Rethinking Commodities

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INTRODUCTION

Commodities have long been viewed as the poor cousin in the investment universe, and often for good reason. Unlike equities, commodities do not offer a so-called market beta that drifts higher over time in line with economic activity. In contrast, they present a collection of unique price returns that reflect the underlying supply and demand dynamics of physical assets that serve as the building blocks of the global economy.

In this paper, we take a new look at commodities as an asset class and at its uses in a portfolio, which historically have been diversification and inflation protection. We also analyze different commodity beta allocations. Finally, we identify alternative investment uses of commodities, including as building blocks to express particular investment themes, as tactical trading tools, and as a component of a multi-asset risk premia allocation.

COMMODITIES AS AN ASSET CLASS

What does it mean to say commodities are an asset class? What are they, and how have they performed as an investment instrument? What are the common criticisms and misunderstandings when it comes to these distinctive assets?

Commodities have unique characteristics; they are:

- Basic, standardized physical assets that are in demand and can be supplied without substantial product differentiation across markets;
- Fungible, or in other words, considered equivalent for trading purposes despite coming from different producers; and
- Widely used production inputs in the economy.

Even though individual commodities share these important characteristics, commodities are not homogeneous. The concept of a broad commodity market beta is tenuous, likely a construct of those who championed the financialization of commodity markets more than 30 years ago. Low intra-commodity correlation is one of the few common threads between individual commodity markets, though there are important exceptions among commodities that form part of the same production process or may be substitutes. There is little market “beta” when it comes to corn, copper, crude oil, and coffee.

Commodities are not anticipatory assets; they reflect current, real world, "spot supply and demand" conditions. They also do not provide an income stream, which makes them more difficult to value than assets from equity and fixed income markets.

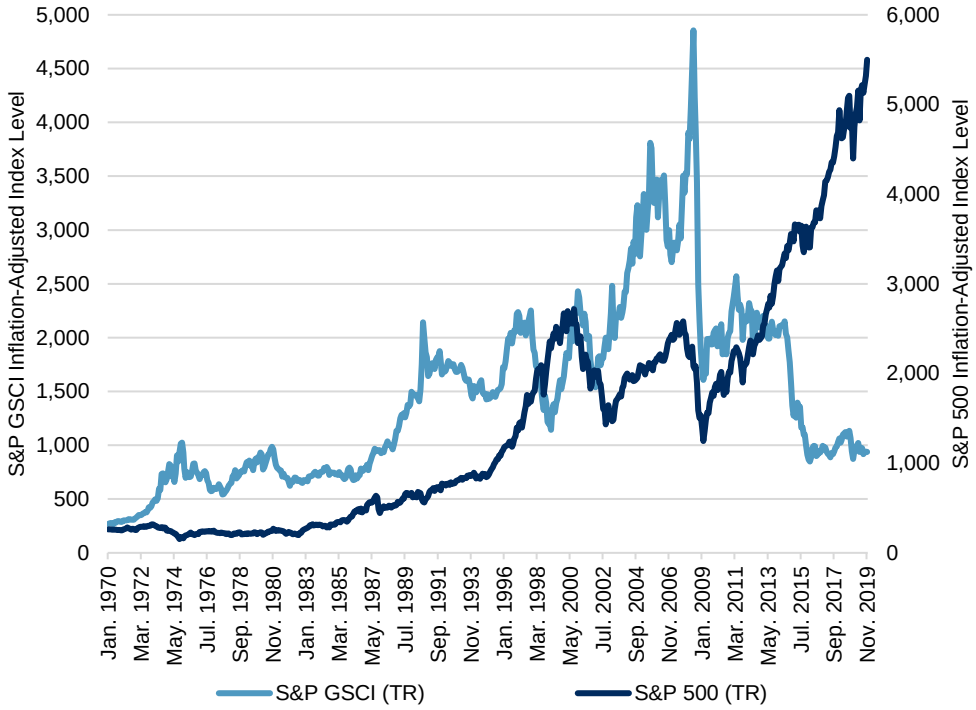
Unlike equities, commodities do not offer a so-called market beta that drifts higher over time in line with economic activity.

The so-called commodities boom of the early 2000s was based on the following two key principles: non-renewable natural resources are finite, while the consumption of those resources is not. There is little doubt that population growth and consumption have put pressure on the availability of physical commodities. Hence, it should follow logically that commodity prices track a long-term upward trajectory. However, this has not been the case. In fact, over a nearly 50-year period from 1970 to 2019, commodity prices rose only modestly, albeit interspersed with periods of significant and often violent price spikes.

Human ingenuity, relentless improvement in productivity, and efficient economic resource allocation that comes from the human condition are fundamentally at odds with the argument that commodity prices experience unconstrained appreciation over time.

Many market participants do not recognize the inconsistency in the argument that commodity prices inexorably rise over time. Human ingenuity, relentless improvement in productivity, and efficient economic resource allocation that comes from the human condition are fundamentally at odds with the argument that commodity prices experience unconstrained appreciation over time. Exhibit 1 illustrates the long-term S&P GSCI in real terms compared with the S&P 500®.

Exhibit 1: Inflation-Adjusted Commodity and Equity Prices



Source: S&P Dow Jones Indices LLC. Data from January 1970 to November 2019. Consumer Price Index for All Urban Consumers: All Items in U.S. City Average, Index 1982-1984=100, monthly, seasonally adjusted. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

Short-term supply and demand imbalances in a specific commodity can cause significant spot price movements.

Short-term supply and demand imbalances in a specific commodity can cause significant spot price movements, as well as changes to the slope of the forward curve. However, over the long run, the supply and demand curves tend to be much smoother as market participants adjust their expectations and production levels. For example, high prices caused by higher demand will encourage a shift to a substitute in the short term, while over the longer term, high prices encourage the development of new supply sources, accelerate a permanent substitution, or force the complete rethink of the use of a commodity or of a consumption pattern.

DECOMPOSING COMMODITY RETURNS

In general, there are three return components from commodities: the spot price movement (spot return), the roll yield (carry), and the collateral yield.

The spot prices of commodities can be difficult to obtain and are often biased by the location where the commodity is held.

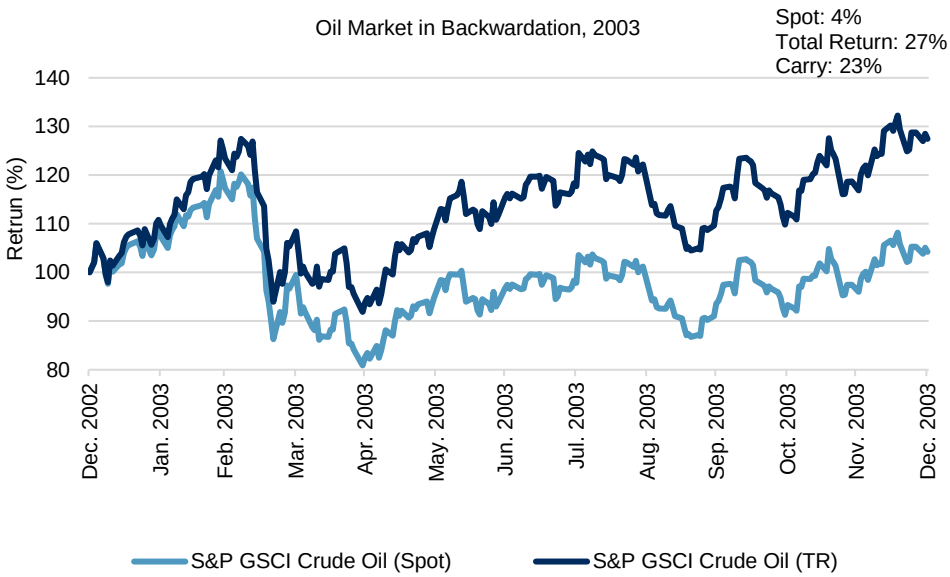
The spot prices of commodities can be difficult to obtain and are often biased by the location where the commodity is held. Spot markets involve the physical transfer of goods between buyers and sellers; prices in these markets reflect current (or near-term) supply and demand conditions. In most cases, the front-month futures contract is used as a proxy for spot prices.

Roll yield or carry can add or detract from commodity returns.

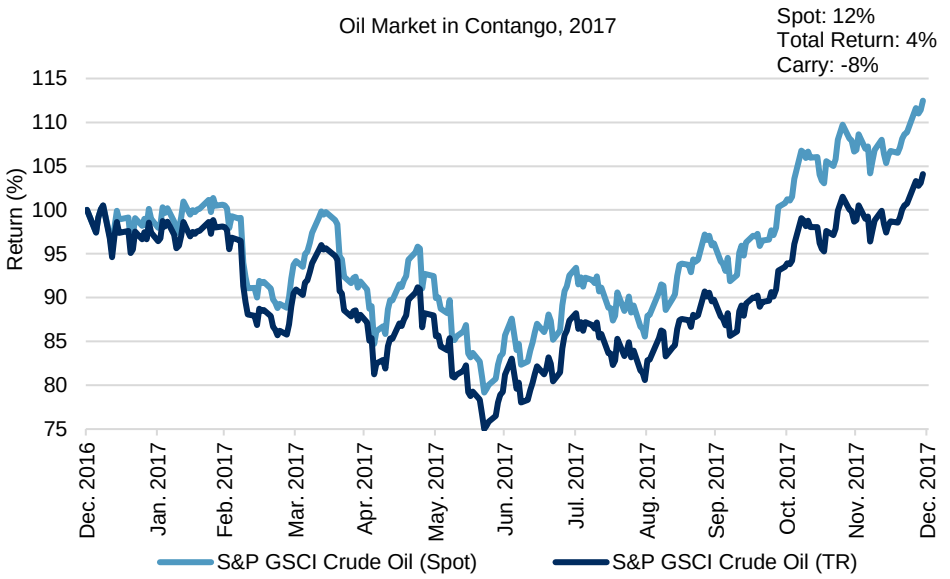
Roll yield or carry can add or detract from commodity returns. Any commodity investment product that utilizes commodity futures as the underlying instrument must continually reinvest, or roll, from expiring nearer-dated contracts into longer-dated contracts to maintain uninterrupted exposure to the respective commodity. If the futures curve is upward sloping (in contango), the roll yield will be negative. If the futures curve is downward sloping (in backwardation), the roll yield will be positive. Exhibit 2 illustrates the impact that contango and backwardation can have on commodity returns.

Exhibit 2: Impact of Backwardation and Contango on Commodity Returns

If the futures curve is downward sloping (in backwardation), the roll yield will be positive.



If the futures curve is upward sloping (in contango), the roll yield will be negative.



Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 2002, to Dec. 31, 2003, and Dec. 30, 2016, to Dec. 29, 2017. Index performance based on total return in USD. Past performance is no guarantee of future results. Charts are provided for illustrative purposes.

Collateral yield refers to interest income from the collateral invested in fixed income instruments. Commodity investment products, whether mutual funds, ETFs, or simple futures strategies, do not offer direct exposure to underlying physical commodities. Commodity investment strategies invest primarily in commodity futures or shares of companies involved in commodity markets. Commodity exposure that utilizes commodity futures is generally not fully funded. Managers will use a relatively large portion of the fund's assets to buy treasuries to post collateral for futures contracts. A large portion of returns may, therefore, come from the collateral invested in fixed income instruments, most commonly U.S. Treasury Bills.

HEDGERS VERSUS INVESTORS

Commodity futures exchanges were first established to offer physical commodity producers and consumers a marketplace to manage price risk.

Participants in the financial commodity markets are not all profit maximizers. Commodity futures exchanges were first established to offer physical commodity producers and consumers a marketplace to manage price risk. A large proportion of participants in these markets are hedgers who are using the commodity markets to manage price risk and who, in many cases, do not have the overarching goal of measurable financial returns from these transactions. Hedgers are willing to pay a premium to stabilize future revenues and costs in their underlying businesses. This can create opportunities for investors to be compensated for assuming the price risk of hedgers, but it can also obscure the price discovery mechanism.

TRADITIONAL USES OF COMMODITIES – INFLATION PROTECTION AND DIVERSIFICATION

Inflation Protection

As inflation is driven increasingly by factors such as labor costs, productivity levels, and technologic disruption, the usefulness of commodities as an inflation hedge may be diminishing.

One of the most common justifications for a long-biased exposure to commodities in a diversified portfolio is that commodities have historically proven to be a reliable hedge against inflation.[1] However, it is probably more realistic to consider commodities as inflation sensitive. They are often touted as being particularly effective when it comes to unexpected inflation. This makes intuitive sense because it is often a commodity supply shock that causes unexpected inflation. Yet, even while food and energy continue to make up approximately a quarter of the U.S. CPI, the underlying nature of inflation is changing in the global economy. That is, as inflation is driven increasingly by factors such as labor costs, productivity levels, and technologic disruption, the usefulness of commodities as an inflation hedge may be diminishing.

The current low-inflation environment may also be inexplicably penalizing commodities as a long-term inflation hedge. Given that inflation can be notoriously difficult to forecast, and market participants may experience unexpected inflation shocks, it is worthwhile to have a historical perspective on the performance of commodities over various inflationary and deflationary periods.

In Exhibit 3, we group the rolling monthly changes in year-over-year inflation levels and the contemporaneous returns of commodities. We can see that returns of commodities are somewhat linear with changes in inflation. In other words, the higher the inflation, the higher the average S&P GSCI returns.

[1] Gorton, G., and Rouwenhorst, K.G., 2004. Facts and Fantasies about Commodity Futures, National Bureau of Economic Research.

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Exhibit 3: Average Annual Commodity Performance during Different Inflation Regimes

INFLATION (%)	AVERAGE S&P GSCI RETURNS (%)
<0	-46.1
0-2	-11.2
2-4	13.7
4-6	21.6
>6	19.6

Source: S&P Dow Jones Indices LLC, Federal Reserve Bank of St. Louis. Data from December 1969 to November 2019. Index performance based on total return in USD. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance. Inflation is defined as the year-over-year percentage change in the monthly U.S. CPI. Average year-over-year S&P GSCI returns since index inception.

In addition, we compare the historical monthly year-over-year percentage changes in inflation against the S&P GSCI and calculate an inflation beta measure for commodities (see Exhibit 4). Inflation beta is a measure of the responsiveness of an asset's returns to observed changes in inflation.

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History would suggest that there is some positive relationship between the level of inflation and returns of a broad basket of commodities. The contemporaneous nature of this relationship can make it difficult to capture unless exposure is held continuously, which, in turn, may be an unjustifiable drag on the performance of a diversified multi-asset portfolio.

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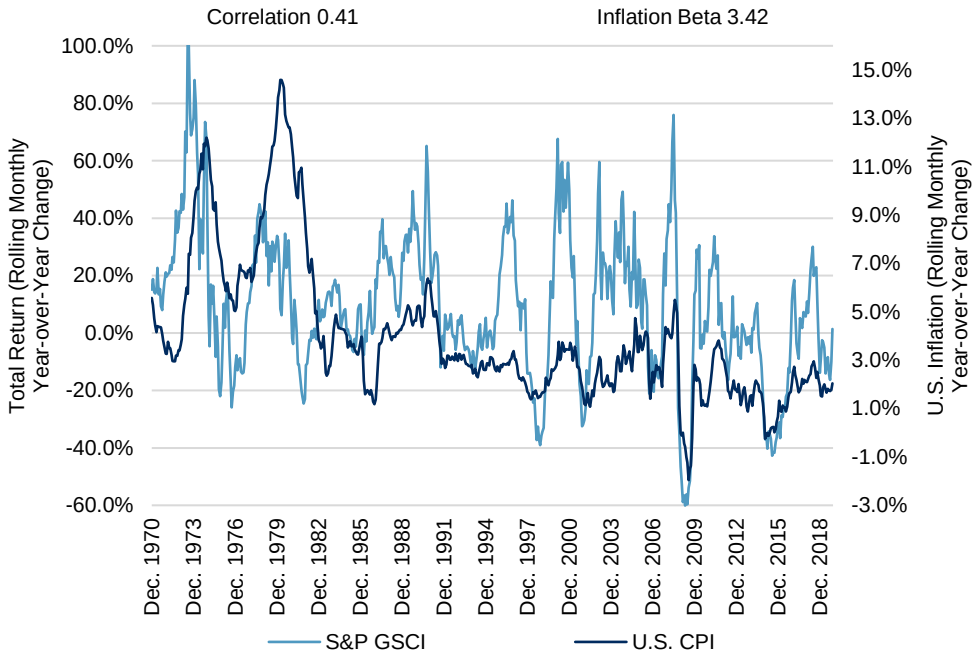
Exhibit 4: S&P GSCI Inflation Protection



Source: S&P Dow Jones Indices LLC, Federal Reserve Bank of St. Louis. Data from December 1969 to November 2019. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance. Inflation is defined as the year-over-year percentage change in the monthly U.S. CPI. Average year-over-year S&P GSCI returns since index inception.

DIVERSIFICATION

Commodities can potentially offer investors valuable diversification benefits.

Diversification is often considered the only free lunch in investing. Combining low or negatively correlated asset classes in a portfolio has the potential to lower overall portfolio volatility without sacrificing returns (or to even improve risk-adjusted returns). Commodities tend to have low correlations to traditional asset classes and they can potentially offer investors valuable diversification benefits (see Exhibit 5).

Exhibit 5: Correlation of Monthly Asset Returns

CORRELATION	S&P 500	S&P GSCI GOLD	S&P GSCI	S&P REAL ASSETS INDEX	S&P U.S. AGGREGATE BOND INDEX
S&P 500	1.0000	-	-	-	-
S&P GSCI GOLD	0.0226	1.0000	-	-	-
S&P GSCI	0.4884	0.2934	1.0000	-	-
S&P REAL ASSETS INDEX	0.8084	0.3490	0.6464	1.0000	-
S&P U.S. AGGREGATE BOND INDEX	-0.0641	0.3812	-0.1236	0.2271	1.0000

Source: S&P Dow Jones Indices LLC. Data from April 2005 to December 2019. Index performance based on total return in USD. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

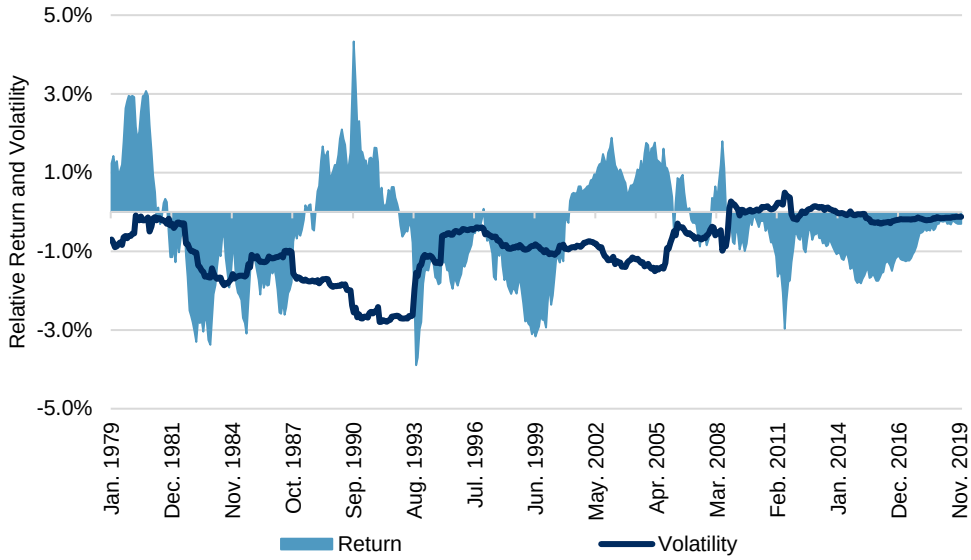
A portfolio with a small allocation to commodities has underperformed while, on average, offering slightly lower volatility.

It is important to take a long-term perspective of commodities performance. Exhibit 6 compares the relative rolling three-year performance of a 55% equity/40% bond/5% commodity portfolio to a typical 60% equity/40% bond portfolio. The relative performance of the portfolio containing commodities has varied over time. Since the 2008 Global Financial Crisis, a portfolio with a small allocation to commodities has underperformed while, on average, offering slightly lower volatility. From a risk-adjusted return perspective, the lower volatility has not been sufficient to compensate for the lower returns. It is worth noting that the particularly strong performance of equities over this period has undoubtably dominated the return profile of diversified portfolios.

From a risk-adjusted return perspective, the lower volatility has not been sufficient to compensate for the lower returns.

The particularly strong performance of equities over this period has undoubtably driven the return profile of diversified portfolios.

Exhibit 6a: Relative Return Profile of Portfolios with and without Commodities



Source: S&P Dow Jones Indices LLC. Data from January 1976 to December 2019. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance. Relative performance is based on three-year rolling annualized returns of each portfolio. Volatility difference is based on three-year rolling volatility of monthly returns.

Exhibit 6b: Return Profile of Portfolios with and without Commodities

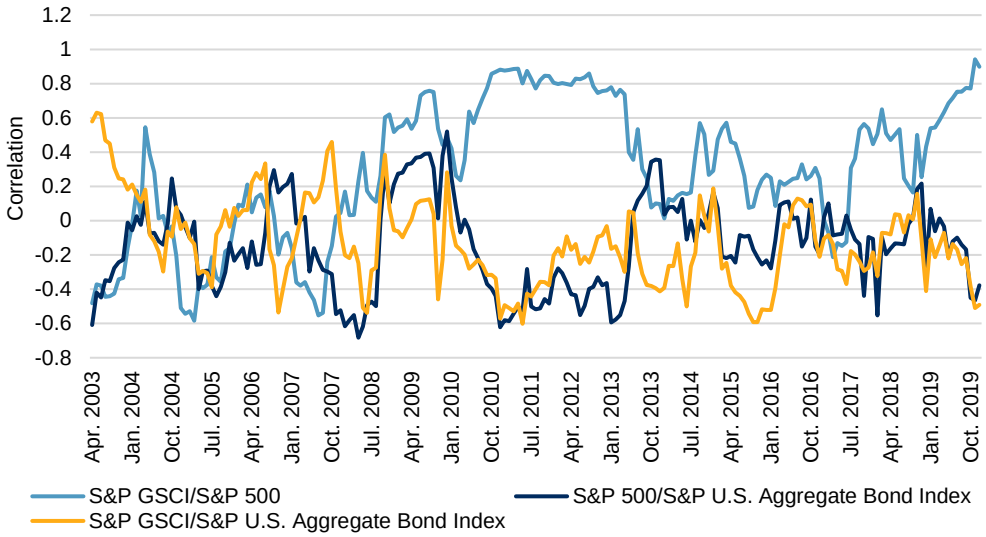
ANNUALIZED RETURNS (%)	60/40 PORTFOLIO	55/40/5 PORTFOLIO
1-Year	29.00	28.62
3-Year	14.02	13.72
5-Year	10.70	10.29
10-Year	12.13	11.33
20-Year	5.95	5.77
ANNUALIZED VOLATILITY (%)		
1-Year	14.68	14.57
3-Year	10.69	10.57
5-Year	10.49	10.35
10-Year	10.38	10.31
20-Year	12.00	11.63
SHARPE RATIO		
1-Year	1.97	1.96
3-Year	1.31	1.30
5-Year	1.02	0.99
10-Year	1.17	1.10
20-Year	0.50	0.50

60/40 and 55/40/5 portfolios are hypothetical portfolios.
Source: S&P Dow Jones Indices LLC. Data from December 1999 to December 2019. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

The portfolio diversification theory depends heavily on a low correlation between commodities and other asset classes.

The portfolio diversification theory depends heavily on a low correlation between commodities and other asset classes. In the wake of the 2008 Global Financial Crisis, there was a clear pickup in asset class correlations as a result of universal and prolonged monetary policy easing. This damaged the commodity diversification story.

Exhibit 7: Rolling One-Year Correlations of Monthly Returns – Equities, Bonds, and Commodities



Source: S&P Dow Jones Indices LLC. Data from May 2002 to December 2019. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

Intra-commodity correlation followed a similar path, rising during the 2008 Global Financial Crisis. It has since fallen back to historically low levels, which may offer some comfort to investors that broad cross-asset correlations will also revert.

Intra-commodity correlation rose during the 2008 Global Financial Crisis.

Exhibit 8: Cross-Correlations among Commodities

Source: S&P Dow Jones Indices LLC. Data from December 2001 to October 2019. Past performance is no guarantee of future results. Chart is provided for illustrative purposes. Cross correlation is defined as 24-month, unweighted average pairwise correlations.

No one has a crystal ball; the diversification benefits of commodities have been mixed over the past decade or so, but investors have no way of knowing how markets will perform or asset classes will interact in the future. Long-term history suggests that there is still some diversification benefit of commodities in a multi-asset portfolio. As far as inflation is concerned, to the extent that inflation surprises to the upside, a commodity allocation may still offer some protection, but the protection will likely be limited to those scenarios in which a supply shock provides the impetus for inflation. By definition, such commodity supply shocks are difficult to predict.

Investors have no way of knowing how markets will perform or asset classes will interact in the future.

THINKING ABOUT COMMODITIES DIFFERENTLY IN DIVERSIFIED PORTFOLIOS

Even though the diversification and inflation protection arguments touted by long-only commodity advocates have been diminished over the past decade, we find that there are additional investment opportunities presented by broad commodity indices, single commodities, and absolute return commodity strategies.

Alternative Approaches to Broad Commodity Beta: Even though the premise of commodity beta may be tenuous, there is an argument to be made for rethinking the construction of a passive commodity allocation.

Critiques of first-generation broad commodity beta indices, such as the S&P GSCI, have largely centered on the choice of weighting scheme.[2] Some contend that the use of global production levels and or market liquidity to determine individual commodity weights has led to the overweighting of the largest and often most-volatile commodities. This, in turn, exaggerates the swings in realized volatility and the large drawdowns in broad commodity beta indices.

There is an argument to be made for rethinking the construction of a passive commodity allocation.

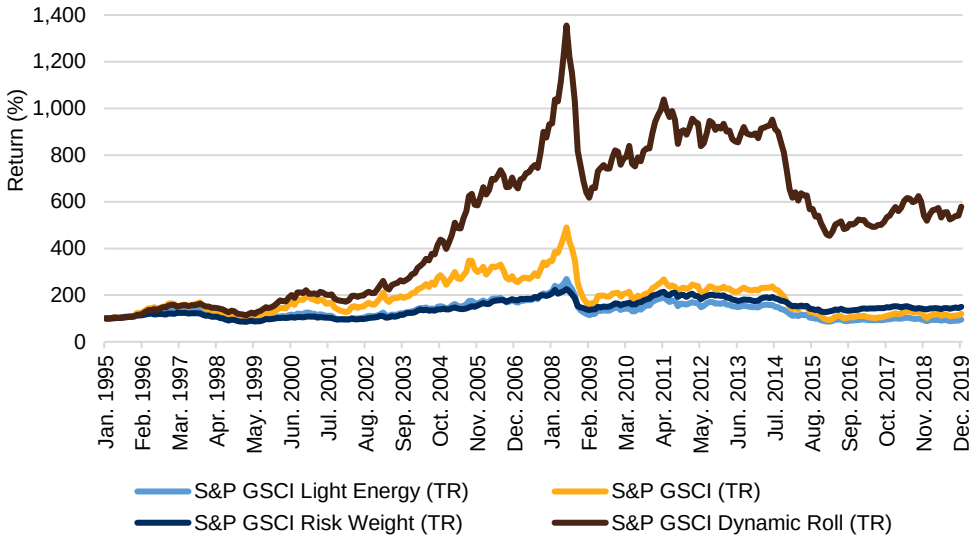
A more diversified approach to portfolio construction may better capture the inherently low intra-commodity correlation discussed previously and offer potential enhanced diversification benefits—for example, by aiming to achieve equal risk contribution from each of the underlying components.

Other ways to improve risk-adjusted returns may be by applying a level of risk management to an underlying commodity beta exposure such as targeting a specific annualized volatility level or systematically adjusting notional exposure based on a drawdown control mechanism.

In Exhibit 9, we show the performance of the first generation of commodities indices such as the S&P GSCI against some of its second-generation counterparts that aim to provide alternative commodity beta.

[2] Sakkas, A., and Tessaromatis, N., 2018. Factor-Based Commodity Investing. EDHEC Business School.

Exhibit 9: Performance of Alternative Commodity Beta



INDEX	ANNUALIZED RETURN (%)			ANNUALIZED VOLATILITY (%)			SHARPE RATIO		
	1-YEAR	3-YEAR	5-YEAR	1-YEAR	3-YEAR	5-YEAR	1-YEAR	3-YEAR	5-YEAR
S&P GSCI	17.6	2.4	-4.3	16.6	15.3	18.3	1.06	0.15	-0.24
S&P GSCI Light Energy	8.6	0.4	-4.4	10.4	9.0	11.5	0.82	0.04	-0.38
S&P GSCI Risk Weight	7.9	2.9	-1.3	7.3	6.6	8.4	1.09	0.44	-0.16
S&P GSCI Dynamic Roll	11.5	3.4	-2.4	14.0	13.4	13.4	0.82	0.27	-0.18

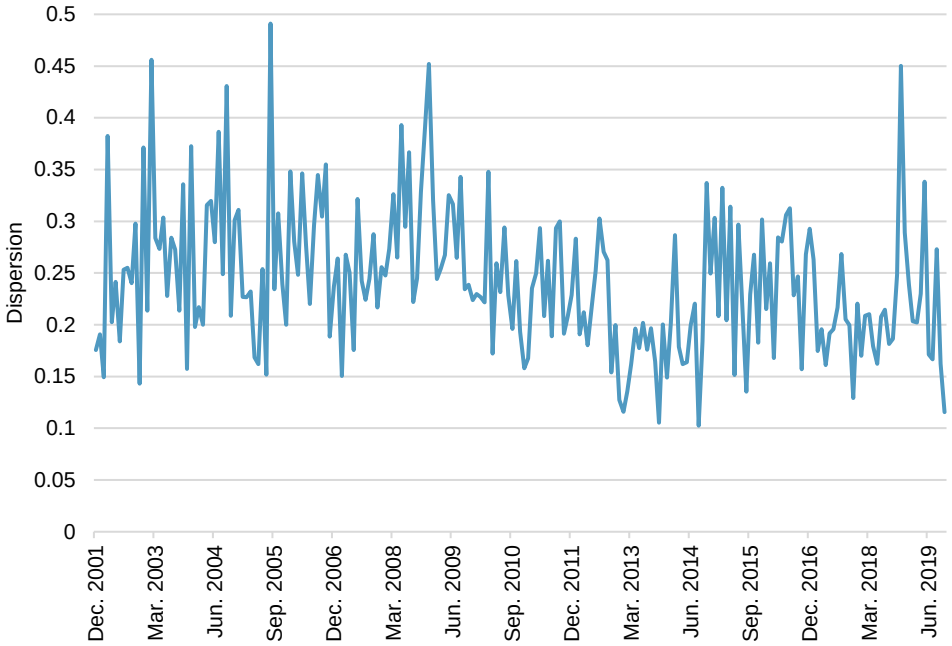
Source: S&P Dow Jones Indices LLC. Data from January 1995 to December 2019. Index performance based on total return in USD. Past performance is no guarantee of future results. Chart and table are provided for illustrative purposes and reflect hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

Single commodities, whether crude oil, gold, or soybeans, can be useful to investors looking to express investment themes that are dependent on unique geopolitical, demographic, structural, climate, and even health and disease factors.

Commodities as Building Blocks to Express Specific Investment Themes: Increasingly, there are opportunities for investors to utilize commodities in their portfolios as building blocks to express specific views of a particular market, event, or risk factor. Single commodities, whether crude oil, gold, or soybeans, can be useful to investors looking to express investment themes that are dependent on unique geopolitical, demographic, structural, climate, and even health and disease factors.

A simple look at the dispersion in commodity markets illustrates the opportunities for single commodity investments based on a specific investment theme, or more broadly based on the idea of active management (see Exhibit 10). Dispersion provides a direct measure of diversity by measuring how differently individual assets perform compared with the average, and it is regularly considered to be a measure of market opportunity. A high level of dispersion suggests that there is alpha to be captured by investors who have the knowledge and skill to identify single-asset investment opportunities.

Exhibit 10: Single-Commodity Dispersion



Source: S&P Dow Jones Indices LLC. Data from December 1999 to October 2019. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Dispersion is measured by the cross-sectional standard deviation of asset performances during the relevant time period and in this example is monthly, annualized and unweighted.

A high level of dispersion suggests that there is alpha to be captured by investors who have the knowledge and skill to identify single-asset investment opportunities.

Commodity prices have a tendency to rise quickly and in such magnitude that investors do not have sufficient time to "chase the rally."

Another important characteristic of commodity returns is that they exhibit positive asymmetry which can prove a highly prized feature of investment instruments. Commodity prices have a tendency to rise quickly and in such magnitude that investors do not have sufficient time to "chase the rally." A look at the top 20 one-year returns of individual commodities since 2000 reveals that price gains tend to be larger than big price falls (see Exhibit 11).

Over relatively short time horizons, it is often agricultural commodities that enjoy the most significant price spikes.

The asymmetry also suggests that having short positions in natural gas over the past 20 years could be a rewarding strategy. The fact that there are no agricultural commodities in the top 20 is likely a function of the seasonality inherent in these assets. In fact, over relatively short time horizons, it is often agricultural commodities that enjoy the most significant price spikes. In theory, following a natural disaster or major weather event, the last bushel of wheat available to an end user such as a baker or cattle rancher theoretically may have almost infinite value.

Exhibit 11: Positive Asymmetry of Commodity Returns

RANK	BIG GAINS			BIG DECLINES		
	COMMODITY	12-MONTH ENDING	12-MONTH RETURN (%)	COMMODITY	12-MONTH ENDING	12-MONTH RETURN (%)
1	Natural Gas	Dec. 29, 2000	301	Natural Gas	Dec. 31, 2001	-82
2	Nickel	March 30, 2007	245	Natural Gas	June 30, 2009	-78
3	Nickel	Feb. 28, 2007	222	Natural Gas	Sept. 29, 2006	-78
4	Lead	July 31, 2007	197	Natural Gas	Jan. 31, 2002	-76
5	Copper	May 31, 2006	193	Natural Gas	April 30, 2009	-75
6	Nickel	April 30, 2007	192	Natural Gas	Dec. 29, 2006	-75
7	Nickel	Nov. 30, 2006	185	Natural Gas	Aug. 31, 2009	-74
8	Nickel	Oct. 31, 2006	182	Natural Gas	May 29, 2009	-74
9	Zinc	May 31, 2006	180	Natural Gas	Feb. 28, 2002	-72
10	Nickel	Jan. 31, 2007	175	Natural Gas	Oct. 31, 2006	-72
11	Natural Gas	Feb. 28, 2003	174	Crude Oil	April 30, 2009	-72
12	Zinc	Oct. 31, 2006	174	Natural Gas	July 31, 2009	-71
13	Lead	June 29, 2007	174	Natural Gas	Nov. 30, 2001	-70
14	Lead	Aug. 31, 2007	171	Crude Oil	June 30, 2009	-70
15	Nickel	Dec. 29, 2006	170	Crude Oil	Feb. 27, 2009	-69
16	Zinc	July 31, 2006	167	Lead	Feb. 27, 2009	-69
17	Silver	April 29, 2011	158	Nickel	Feb. 27, 2009	-69
18	Zinc	June 30, 2006	158	Natural Gas	March 31, 2009	-69
19	Zinc	Nov. 30, 2006	157	Natural Gas	Nov. 30, 2006	-68
20	Lead	Sept. 28, 2007	155	Nickel	March 31, 2009	-68

Source: S&P Dow Jones Indices LLC. Data from December 1999 to October 2019. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

The concept of tactical investing is related to the idea of using individual commodities as building blocks.

Commodities as a Tactical Trading Tool: Market participants may also utilize commodities for shorter-term, tactical purposes. The concept of tactical investing is related to the idea of using individual commodities as building blocks, as previously discussed. A tactical asset allocation could be based on commodity fundamentals, macroeconomic data, and price trends, and executed in a fundamental or systematic manner. The concept of tactical tilts is well utilized by many multi-asset investors when it comes to making temporary adjustments to a long-term equity bond mix in response to broad macroeconomic conditions or sector tilts within an equity allocation based on valuation metrics. Investors are often more cautious when it comes to adjusting what has traditionally been a smaller alternative asset allocation such as commodities. Some of this hesitation is justified on the basis of expertise, cost, and logistical trading constraints.

Commodities are not income-generating assets, like equities and bonds can be. Price movements depend on underlying changes in supply and demand for the specific commodity or group of commodities. For that

reason, perhaps commodities should be viewed more as an opportunistic or trading asset.

There may be ESG lenses through which individual commodities can be used to tactically express such themes.

Lastly, there may be environmental, social, and governance (ESG) lenses through which individual commodities can be used to tactically express such themes. An investor's involvement in commodity markets may not be completely at odds with the growing focus of ESG integration in the investment process. In fact, large institutional investors may wish to use their influence on asset prices to alter the commodity market structure by picking winners and losers among individual commodities. The fact that commodities can easily be traded both long and short makes this approach both possible and cost effective. This approach would involve taking the concept of investor engagement beyond retaining a seat at the table to influence company behavior and toward driving specific industry change and structural adjustment. This is a topic that S&P Dow Jones Indices plans to examine in subsequent research.

Factor-based investing refers to the identification of persistent risk premia that can be both systematically measured and beneficially captured in a rules-based manner.

Harnessing Commodity Risk Premia: Factor-based investing refers to the identification of persistent risk premia that can be both systematically measured and beneficially captured in a rules-based manner. It assumes that systematic risk factors explain the bulk of long-term asset returns.

The underlying idea of risk premia is that investors can achieve repeatable returns by, in effect, selling insurance to other investors and, in the case of commodities, to hedgers. The prevalence of non-profit-seeking participants in commodity markets may make commodity risk premia factors particularly attractive.

For risk premia strategies to be robust and long-lasting, investors should consider that an individual strategy has an economic rationale and is not based on inordinate levels of data mining and backtesting. In commodity markets, concepts such as carry have a strong economic rationale.

Commodities is a unique market in which participants with dissimilar objectives interact on a futures curve, thereby creating persistent and harvestable risk premia.

The commodities market is well suited to risk premia strategies. It is a unique market in which participants with dissimilar objectives interact on a futures curve, thereby creating persistent and harvestable risk premia. This process is also relatively new, and unlike other major asset classes, there is little evidence yet that commodity risk premia are being arbitraged out of the market. A flourishing body of academic research and practitioner opinion now exists on applying risk premia strategies to commodities and on the identification of commodity-specific risk factors.[3]

[3] Miffre, J., 2016. Long-Short Commodity Investing: A Review of the Literature, Journal of Commodity Markets 1.

CONCLUSION

Market participants should be encouraged to re-examine their commodity allocations.

Commodities is a unique asset class. The benefits of commodities in a diversified portfolio have rightly been questioned by investors over the past decade. There may still be some validity to the diversification and inflation protection arguments touted by long-only commodity advocates. However, there is room to consider new strategies to benefit more from the unique characteristics of commodities. These are not without risk and may require a level of expertise that is beyond all but the largest and most sophisticated market participants. Notwithstanding, market participants should be encouraged to re-examine their commodity allocations. It may prove advantageous to rethink how individual commodity instruments can be incorporated into a diversified portfolio on a more tactical basis and to consider the inclusion of commodities in the already popular arena of factor-based investing.

PERFORMANCE DISCLOSURE

The S&P GSCI was launched April 11, 1991. The S&P GSCI Light Energy was launched May 1, 1991. The S&P GSCI Risk Weight was launched April 11, 2013. The S&P GSCI Dynamic Roll was launched Jan. 26, 2011. The S&P Real Assets Equity Index was launched March 18, 2016. The S&P U.S. Aggregate Bond Index was launched July 15, 2014. All information presented prior to an index's Launch Date is hypothetical (back-tested), not actual performance. The back-test calculations are based on the same methodology that was in effect on the index Launch Date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. Complete index methodology details are available at www.spdji.com. Past performance of the Index is not an indication of future results. Prospective application of the methodology used to construct the Index may not result in performance commensurate with the back-test returns shown.

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The back-test period does not necessarily correspond to the entire available history of the Index. Please refer to the methodology paper for the Index, available at www.spdji.com for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

Another limitation of using back-tested information is that the back-tested calculation is generally prepared with the benefit of hindsight. Back-tested information reflects the application of the index methodology and selection of index constituents in hindsight. No hypothetical record can completely account for the impact of financial risk in actual trading. For example, there are numerous factors related to the equities, fixed income, or commodities markets in general which cannot be, and have not been accounted for in the preparation of the index information set forth, all of which can affect actual performance.

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