted in the early years of the commodity investment boom (i.e.,

2005–08), as only a very small amount of money was tracking these strategies; most investors were still using passive approaches. Once returns on passive indices started to disappoint, however, significant amounts of money were allocated to dynamic strategies. This saw returns on such strategies promptly collapse, as a significant number of investors attempting to exploit market inefficiencies caused previous pricing anomalies to disappear.

Amid a flood of investor money, increased market efficiency—i.e., less persistence and predictability in both outright prices and term structure (roll returns)—is expected. However, markets remain both fallible in predicting the future and somewhat irrational, overreacting to news in the short term. Indeed, most participants at the recent OPEC-IEA International Energy Forum in Vienna, Austria, agreed oil (and other commodity) prices could be driven by speculation in the short term, but were firmly anchored by fundamentals in the long term.

However, if oil and other commodities do suffer from price anomalies in the short term, the short term may be getting shorter. Certainly there is statistical evidence that markets are becoming more forward-looking, such as in studies by economists at the U.S. Commodity Futures Trading Commission. They also appear to discount future changes in supply and demand more quickly than before. As a result, it is becoming harder to make confident predictions (even dubiously accurate ones) about what will happen to prices or curve structures. Further, commodity markets are becoming increasingly integrated with equities and other assets, as well each other.

While the last few years have seen a sterile (and inconclusive) debate between those that believe commodity markets are efficient and driven purely by fundamentals and others that believe price moves are exaggerated and driven mostly

by speculative froth, Citi's analysis suggests a middle way. More precisely, commodity markets remain imperfect and inefficient, subject to strange enthusiasms and frenzies, but the massive influx of investment in recent years may actually have made them less inefficient than before. Unfortunately, improved efficiency may actually be to the detriment of many investors that have successfully traded away many of the anomalies on which their strategies depended. ■