FIRST QUADRANT

MARKET INSIGHT

Do Your Commodities Holdings Have a Natural Gas Leak?

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BEN COLLINS PhD
Director, Investments

Commodities are a very diverse asset class, and that diversification brings many expected benefits. Different sources of supply and demand across sectors allow exposure to unique avenues for inflation and global growth, and for active management, unique sources of alpha relative to stocks and bonds. However, the methodology used to construct even the simplest portfolio of commodities may fail to capture that intrinsic diversity.

It is well-known that the Goldman Sachs Commodity Index (GSCI), by attempting a calculation analogous to the equity world's market capitalization, ends up with most of its risk allocated to the energy sector. The Bloomberg Commodity Index Total Return (BCOM) addresses this concern by limiting the maximum sector allocations. Even so, the majority of the risk still comes through energy commodities. This concentration limits their investors' exposure to those unique other channels for inflation and growth that come through the agricultural and metals sectors.

Focusing on BCOM, there is a different component of the index methodology that can add to the concentration issues and is discussed less often. In the BCOM index, asset weights float during the year according to the ratio of the current contract price to a reference value set in January (and relative to the price ratios of the rest of the assets, as the resulting portfolio weights are scaled to equal 100% each day). During the year, the asset weights are never rebalanced towards the original value. This approach subjects the exposures of the index to the price trajectories of the individual commodities. For typical market conditions, these fluctuations might seem acceptable. However, the recent rally in natural gas prices is producing a case where the effects are quite dramatic.

Supply shortages in Europe and Asia have caused those natural gas markets to see extreme price increases, with some European benchmarks in October almost 400% higher than in January. Partly to reflect export demand, and partly due to a milder supply crunch of its own, US prices of natural gas have also increased significantly. The reference price of natural gas used in the BCOM index for 2021 is under $3, while as of the start of October, prices had

Commodities trading involves substantial risk of loss.
Past performance is no guarantee of future results. Potential for profit is accompanied by possibility of loss.

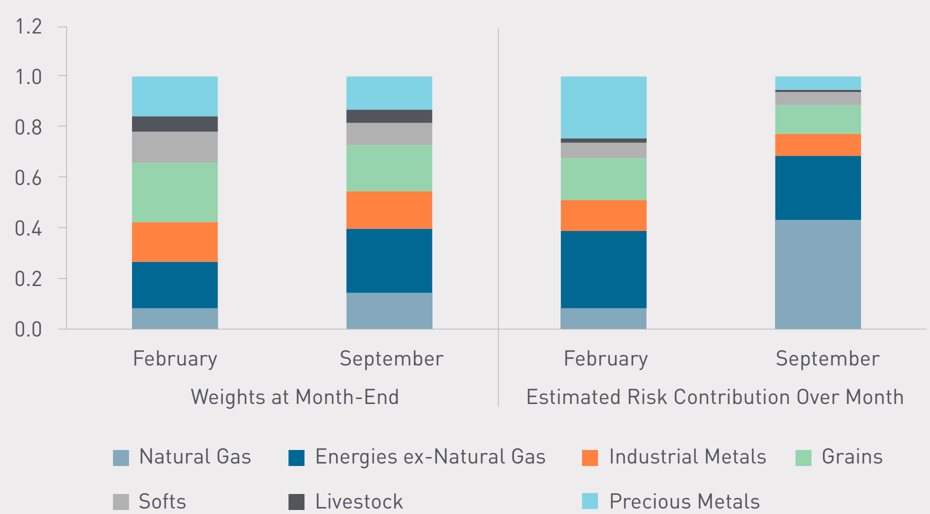
almost doubled from there, fluctuating around $6. Accordingly, the holdings of natural gas in BCOM have increased from their baseline value of 8% to around 13-14% of the total portfolio.

Of course, as the natural gas market returns were increasing the position size, they also delivered significant positive returns to the index in September. Should the trend continue, the index could generate even larger returns from this position as it takes an even higher percentage of the index allocation. However, if prices turn around, the index could experience just as sizable returns and elevated risk on the way down. Even if prices stay elevated, the position size will likely remain high for the rest of 2021 and continue to crowd out any developments in the rest of the asset class that could offer diversifying performance. Already for September, we estimate that for a portfolio that rebalances asset weights only annually, natural gas alone would have contributed over 40% of the total portfolio's volatility in that month. Figure 01 below depicts the BCOM weights and the estimated risk contributions for a hypothetical annually rebalanced index portfolio[1].

Because of their generally unbalanced risk allocations, popular benchmarks like GSCI and BCOM can offer a distorted view of the wider commodities landscape, limiting the diversifying properties that make commodities such a potentially useful portfolio component. The feature we have discussed above, the high concentration that the indices are currently experiencing due to the volatility in natural gas markets, can, at times, make those problems even worse. We developed our Balanced Risk Commodities (BRC) solution intentionally to address those issues, as well as others. With better techniques to manage risks and costs, we believe BRC provides the inflation-hedging characteristics offered by exposure to the asset class, but also acts as a better-behaved portfolio building block.

FIGURE 01 - ESTIMATED WEIGHTS AND RISK FOR AN ANNUALLY REBALANCED COMMODITY INDEX PORTFOLIO*

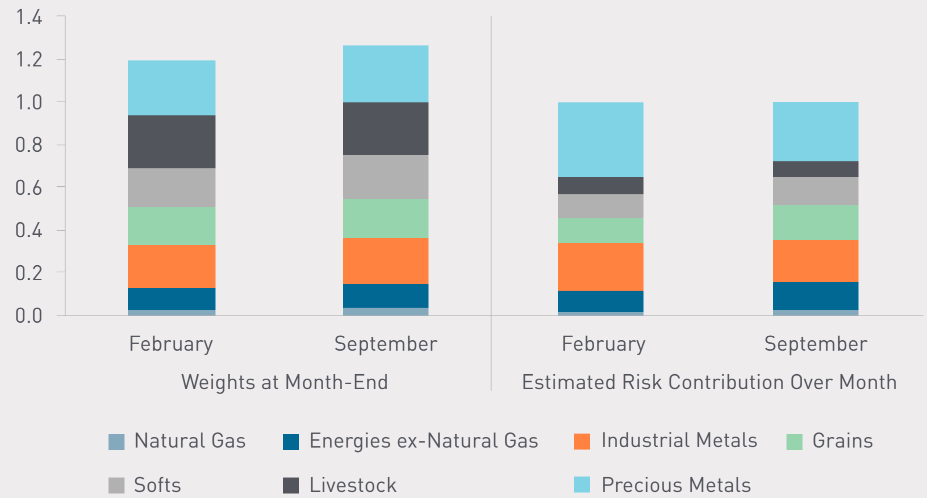
(JANUARY 2021 - SEPTEMBER 2021)



*The Annually Rebalanced Commodity Index was calculated by First Quadrant, LLC, by estimating returns from a portfolio invested in January according to the 2021 BCOM targets and that is not subsequently rebalanced to those targets.

Sources: First Quadrant, LLC, Bloomberg, and Commodity Research Bureau (CRB)

FIGURE 02 - WEIGHTS AND RISK FOR FIRST QUADRANT'S BALANCED RISK COMMODITIES (JANUARY 2021 - SEPTEMBER 2021)



Sources: First Quadrant, LLC, Bloomberg, and Commodity Research Bureau (CRB)

Recognizing that in many cases the ultimate intention of long-only commodity investors is to manage exposure to inflation, BRC targets equal risk across the three main types of inflation identifiable in commodities - industrial, agricultural, and financial. As prices move around, we regularly rebalance holdings back to those target weights, keeping our exposure to the different inflationary channels diverse regardless of the price levels of the underlying commodities. Figure 02 shows the weights and risk contributions for BRC. Despite the recent aggressive moves in natural gas markets, natural gas's weight and risk contribution have stayed fairly consistent in the BRC portfolio.

In addition, we believe that the overall market environment does not behave consistently throughout time. In order to target the same realized risk across the components of the portfolio, we must adjust for that evolution. We use First Quadrant's proprietary Market Risk Indicator (MRI)[2], which characterizes risk regimes based on many macroeconomic and sentiment driven signals, from central bank behavior to demand for hedging. Finally, the commodities futures markets themselves exhibit a distinctive type of risk and return through their term structures. We model which futures contracts are most likely to outperform the others, hoping to reduce the impact of contango structures that can drag overall returns.

Altogether, our process aims to deliver a productive exposure to the asset class, while minimizing the variation in volatility and returns that can seem endemic to commodity indices, especially during extreme episodes such as the recent natural gas situation.

Endnotes

[1]The final weight for an asset is also relative to the price ratios of the rest of the assets, as the resulting portfolio weights are scaled to equal 100% each day.

[2]The FQ Market Risk Indicator ("MRI") is designed to indicate the current phase of the market cycle and the level of macro uncertainty, from resilience (MRI=0.00) to high fragility (MRI=1.00) in increments of 0.25 for a total of five levels.

Composite Information

Balanced Risk Commodities Strategy	Total Return Gross	Total Return Net	Composite 3-YR Standard Deviation Gross (Annualized)	Benchmark 3-YR Standard Deviation (Annualized)	Number of Portfolios[4]	Composite Dispersion (%)	Total Composite Assets[3,4] (Millions USD)	Total Balanced Risk Commodity Strategy Assets[1,4,6] (Millions USD)	Total Firm Advisory AUM (Including Notional Values)[1,4,5] (Millions USD)	Total Firm AUM (Including Notional Values)[4,5] (Millions USD)
2011 (Apr - Dec)	-11.4%	-11.7%	–	–	<5	–	250	340	1,140	16,725
2012	-4.3%	-4.7%	–	–	<5	–	321	527	831	17,104
2013	-13.4%	-13.7%	–	–	<5	–	142	521	520	17,284
2014	-7.4%	-7.8%	12.5%	–	<5	–	150	865	502	23,092
2015	-24.6%	-24.9%	13.0%	–	<5	–	97	566	589	20,309
2016	+7.2%	+6.7%	13.1%	–	<5	–	41	2,224	617	22,183
2017	+13.8%	+13.2%	11.1%	–	<5	–	46	2,087	474	26,276
2018	-10.4%	-10.8%	8.5%	–	<5	–	1370	1,927	473	20,077
2019	+10.2%	+10.1%	10.2%	–	<5	–	2494	3,091	419	16,167
2020	-13.2%	-13.4%	16.7%	–	<5	–	2916	3,058	438	13,873
2021 (Jan - Sep)[2]	+20.4%	+20.2%	16.9%	–	<5	–	2555	2,555	368	13,750

See additional disclosures for important information concerning this composite and the effect of fees. [1]Supplemental Information. [2]All Performance and AUM data is preliminary. [3]Includes market values for fully funded portfolios and the notional values for margin funded portfolios, all actively managed by First Quadrant. [4]At End of Period Reported. [5]Includes market values for fully funded portfolios and the notional values for margin funded portfolios, including active mandates and active/passive mandates, all managed by First Quadrant and non-discretionary portfolios managed by strategic partners using First Quadrant, L.P. investment signals. First Quadrant is defined in this context as the combination of all discretionary portfolios of First Quadrant, L.P. and its strategic partners, but only wherein FQ has full investment discretion over the portfolios. [6]Includes other Balanced Risk Commodity composite assets and assets comprising the Balanced Risk Commodity component in other strategies, including those based in foreign currencies.

Balanced Risk Commodities Strategy Past performance is no guarantee of future results. Potential for profit is accompanied by possibility of loss. **GENERAL DISCLOSURES** First Quadrant, L.P. claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. First Quadrant, L.P. has been independently verified for the period 1995-2020. The verification reports are available upon request. A firm that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the firm's policies and procedures related to composite and pooled fund maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on a firm-wide basis. Verification does not provide assurance on the accuracy of any specific performance report. First Quadrant ("FQ" or the "Firm") is defined as the combination of all discretionary portfolios of First Quadrant, L.P. and its strategic partners but only wherein FQ has full investment discretion over the portfolios. First Quadrant L.P. is a registered investment adviser and is an affiliate of Affiliated Managers Group, Inc. A complete list and description of the Firm's composites and limited distribution pooled funds is available upon request. GIPS® is a registered trademark of CFA Institute. CFA Institute does not endorse or promote this organization, nor does it warrant the accuracy or quality of the content contained herein. **COMPOSITE DETAILS** [Creation Date: May 2011 and Inception Date: April 2011] As of September 2018, to better reflect the performance of all portfolios across the firm that employ the strategy, the Balanced Risk Commodities Strategy composite was redefined to include portfolios across all base currencies, provided each portfolio's collateral balances are denominated in U.S. dollars. The investment objective of the Balanced Risk Commodities Strategy is to generate total returns in excess of inflation over a market cycle. The strategy intends to invest in a broad range of commodities that balance risk along three dimensions: across sectors, within sectors and across time. This is a total return strategy, which is not managed against any benchmark or universe. Presenting the composite returns with no benchmark demonstrates clearer accountability by removing the distortions caused by blending strategy specific total and benchmark returns. Portfolio Criteria: There is no minimum balance requirement for a portfolio to be included in the composite. The strategy utilizes leverage at FQ's discretion. The returns presented reflect this leverage. **Calculation Methodology:** Valuations and returns are computed and stated in U.S. dollars. Monthly investment results for each portfolio are calculated using a time-weighted rate of return formula. Annual composite returns are calculated by geometrically linking the monthly returns. Composite overlay exposure represents the total value of all underlying portfolios being overlaid in this composite. Composite returns include cash flows and cash returns, including returns on collateral, if applicable. The dispersion of a composite is calculated using the asset-weighted standard deviation formula. Only portfolios managed for the full calendar year are included in the dispersion calculation. As this composite contains five or fewer portfolios for a full year, a measure of dispersion is not statistically representative and is therefore not shown. The three-year annualized standard deviation measures the variability of the composite and the benchmark returns (if applicable) over the preceding 36-month period. The standard deviation is not presented for periods in which 36 months of historical composite returns are not available. All risk measures are calculated using gross of fees performance. Policies for valuing investments, calculating performance, and preparing GIPS Reports are available upon request. **Derivatives:** The strategy utilizes derivative instruments to achieve desired returns. Derivatives are financial instruments whose value is derived from another security, an index or a currency. Futures contracts are derivatives that specify a purchase or sale of an asset at a specified price on a specified date in the future. There is a risk that a derivative may not perform as expected, thereby causing a loss or amplifying a gain or loss for the portfolio. With some derivatives, there is also the risk that the counterparty may fail to honor its contract terms, causing a loss for a portfolio. **Investment Management Fees:** Performance results presented net of investment management fees are based upon the actual management fee charged each portfolio in the composite, and are net of any performance-based fees. These net of fee results also reflect the effect of any negotiated fee arrangements, which are different from FQ's fee schedule. All performance results presented include trading commissions. The FQ investment management asset-based fee schedule (assets managed in millions) for this strategy, which is negotiable, is as follows: $1–$100, 0.50%; $100-$350, 0.30%; and more than $350, 0.15%. Asset-based fees are charged incrementally. For example, a $400 million portfolio will be charged 0.5% for the first $100 million, 0.30% between $100 and $350, and 0.15% for the remaining $50 million.

For index definitions and trademark language used in this publication, please visit **https://www.firstquadrant.com/index-definitions** for further information.

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FIRST QUADRANT, LLC | 800 E. COLORADO BLVD. SUITE 900, PASADENA, CALIFORNIA 91101
MARKETING SERVICES INFO@FIRSTQUADRANT.COM | OFFICE 626 683 4223 | WEB FIRSTQUADRANT.COM
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