

Commodities in an Asset Allocation Context

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There has been an increased interest in commodity investments in the last 18 months. It may be due to an increased fear of inflation, reduced expectations for “traditional” asset classes, or the recent publication of academic work that concludes commodities can and should be used in a broad asset allocation framework.

Commodity Futures Returns

In June of 2004, the Yale International Center for Finance released “Facts and Fantasies about Commodity Futures” (“Yale Paper”).² This working paper, authored by Gary Gorton of University of Pennsylvania and K. Geert Rouwenhorst of the Yale School of Management, concluded that an equally weighted index of fully collateralized commodity futures offer “the same return and Sharpe ratio as equities.” The study (covering the time period between July 1959 and March 2004) further found that “while the risk premium on commodity futures is essentially the same as equities, commodity futures are negatively correlated with equity returns and bond returns.” In addition, these returns are “positively correlated with inflation, unexpected inflation, and changes in expected inflation.”

In a 2000 Office for Futures and Options Research (OFOR)³ working paper titled “Indexed Commodity Futures and the Risk and Return of Institutional Portfolios,” Kent G. Becker and Joseph E. Finnerty found that “the inclusion of portfolios of long commodity futures contracts improves the risk and return performance of stock and bond portfolios for the period from 1970 through 1990.” The Yale Paper found that although the return from a stock portfolio equaled that of the portfolio of collateralized commodity futures (11.02%), the stocks demonstrated a higher standard deviation (14.9% vs.

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² Available on a number of websites, including www.usafutures.com/facts.pdf.

³ The OFOR website is at www.ace.uiuc.edu/ofor/paper.htm.

12.12%).⁴

So what exactly is the best way to implement the decision to invest in commodities? Should you buy the physical commodities themselves or companies that produce and own commodities? How about giving money to a Commodity Trading Advisor, or investing in a passive commodity index?

After observing the findings delineated above, some investors approach commodities by employing active Commodity Trading Advisors (CTAs). I find this puzzling in that most CTAs actually trade in financial futures, not commodities, and those who do invest in commodity futures are just as likely to be short commodities as long on any given day.

Sources of Commodity Futures Returns. The Yale Paper demonstrated that commodity futures returned considerably more than the cumulative return from equities of commodity companies.⁵ This comparison was made by matching 17 commodities that “can be associated with a four digit SIC code” with companies having the same SIC code and having publicly traded stock. The Yale Paper also found that a portfolio of commodity futures consistently outperforms an equally weighted portfolio of spot commodity prices over the same time frame.⁶

Commodity futures returns come from three sources:

1. Price appreciation of the underlying commodity components.
2. Income earned on the collateral put aside to deleverage the commodity futures.
3. Roll return.

“Roll return” is best described as the profit generated through the purchase of deferred contract months, which may at times trade at a discounted price to spot commodities. This discounted pricing pattern is known as backwardation. Not all commodities display this behavior; historically crude oil offered the most opportunities while gold offered few.⁷ Even crude oil does not always display backwardation.⁸

4 Graphically presented in Figure 5, p. 11.

5 See, in particular, Figure 18a, p. 30.

6 See Figure 2a, p. 8.

7 See Claude B. Erb and Campbell R. Harvey’s “The Tactical and Strategic Value of Commodity Futures, Figure 4 (Working paper, Duke University, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=650923). (http://faculty.fuqua.duke.edu/~charvey/Research/Working_Papers/W77_The_tactical_and.pdf).

8 See Delphine Lautier, “Term Structure Models of Commodity Prices: A Review,” Figure 1, p 9 (posted at www.dauphine.fr/cereg/Cahiers/Cereg200309.pdf) (also reprinted in J. Alternative Investments, Summer 2005).

Commodity Indexes

Given the returns available and the negative correlation to “traditional” assets, it is not surprising to find that there is estimated to be \$50 billion in commodity-linked indexes and products.⁹ The Commodity Research Bureau (CRB) has the oldest index, begun in 1957.¹⁰ The early 1990s saw the beginning of the Goldman Sachs Commodity Index (GSCI)¹¹ and then the Dow Jones AIG (DJAIG) index.¹² The Standard & Poors Commodity Index was not introduced until 2001.¹³

Figure 1, taken from a Cole Partners 2005 paper titled “Commodities: A Case for Active Management,”¹⁴ demonstrates that over long periods of time, correlations between the existing indexes are high even though the indexes have numerous differences in their construction.

Figure 1: Monthly Return Correlation, January 1991 – December 2004						
	CRBR	DBLCI		GSCI	RICI	SPCI
CRBR ⁱ	1.00					
DBLCI ⁱⁱ	0.59	1.00				
DJAIG ⁱⁱⁱ	0.82	0.85	1.00			
GSCI ^{iv}	0.65	0.92	0.89	1.00		
RICI ^v	0.72	0.96	0.90	0.92	1.00	
SPCI ^{vi}	0.81	0.75	0.91	0.88	0.82	1.00

i Commodities Research Bureau-Reuters Total Return Index

ii Deutsche Bank Liquid Commodity Index

iii Dow Jones-AIG Commodity Index

iv Goldman Sachs Commodity Index

v Rogers International Commodities Index

vi Standard and Poors Commodities Index

9 Wall Street Journal, March 16, 2005.

10 Indexes are available on the CRB website at www.crbtrader.com.

11 At www.gs.com/gsci.

12 The Dow Jones AIG Commodity Index is at indexes at <http://djindexes.com/mdsidx/index.cfm?event=showAigHome>.

13 S&P indexes are accessible from the S&P website at <http://www2.standardandpoors.com/servlet/Satellite?pagename=sp/Page/IndicesMainPg&r=1&l=EN&b=4>.

14 Figure 6, p. 15 (available on Cole Partners' website at www.colepartners.com).

Diversification constraints	None	None	33% sector max; 2% market min	None	None	None
Most recent change in markets/ weightings	1995	2004	2005	2005	2004	2005
Futures price considered for index calculation	Arithmetic average of contract months expiring within 6 months of current date; min. 2, max. 5 contracts	Nearest month for metals and ags; following December for energy	Nearest month with adequate liquidity	Nearby futures contract	Nearby futures contract, not in delivery or notice period	Average of the 2 nearest active contract months that are not in delivery
How index is calculated	Geometric average of each market's average price	Arithmetic average of each market's price	Arithmetic average of each market's price	Arithmetic average of each market's price	Arithmetic average of each market's price	Geometric average of each market's price
Key uniquenesses	Equal weighting; considers farthest out futures; geometric averaging	Energy rolled monthly; metals and ags rolled annually each December; only 6 markets	Production based average brings energy bias; can be 75% or more of portfolio	Emphasis on liquidity for weighting; diversification rules	Most diversified; most subjective; most "exotics"; highest exposure to a single market (35% in crude oil)	Excludes gold; adjustment for "double counting"

Two figures from the same Cole Partners report,¹⁵ reproduced herein as Figures 2 and 3, show detailed differences between the indexes. The indexes are weighted differently initially and then are rebalanced at different intervals, some daily and others only once a year. The GSCI is over 75% in energy because it is weighted based on worldwide production. The S&P index focuses on futures contract liquidity data. The DJAIG is one-third production weighted and two-thirds liquidity weighted but won't allow any one commodity to be more than 33% of the index or let any component be less than 2% of the index. The CRB index is equally weighted.

Figure 3: Comparative Index of Constituent Markets

	CRB	DBLCI	DJ-AIG	GSCI	RRM	S&P
Metals						
Aluminum		12.50%	7.06%	3.31%	4.00%	
Copper	5.88%		5.89%	2.42%	4.00%	3.50%
Gold	5.88%	10.00%	5.98%	2.12%	3.00%	
Lead				0.31%	2.00%	
Nickel			2.61%	0.93%	1.00%	
Palladium					0.30%	
Platinum	5.88%				1.80%	
Silver	5.88%		2.00%	0.23%	2.00%	3.78%
Tin					1.00%	
Zinc			2.69%	0.57%	2.00%	
Sector total	23.52%	22.50%	26.23%	9.89%	21.10%	7.28%
Energy						
Brent crude oil				11.75%		
Crude oil	5.88%	35.00%	12.81%	25.79%	35.00%	9.74%
Gas oil				3.83%		
Heating oil	5.88%	20.00%	3.85%	7.14%	3.00%	11.49%
Natural gas	5.88%		12.28%	10.29%	3.00%	17.65%
Unleaded gas			4.05%	7.90%	3.00%	10.32%

¹⁵ Respectively Figures 7 and 8 in the report, pp. 16 – 17. For market abbreviations, see footnotes incorporated in Figure 1.

Sector total	17.64%	55.00%	32.99%	66.70%	44.00%	49.20%
Ags						
Azuki beans					1.00%	
Barley					0.77%	
Canola					0.67%	
Corn	5.88%	11.25%	5.94%	4.11%	4.00%	4.96%
Feeder cattle				0.90%		
Lean hogs	5.88%		4.39%	2.39%	1.00%	1.78%
Live cattle	5.88%		6.15%	3.74%	2.00%	5.03%
Oats					0.50%	
Rice					2.00%	
Soybean meal					0.15%	3.81%
Soybean oil			2.67%		2.00%	3.90%
Soybeans	5.88%		7.60%	3.01%	3.00%	4.79%
Wheat	5.88%	11.25%	4.87%	5.28%	7.00%	5.05%
Sector total	29.40%	22.50%	31.62%	19.43%	24.09%	29.32%
Softs						
Orange juice	5.88%				0.66%	
Cocoa	5.88%			0.30%	1.00%	3.27%
Coffee	5.88%		3.02%	0.68%	2.00%	3.36%
Cotton	5.88%		3.23%	1.74%	3.00%	4.18%
Sugar	5.88%		2.93%	1.26%	1.00%	3.39%
Sector total	29.40%	0.00%	9.18%	3.98%	7.66%	14.20%
Exotics						
Lumber					1.00%	
Rubber					1.00%	
Silk					0.15%	
Wool					0.00%	
Sector total	0.00%	0.00%	0.00%	0.00%	3.15%	0.00%
Totals						

All but the S&P index have publicly traded commodity futures index contracts, and 86% of the open interest is in the GSCI. One study¹⁶ observed that those indexes that rebalance annually become trend followers as movements in commodity prices change the weightings while daily rebalancing stays closer to the original intent of the index. Another study found that geometrically averaged indexes that need to be rebalanced daily (such as the S&P and CRB) exhibit lower volatility than the other indexes.¹⁷ Geometrically weighted indexes also offer a fourth source of return from the daily rebalancing of the index. Cole Partners in the 2005 paper concluded that “investors in a geometric index may experience actual results that increase annualized returns by more than 100 basis points.”

The indexes must eventually “roll” from an underlying futures contract that is expiring into another contract coming due further in the future. Typically this activity is spread out over five days; there have been a few instances where this has affected the futures prices. A separate account manager hired to replicate the index would not be locked into rolling the futures contracts on the separate commodities on the same day the indexes are to roll.

Futures Funds

Not surprising that John Osborn of Russell Investment Group was quoted in *The Wall Street Journal* saying “we are suggesting a passive investment with one of the managers who track commodity futures.”¹⁸ There are managers who offer just such a service. There are also mutual funds dedicated to this space. The first was the Oppenheimer Real Asset Fund,¹⁹ launched in 1997, which invests in notes tied to the GSCI index. PIMCO in 2002 launched the Commodity Real Return Strategy,²⁰ which gets its exposure by investing in swaps tied to the DJAIG commodity index. There is a different tax risk between these two funds because a mutual fund must receive at least 90% of its income from securities and there are those who suggest that PIMCO’s swaps may not qualify as securities. If, indeed, the PIMCO fund were not a mutual fund, it would be a fully taxable corporation and not a vehicle you would choose to own.

16 Erb and Harvey *supra*.

17 Ranga Nathan, “A Review of Commodity Indexes,” *J. Indexes* (2d Quarter 2004) (<http://journalofindexes.com/index.php?year=2004&quarter=2>).

18 Spencer Jakab, “Penion Funds Dip into Commodities” *Wall Street Journal*, March 16, 2005.

19 Homepage of this Fund at https://www.oppenheimerfunds.com/commonJhtml/fund_info/profile_facts.jhtml?fundcode=735&catId=11.

20 Information on the PIMCO website at <http://singapore.pimco.com/LeftNav/ProductsServices/Commodity+Real+Return.htm>.

Tax Issues

Taxes can be quite friendly to investments in commodity indexes. Both individual commodity futures and index futures are Section 1256 contracts. Section 1256 contracts are automatically taxed as if 60% of the profits are long-term gains and the other 40% of the gains are short-term; this creates a blended tax rate of only 23%. The only downside is that these contracts are marked-to-market at the end of each year so profits cannot be deferred.

Alternatively, one can invest in a derivative tied to a commodity index. A forward or bullet swap based on an index will not ordinarily be taxed until the contract is terminated. These OTC derivatives are usually not available unless one wants an exposure to the index in the millions of dollars. However, an interesting publicly traded vehicle does exist that is available in smaller size. These vehicles are "issued" by Merrill Lynch and trade under the acronym TRAKRS.²¹ TRAKRS are issued on a variety of referenced products; all TRAKRS receive an unusual tax treatment. When TRAKRS are fully paid for, profits are taxed at long-term gains rates if one holds the investment for more than six months, as opposed to the normal necessity to hold for over twelve months. The TRAKRS are tied to the DJAIG index.

Conclusion

The author recommends that investors add commodities to their asset mix. Historically, fully collateralized commodity futures indexes have reduced volatility to portfolios without reducing return. I further would lean toward an index that is rebalanced daily so as not to become over- or under-weighted. A manager who has the flexibility to roll at an opportune time seems more valuable than the mechanical timing dictated by the indexes themselves. For smaller investors, TRAKRS seem a better choice than the two mutual funds now offered.

Options involve risk and are not suitable for all investors. Before engaging in an options transaction, investors must review a copy of the options disclosure booklet, "Characteristics and Risks of Standardized Options," available from the home page of this web site.

21 For information on TRAKRS, see the Merrill Lynch website at http://askmerrill.ml.com/publish/marketing_centers/products/inv036_TRAKRS.