Adding Commodities To A Portfolio

By Sal Gilbertie – January 2015

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Introduction

The concept of adding commodity exposure as a way to reduce portfolio volatility may seem counterintuitive, but the main drivers of commodity prices often vary from those of other asset classes, particularly bonds and equities. This makes commodities important as both diversifiers and volatility reducers in a well-designed, risk adjusted portfolio. Advisors and investors can turn to the commodity sector as a potentially effective means of achieving higher risk adjusted returns in a portfolio.

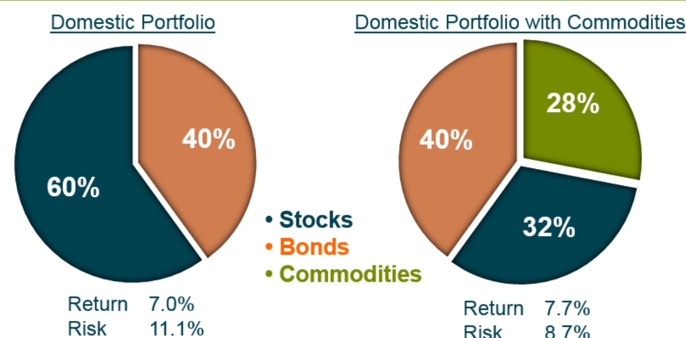
Why Commodities Work In A Portfolio

Why are commodities so popular? The answer is simple: Adding "beta"[1] through the inclusion of commodities in a portfolio can, over time, actually reduce overall portfolio volatility and even have a slight positive effect on overall absolute returns.

In the study cited in Figure 1, by reallocating 28 percent of exposure from stock holdings (exclusively) to a broad commodity basket in what is now a 40 percent bond, 32 percent stock, and 28 percent commodity weighted portfolio, the volatility of the portfolio was reduced by 21 percent, from 11.1 percent to 8.7 percent. In this example, absolute returns actually increased by 10 percent from 7 percent to 7.7 percent. Given this analysis, it is understandable why institutional investors have effectively utilized commodities in their risk adjusted portfolios. Large institutions and managers can achieve this exposure through both direct investments in physical commodities and through the retention of professional futures traders.

Fortunately for professional advisors and investors, the recent growth of the commodity-based ETP sector provides simplified access to a wide variety of commodities. There are several broad-based commodity ETPs offering access to baskets of up to two dozen (or more) different commodities, and there are single commodity specific ETPs that represent thirteen various commodities as of this writing[3] (excluding ETNs, which are backed by credit and not real assets).

Figure 1



NOT REPRESENTATIVE OF ANY TEUCRIUM PRODUCTS

Source: Analysis & corresponding charts were prepared by Teucrium Trading, LLC, using Bloomberg Professional, August 1st, 2014.[2]

About the data: The 20 year period examined in this study in from 1/1/1994 through 12/31/2013. Stocks in this example are represented by the Standard & Poor's 500©. Bonds are represented by the Bloomberg/EFFSAS US Gov't 3-5 Year Total Return Bond Index. Commodities are represented by the Morningstar Long-Only Commodity Index. An investment cannot be made directly in an index.

Simply put, today's investors and asset allocators have a wide variety of commodity-based ETPs from which to choose when determining their investment objectives; all can be accessed directly through a normal securities account on major trading exchanges with no need for a futures account or external futures manager.

Investors face some basic choices when adding commodities-based beta to their portfolio. Primary among considerations should be the type of commodity exposure one wishes to achieve. One must ask if a broad-based, multi commodity basket is most suitable; or might exposure to a smaller, core group of commodities about which the investor has some knowledge be best?

Most important for investors to remember when choosing a commodity-based ETP is that no two benchmarks are alike; each has its own unique design and results will vary accordingly. Spend some time looking into the design of the ETPs in the commodity sector to find the one that best suits your investment objectives.

[1] Beta is calculated using regression analysis, and you can think of beta as the tendency of an investment's returns to respond to swings in the market. Source: http://www.investopedia.com/terms/b/beta.asp

[2] Analysis & corresponding charts completed by Teucrium Trading, LLC, using data from Bloomberg Professional, as of August 1st, 2014. The 20 year period examined in this study in from 1/1/1994 through 12/31/2013. All supporting detail available upon request.

[3] A study of the correlation of those thirteen commodities represented by an ETP (excluding gasoline) to the S&P 500 can be seen in figure 2 on page 2.

Some multi-commodity funds give investors equal weighting amongst a wide variety of commodities; others assign weightings to commodities according to their scale of global production or consumption rates. Many of the most popular of these indices are often heavily-weighted in favor of the energy, metals and agricultural commodity sectors. These funds allow immediate, generalized exposure to commodities and offer a convenient way for investors not currently familiar with commodities to gain initial core portfolio exposure.

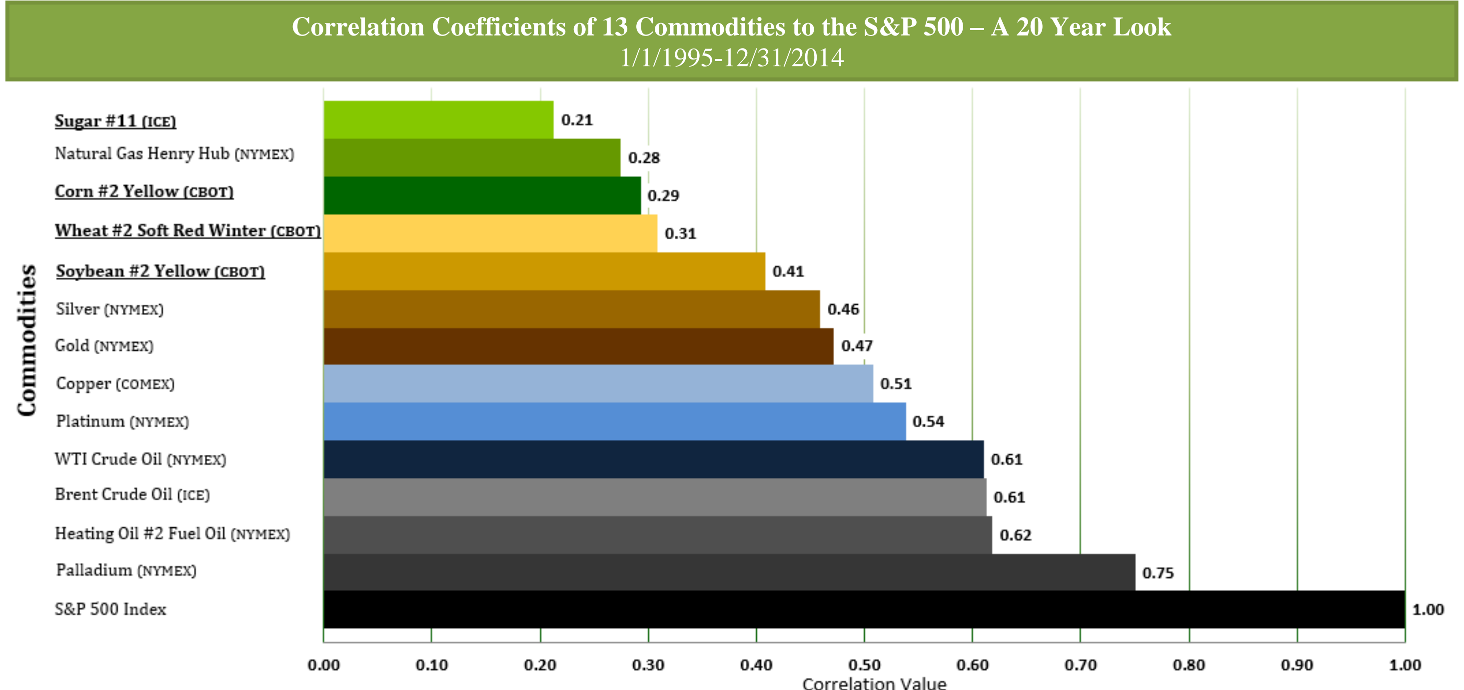
In the single-commodity ETP sector, more narrowly-focused products give investors the ability to custom design or supplement their pre-existing commodity exposure. These funds often appeal to investors wishing to overweight or underweight a core commodity holding, especially those investors familiar with specific commodities or sectors such as energy, precious metals, or agriculture. Some of these funds are designed to efficiently capture short-term movements in the price of an individual underlying commodity; others may be designed for longer-term asset allocation exposure rather than for short-term trading results.

Choosing Exposure for Beta Diversification

How might an investor go about choosing exactly what type of commodity exposure to include in the beta portion of a portfolio? A good place to begin might be with some basic statistical analysis. Many professional investors are well aware that price movements in precious metals are generally not well correlated with the performance of stocks and bonds. However, it often comes as a surprise to investors that many commodities in the agricultural sector have price movements that are less correlated with stocks and bonds than do other well-known commodities. Figure 2 illustrates the 20-year price correlation of thirteen major commodities to the S&P 500.[4]

Precious metals and energies can be effective beta-enhancing components in a diversified portfolio, and the popularity and presence of these two commodity sectors in many portfolios is widely known. But analysis shows that over time the price movements of energies seem to be more closely correlated with stocks and bonds than are the price movements of agricultures and precious metals. Regression[5] analysis, which relates to correlation by showing the percent of variation in the dependent variable

Figure 2



Sources: Charts were prepared by Teucrium Trading, LLC, using Bloomberg Professional January 12th, 2015
Note: Commodities values are from futures (generic first) spot continuation charts.
S&P 500 Index taken from Bloomberg: SPX Index – This is for illustrative purposes only and not indicative of any investment. An investment cannot be made directly in an index. Stocks in this example are represented by the Standard & Poor's 500.

[4] **For this purpose, the correlation analysis for each specific commodity is Spot Continuation (generic futures contracts)** as defined by and sourced on Bloomberg: "Generic contracts, such as US1, US2, US3, ..., are constructed by pasting together "rolling" contracts, according to the pre-selected roll types on the commodity default page. The generic contract uses the value of a particular contract month until it "rolls" to the next month in the series. You can access a generic contract by replacing the month/year code with the number 1, i.e. A 1<CMDTY>. Replacing the month/year code with the letter A will yield the active contract."

[5] Regression: A statistical measure that attempts to determine the strength of the relationship between one dependent variable (usually denoted by Y) and a series of other changing variables (known as independent variables). Source: http//www.investopedia.com/terms/r/regression.asp

(in this case specific commodities) that is explained by the independent variable (in this case the S&P 500), can often help to further analyze correlation patterns. In fact, longer-term regression analysis of the same thirteen commodities available in the single-ETP format consistently shows gold, natural gas, sugar and grains as the least directly affected by the performance of the S&P 500 Index. Figure 3 details the findings from a regression analysis of the S&P 500 Index over 5, 10 and 20 year periods against those 13 commodities,[6] and those that are the least tied to the S&P 500 are consistently agricultural commodities, natural gas, and precious metals. In fact, natural gas & the major agricultural commodities of sugar, corn, wheat & soybeans have all exhibited weaker correlations to the S&P Index than gold over the last twenty, ten & five year periods.

Figure 3

R^2 of 13 Commodities against the S&P 500 Index:
5-Yr, 10-Yr & 20-Yr Analysis (1/1/1995-12/31/2014)

	5 Year	10 Year	20 Year
Natural Gas	0.00	0.01	0.08
Wheat	0.01	0.05	0.10
Corn	0.09	0.02	0.09
Soybean	0.03	0.10	0.17
Sugar	0.37	0.00	0.05
Gold	0.07	0.06	0.22
Silver	0.16	0.03	0.21
Copper	0.21	0.11	0.26
Brent Oil	0.04	0.22	0.38
WTI Crude Oil	0.10	0.21	0.37
Heating Oil	0.11	0.25	0.38
Platinum	0.43	0.04	0.29
Palladium	0.50	0.44	0.56

Source: Charts were prepared by Teucrium Trading, LLC, using Bloomberg Professional, January 12th, 2015

As previously discussed, investors seeking exposure to commodities have easy access to a variety of commodities-based ETP products. They can choose amongst several multi-commodity ETPs or they can customize their exposure using single-commodity funds. Again, be certain to study the underlying benchmark of your ETP choices, because benchmark design more than any other factor will be the true source of your expected performance.

Matching Investment Objectives to ETP Design

An important and final note. The wide variety of benchmark designs within the commodity ETP sector can be a benefit to investors, but only if each investor chooses the proper benchmark according to his or her own investment needs. Investors need to understand the benchmark design of the ETP considered, including the holdings and the benchmark objective.

For instance, if an investor wants to have immediate, short-term exposure to a given commodity or sector, then a benchmark that concentrates its positions in the front of the futures curve may be best suited to that particular investment objective. Such a design will likely capture the short-term price movements of the commodity. If an investor desires efficient, long-term exposure to a particular sector or commodity to achieve beta, then a benchmark design that mitigates the potentially negative effects of contango and backwardation within the futures curve might prove a better selection.

The objective and term of an investor's investment holdings are of critical importance when selecting the appropriate commodity-based ETP. Both financial advisors and the Sponsors of ETPs themselves are good sources of information when researching which investment selections might be most appropriate.

Conclusion

Commodities are being used very effectively as beta diversifiers in many portfolios. As addressed in the Morningstar study cited in Figure 1, the inclusion of commodities in a portfolio can reduce portfolio volatility over time without negatively impacting overall returns. Investors now have access through a wide variety of ETP products to a range of principal commodities. These ETPs can differ significantly in benchmark design, which is the main driver of returns to the investor. Of the major commodities represented by single-commodity ETPs, long-term time horizon snapshots of correlation and regression studies show agricultural, specifically corn, wheat, soybeans and sugar, and natural gas, as the two commodity sectors having the lowest relationship with the S&P 500.

[6] **For this purpose, the regression for each specific commodity is spot continuation (generic futures contracts)** as defined by and sourced on Bloomberg: "Generic contracts, such as US1, US2, US3, ..., are constructed by pasting together "rolling" contracts, according to the pre-selected roll types on the commodity default page. The generic contract uses the value of a particular contract month until it "rolls" to the next month in the series. You can access a generic contract by replacing the month/year code with the number 1, i.e. A 1<CMDTY>. Replacing the month/year code with the letter A will yield the active contract." Daily data was used in the analysis for the regression charts included herein.

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