

## Why Conventional Commodity Indexes Will Likely Disappoint

By [Samuel Lee](#) | 02-29-12 | 06:00 AM | [E-mail Article](#)

Negative real interest rates, coordinated money-printing by Bernanke and his international counterparts, rising emerging markets--little wonder that commodity fund assets have tripled since the commodity-price peak in mid-2008. It helps that back tests show long-only, futures-based commodity indexes had equitylike returns and little correlation to the markets, the holy grail of portfolio diversification. The rush to carve out a static allocation to commodity indexes such as the S&P GSCI or the DJ-UBS Commodity Index is, in our view, suboptimal behavior. Without understanding the drivers of commodity futures returns and capitalizing upon them, investors will fail to capture the biggest sources of commodity futures profits.

### **Not Always Positive Expected Return**

A long-only position in commodity futures is not always expected to provide an excess return above the risk-free rate, as is the case with stocks and bonds (the market will always try to price stocks and bonds such that their expected returns are above that of cash--why else would anyone invest in them?). The futures market can be considered an insurance market, where hedgers and speculators trade risks. There is no expectation of positive returns in aggregate--someone's gain is exactly offset by someone else's loss, minus frictional costs. Hedgers pay an insurance premium to speculators. They willingly bear a negative expected return in order to shed themselves of risk.

In John Maynard Keynes' theory of normal backwardation, producers are the natural hedgers. They compensate the insurers--the speculators--with a positive roll yield, the profit from rolling over a longer-dated futures contract to a shorter-dated one. This occurs when more-distant futures trade at lower prices than the spot price, a condition known as backwardation. In this framework, a static long-only futures position should be compensated with positive expected returns.

However, the historical data is not very supportive of this story. The average roll yield for 12 major GSCI commodity futures for the period January 1983 to January-end 2012 is negative. In other words, contango, the state opposite of backwardation, was the greater force. Something else is going on.

A better approach accounts for the fact that sometimes long-only futures exposure becomes a negative return proposition. Two possibly complementary approaches are the hedging pressure hypothesis and the theory of storage. The hedging pressure story is more general than Keynes' theory of normal backwardation: It holds that when producers demand more hedging, the futures term structure goes into backwardation, rewarding long positions; when consumers demand more hedging, the term structure goes into contango, rewarding short positions. The theory of storage holds that backwardation and contango can be explained largely by physical inventory levels; when inventory is low, markets become backwardated; when it's

high, they become contangoed.

Both theories hold that the rewards for bearing risk accrue to the side, long or short, that offers some kind of insurance. In other words, long-only positions will not always possess positive expected returns. A static long-only commodity allocation over the course of a full market cycle will switch between insurance provision (positive expected returns) and insurance consumption (negative expected returns). A static, long-only investor is partly betting that the long side of the market remains mostly in insurance-provision mode over the course of his investment.

### Falling Expected Returns

There are good reasons to think that the expected returns of commodity futures aren't terribly high. [Claude Erb and Campbell Harvey](#) propose that the returns of long-only portfolio of commodity futures can be decomposed into four parts: the risk-free rate, the spot-price return, the roll yield, and the diversification return. We'll treat each component in turn.

- 1) **Risk-free rate.** The risk-free rate is low, so fully collateralized futures investors won't earn much of a cash return. Historically, this has made up about half the returns of the GSCI, the most popular commodity index.
- 2) **Spot-price return.** Markets already anticipate high commodity demand, so spot prices are high. Historically, markets have tended to overprice growth; there's little reason to think this is different. However, if your estimate of prospective spot-price returns is higher than the market's, a long-only commodity allocation can make sense despite other factors detracting from expected returns.
- 3) **Roll yield.** For the past five years, coinciding with surging commodity index assets, the term structure of most commodity futures has mostly been in contango, meaning negative roll yields. Over the long sweep of time, roll yield has swamped out spot-price appreciation.
- 4) **Diversification return.** Historically, commodities have had low correlation with each other and high volatilities. By simply regularly rebalancing, many indexes earned a positive "diversification return," which accounts for a big part of the excess returns commodity indexes earned. [Ke Tang and Wei Xiong](#) documented surging correlations between individual commodity futures, especially ones in the S&P GSCI and the DJ-UBS Commodity Index. The historical diversification return for the big indexes has been around 3%. If correlations remain high, that return could halve.

A plausible projection using the building-block approach can go like this:

Expected long-only futures return = Risk-free rate + (Spot-price return + Roll yield)  
+ Diversification return = 0% + 0% + 2% = 2%

There's another reason to expect lower expected returns: The pool of insurance buyers has been shrinking relative to the pool of providers. Hedge funds, pensions, and individual investors have all scrambled to add long commodity futures to their

portfolios. Proportionately, hedgers have shrunk. In fact, long-only investors may have transformed into insurance demanders, possibly accepting low or negative expected returns for inflation protection.

Given today's lowered expected-return outlook and the dynamic nature of the rewards that commodities exposure offers, why would an investor own a static, long-only allocation to commodities? Unlike stocks and bonds, there is no theoretical reason to expect positive returns at all times. The static, long-only commodities investor is riding the hope that the markets have not fully impounded future spot-price appreciation into current prices.

### **Bad Indexes**

There's even another reason to question the use of conventional long-only commodity index products: The biggest ones suffer front-running and market-impact costs. Yiqun Mou of Columbia University estimated that the GSCI [forewent 3.6% annualized](#) from January 2000 to March 2010 owing to these costs. Investors pay dearly for tracking the big indexes.

### **More Rational Commodities Investing**

Dynamic commodities exposures have a better rationale for positive excess expected returns, particularly ones that take advantage of momentum and backwardation. (Paul Kaplan provides a cogent [summary](#) of why this is the case.)

Momentum is especially powerful. In a [2008 study](#) typical of the genre, Ana-Maria Fuertes, Joelle Miffre, and Georgios Rallis found that momentum-based strategies were exceptionally profitable. For instance, a strategy that goes long the highest-returning 20% of commodities over the past 12 months and short the lowest-returning 20%, rebalanced and reconstituted monthly, earned 12.6% annualized from January 1980 to January-end 2007, well above the equal-weighted benchmark's 3.4% annualized return.

They find similar results for backwardation strategies. A simple strategy that each month owns the top 20% in backwardated contracts and shorts the 20% most-contangoed contracts, reconstituted and rebalanced monthly, earned 11.7% annualized.

Some researchers, such as [Gary Gorton, Fumio Hayashi, and K. Geert Rouwenhorst](#) argue that momentum- and backwardation-based strategies exploit information about inventory levels, suggesting that such strategies will continue to have positive excess returns.

### **What Then?**

Two ETF strategies offer the kind of dynamic exposure we like: [PowerShares DB Commodity Index Tracking \(DBC\)](#) each month targets futures contracts that offer the highest implied roll yield; [United States Commodity Index \(USCI\)](#) each month picks the seven most-backwardated contracts and then the seven highest-returning contracts, equal-weighting them.

By intelligently moving away from contangoed, low-returning futures contracts, the ETFs offer a good alternative to static exposures. While they may not be able to short contracts, Fuertes-Miffre-Rallis' research suggests that most of the profits to momentum and backwardation strategies come from the long side.

But even they don't guarantee great (or even positive) returns. Hedge funds are likely squeezing out much of the profits to such strategies. But the alternative--static, conventional commodity indexes--is even more unappealing.



### ETFInvestor Newsletter

Let our new newsletter, *Morningstar ETFInvestor*, help you navigate the exciting and new world of exchange-traded funds. Each issue includes recommendations for commonsense ETF investing,

\$199.00 for 12 Print Issues

CHECK OUT

ETF spotlights, and critical data on 350 top ETFs. This one-year subscription consists of 12 monthly issues. [Learn more.](#)

\$189 for 12 PDF Issues

CHECK OUT

Disclosure: Morningstar, Inc., receives fees for licensing its indexes to ETF/ETN providers. These fees are mainly based on fund assets under management. BlackRock Asset Management; First Asset; First Trust; Invesco; Merrill Lynch; Northern Trust; and Scottrade currently license Morningstar Indexes. These ETFs and ETNs are not sponsored, issued, marketed, or sold by Morningstar. Morningstar does not make any representation regarding the advisability of investing in ETFs or ETNs that are based on the Morningstar Indexes.

Samuel Lee is an ETF Analyst with Morningstar.