Why Active Commodity Management Makes Sense

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The natural resources sector has enjoyed a large amount of attention over the past few years as academics and investors have awakened to the return and diversification benefits it can provide to a portfolio. Yet there are a number of questions to be addressed when considering an allocation to this space. This article is intended to summarize some of the research our firm has conducted over the past two years (For a complete review, please see Akey [2005 and 2006]). An attempt is made to address some of these major questions and make the case for why active commodity management should be considered among other choices such as long-only indices.

Why Commodities? Why Now?

Return & Risk Comparisons

Commodities as an asset class have historically exhibited similar risk-adjusted returns when compared to traditional investments, while also demonstrating low correlation. Overall correlations for commodities for the period July 1959 to March 2004 were found to be -.06 for stocks and -.28 for bonds, according to Gorton and Rouwenhorst [2004].

Return and Risk Analysis: July 1959-March 2004

	Commodities	Stocks	Bonds
Average (mean)	11.0%	11.0%	7.7%
Std Deviation	12.1%	14.9%	8.5%

Source: Gorton, Gary et al, "Facts and Fantasies about Commodity Futures," Yale ICF Working Paper No. 04-20, June 14, 2004.

Commodity indices, such as the Goldman Sachs Commodity Index (GSCI) and the Dow Jones AIG Index (DJ-AIG), have emerged over the past 15+ years to offer a liquid means to invest in this space via long-only futures contracts. Since 1991, commodity indices have demonstrated slightly less favorable statistics than the 45-year time-frame considered by Gorton and Rouwenhorst [2004].

Return and Risk Analysis: Jan 1991-Dec 2005*

	GSCI	DJ-AIG	S&P 500	LEH Bond
Ann Rtn	6.9%	7.8%	11.5%	9.1%
Std Dev	18.6%	12.1%	14.0%	8.4%
Max DD	-48.3%	-36.2%	-44.7%	-11.7%
Sharpe Ratio	0.16	0.33	0.55	0.63

**Index data here and throughout this article is courtesy of a variety of sources including The Barclay Group, Goldman Sachs, Dow Jones, Standard & Poor's, and Lehman Brothers.*

Diversification Benefits

One of the main reasons to consider an allocation to any sector or strategy is the benefit derived from adding a diversified return source to the existing portfolio. Commodities have historically demonstrated a very low correlation to both equity and fixed income markets.

Correlation Analysis: Jan 1991-Dec 2005

	GSCI	DJ-AIG	S&P 500	LEH Bond
GSCI	1.00			
DJ-AIG	0.89	1.00		
S&P 500	-0.01	0.08	1.00	
Leh Bond	0.08	0.01	0.00	1.00

The Current Fundamental Case

Beyond the quantitative case, interest in commodities has gained momentum in recent years due to several fundamental factors including:

- *Global Demand*: anticipated growth of consumption of raw materials, primarily from countries like China, India, Russia & Brazil
- *Stagnant Infrastructure:* over two decades of weak commodity prices has resulted in low development of production capabilities, which now need to be ramped up. Many of these cases are handled in detail in Rogers [2004].
- *Supply Issues:* Manufacturers, faced with near-term shortages, may hold back more inventory, which may further limit available supplies.

Why Active versus Passive Management?

Risk & Return Comparisons

Alternative investment strategies have often demonstrated an ability to offer better risk-adjusted returns utilizing traditional equity and fixed income markets, so why not commodities? In fact, most hedge fund managers and traders typically want higher volatility in their markets to help them generate higher returns and commodities continue to offer a volatility profile that rivals most sectors.

Period Analysis: Total Period & Recent Bull Market

		GSCI	DJ-AIG	Active*
1991-2005	Ann Rtn	6.9%	7.8%	18.6%
	Std Dev	18.6%	12.1%	8.2%
	Max DD	-48.3%	-36.2%	-16.6%
	Sharpe Ratio	0.16	0.33	1.81
	Correl to S&P	-0.01	0.08	0.27
2002-2005	Ann Rtn	23.8%	19.9%	21.0%
	Std Dev	22.3%	13.4%	6.7%
	Max DD	-19.7%	-8.1%	-3.5%
	Sharpe Ratio	0.99	1.35	2.86
	Correl to S&P	-0.17	0.02	0.38

In both the longer 15 year period and the more recent bull market period, beginning in 2002, active commodity management has demonstrated impressive returns with much better risk characteristics versus the passive indices. In theory, you might expect better risk management since active managers can take both long and short positions to capture returns while limiting draw downs. However, you may not have expected such outsized results, especially during the bull market.

Commodity Index Construction

After reviewing the above data, the question that begs to be answered is, "Why should active management produce such significantly better risk-adjusted returns than passive indices?" To answer this, we must first understand the construction of passive indices as a benchmark. Long-only implies pure "beta"; the investor wins if the index goes up and loses if it goes down.

Similar to an equity index, with a passive commodity index there is only *one* way to generate a positive return and there is no risk management overlay.

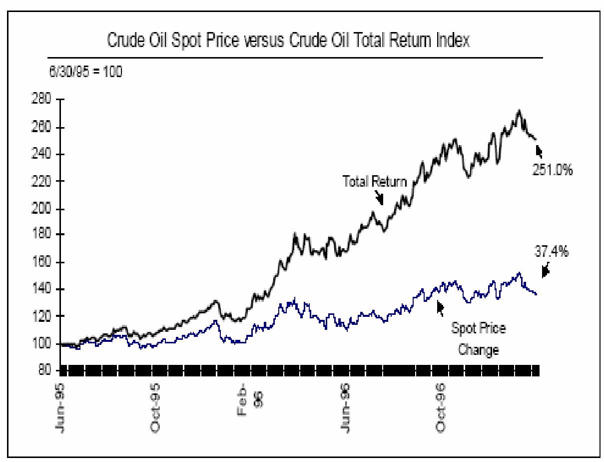
Additionally, one of the unique characteristics of commodity indices involves the effects of *rolling* futures contracts. This results in locking in positive or negative risk premia, depending on whether that commodity is in a state of *backwardation* or *contango*.

The Roll Yield Advantage or Disadvantage

Backwardation refers to the situation where the front month futures contract is trading at a premium to the back month. Since a *roll* needs to occur in order to maintain a long position (and avoid taking delivery of the commodity), index providers will sell the front, or expiring month, and buy a back month. Thus, rolling contracts that are backwardated effectively locks in a positive return. The opposite occurs in the case of contango.

This is important to understand because it creates a locked-in advantage or disadvantage, depending on the total exposure to each situation. Since several indices have tended to more heavily weight the energy sector, where markets have spent more time in backwardation, this has dramatically worked to their advantage with regard to total return. The chart below highlights the advantage gained in less than two years due to positive roll yield in crude oil.

Crude Oil Spot Price vs. Total Return: July 1995-Feb 1997



Source: Goldman Sachs, Commodity Watch, February 6, 1997

**[Akey] 2006 creates an equally weighted portfolio made up of up to 178 actively managed hedge funds and managed futures specialists exclusively trading in the natural resources sector. We use this equally weighted portfolio as a proxy for active commodities management. Although this serves as an indication of how the active universe might have done, it in no way should be viewed as an accurate means to judge an investment in this sector as a whole.*

However, in late 2004 several energy futures markets (normally in backwardation) inverted into contango, which resulted in roll losses. In fact, in 2005 the GSCI Excess Return Index (includes spot and roll yield, not collateral) returned +21.6% while the GSCI Spot Index (spot only) returned +39.1%, for a negative roll yield of -17.5%. Negative roll yields have occurred in years past, so this in nothing new. But what gives us pause is if this phenomenon persists in the energy markets, which currently make up a significant part of index weighting. What will be the reaction if contango persists and energy prices start to flatten or drop?

As long as energies continue to post outsized returns, most investors may not care. Should contango continue or the backwardation premium decrease significantly with regard to energies (or other significant exposures that rely on backwardation premiums), commodity indices will lose an important portion of their return source.

Access to Additional Markets

Passive investing relies on accessing commodity futures that are traded on regulated exchanges. Given demand and liquidity needs, these exchanges do not offer contracts on all available commodities. Therefore, passive indices are limited in scope.

Active management can gain access to a variety of commodities through the equity markets and other non-futures related exchanges. Simply put, if you are only allocated to a futures-based product, you are missing out on a number of commodities.

Commodity Exposures: Active vs. Passive

Active	Passive
Energies	Energies
Agriculture & Softs	Agriculture & Softs
Metals	Metals
Water	
Power	
Electricity	
Paper & Forestry	
Shipping/Transport	
Chemicals & Bldg Materials	
Peripheral Base Metals	
Coal & Other Alternative Energy	
Emissions	

Access to Additional Strategies

Active commodity management does not have to live by the restrictions of only employing a long-only approach. There are a number of different strategies that offer managers a variety of ways to generate return and manage risk, often referred to as “alpha”. Of course, having more tools does not guarantee better returns or better management.

However, given the diverse spectrum of commodity products, there are many idiosyncratic characteristics that a skilled trader or fundamental analyst can take advantage of. A few examples of these include: seasonal factors in grains and energy markets, the dynamics of the term structure, spread trades (inter-market and inter-commodity), etc.

Corporate risk managers and proprietary traders have been employing these strategies for decades. It has only been in the last 3-5 years or so that the growth of commodity hedge funds has provided access to offer investors.

Strategy Analysis: Active vs. Passive

Active	Passive
Long Futures	Long Futures
Short Futures	
Options	
Over-The-Counter Derivatives	
Calendar Spreads	
Basis Trading	
Long/Short Equity	
Arbitrage	
Market Making	
Physicals	

Active vs. Passive During Market Shocks

Another key reason investors allocate to real assets like commodities is the belief that low correlation will translate into better returns during the negative periods of equity and fixed income markets and associated “shocks”. Commodity index data suggests there a solid benefit. However, it may not be as significant as many would think, especially during the worst periods.

The two tables below suggest that active management has performed in-line or better than passive indices during these negative equity and fixed income periods.

S&P 500 Drawdown Analysis: Jan 00-Dec 05*

	S&P	GSCI	DJ-AIG	Active
Total Dn Mo	-122.4%	56.6%	23.2%	23.6%
Worst 3 Mo	-28.1%	-7.8%	-3.4%	-0.4%
Aug 00-Sep 02	-44.7%	-7.9%	5.3%	29.3%

With regard to demonstrating improved commodity performance during inflationary periods, there really isn't solid data either way since inflation hasn't been a major factor over the past 15 years. If we use fixed income markets as a proxy, it does appear commodities have performed well during negative periods but again, maybe not as significantly as most might have expected.

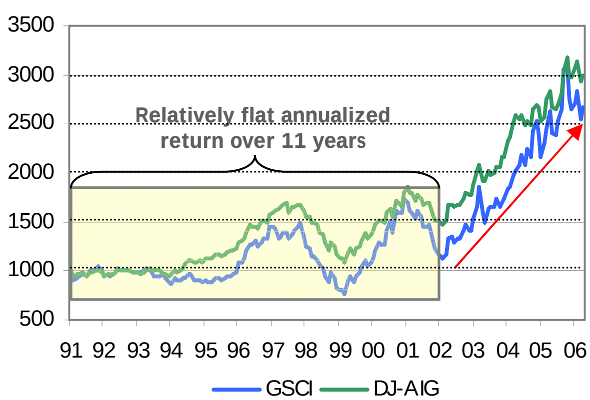
LEH Bond Drawdown Analysis: Jan 00-Dec 05

	LEH	GSCI	DJ-AIG	Active
Total Dn Mo	-53.4%	21.4%	27.7%	33.2%
Worst 3 Mo	-19.4%	-1.9%	-0.4%	-0.4%
May 03-Jul 03	-10.2%	0.9%	-1.9%	1.4%

Consistency of Returns

Another question that should be raised in evaluating a commodity allocation is, "What is the long-term price the investor pays for this diversification and market shock hedge?" Looking back over the past 15 years, the flat performance periods for commodities can be quite extensive, often followed by short bursts of out-sized performance.

Commodity Index Growth: Jan 91-Dec 05



Over an 11 year period from 1991-2001, the GSCI annualized at 1.3% and the DJ-AIG annualized at 3.7%, not a very impressive return. During this same period, active management produced a 17.8% return.

Can Active and Passive Exist Together?

Beta Plus Alpha

For those who simply want the beta of commodities for all the fundamental and tactical reasons explained above, indices may be just fine. Although index investors may suffer through higher volatility and bigger draw downs, at least they know they should fully participate during a bull market of the major commodities.

However, it may make sense to those same investors to add some alpha to this allocation, especially if there isn't high correlation between active and passive strategies. In the recent 15 year period, there appears to be moderate correlation between the two.

Correlation Between Active & Passive: Jan 91-Dec 05

	GSCI	DJ-AIG	Active
GSCI	1.00		
DJ-AIG	0.89	1.00	
Active	0.45	0.54	1.00

In addition, the correlation between active management and the negative periods of GSCI and DJ-AIG are .25 and .29 respectively, which is fairly low.

A look behind the correlation figures (during the same drawdown period previously analyzed) reveals that active management performed well during the worst periods of the passive indices. Again, this makes sense given that active managers have the ability to take advantage of short directional trades along with other relative value strategies.

GSCI Drawdown Analysis: Jan 00-Dec 05

	GSCI	DJ-AIG	Active
Total Dn Mo	-141.0%	-64.3%	31.7%
Worst 3 Mo	-35.7%	-20.6%	-4.5%
Jan 01-Jan 02	-35.4%	-17.5%	18.6%

** We chose to examine the period January 2000-December 2005 for all draw down analysis tables since it included the largest draw down in the equity markets over the 15 year period. The "Total Dn Mo" represents the addition of all negative monthly returns during the period for the index measured. The "Worst 3 Mo" refers to the total of the worst three months for the index measured. The last row in the table refers to the worst draw down for the index measured.*

From the above information, we may expect a mix of passive and active allocations to demonstrate an improvement in risk-adjusted returns, volatility and draw downs when compared to the *passive only* portfolio.

Although there is a slightly lower return from the active portfolio during the bull market environment since 2002, this may not be viewed as material by most investors when considering the gain in risk-adjusted returns and reduction in potential draw downs.

Combined Passive/Active Portfolio

		Return	Std Dev	Sharpe	Worst DD
1991-2005	100% GSCI	6.9%	18.6%	0.16	-48.3%
	50% / 50%	13.3%	11.7%	0.81	-29.7%
	100% Active	18.6%	8.2%	1.80	-16.6%
2002-2005	100% GSCI	23.8%	22.3%	0.99	-19.7%
	50% / 50%	22.5%	13.6%	1.52	-11.0%
	100% Active	21.0%	6.7%	2.90	-3.5%

Common Objections to Active Management

We have addressed a number of reasons why investors should consider an allocation to active management but there certainly are objections to these strategies. Below are some of the more common ones not already addressed.

Already Missed The Move

This is a valid concern, considering that we are currently in the fifth year of a commodity bull market and previous data showed relatively short periods of strong returns can be followed by longer periods of flat performance. But remember, this seems to apply more to passive indices rather than active management. Whether the fundamentals for a secular bull market continue to play out or not, hedge fund managers care less about up-trends and more about volatility and inefficiencies. And there is plenty of both in this sector.

Fees Are Too High

Fees may be an issue if you are accessing active commodity managers through a pooled vehicle, like a fund of funds. Portfolio managers of these fund of funds argue that selecting managers in this space is a uniquely difficult task due to: identifying many disparate and idiosyncratic funds that are often smaller, non-institutional, and scattered across the country; securing capacity (often limited); properly evaluating and monitoring manager and strategy risk given limited track records; and navigating commodity cyclicality on a top down basis.

Track Records & Assets Are Too Small

The number of active commodity hedge fund managers, particularly fundamentally-based specialists, is low compared to other hedge fund areas. This can be explained by: a lack of interest in commodities for the 10+ years before the recent bull market, the limited trading capacity in certain commodity markets, and competition by corporations and banks to retain the low supply of top talent. So searching for a fund with a 3-5 year track record and $500M+ assets under management will likely yield few opportunities.

However, talent is continuing to emerge from these institutions in the form of new hedge funds as commodity fund demand increases and markets continue evolve by offering more tradable products and derivatives.

Conclusions

The bottom-line for considering an allocation to active versus passive commodity management is whether you want access to additional markets and strategies that may lead to more alpha opportunities. Some investors are very comfortable believing they have a dependable beta source in times of traditional market shocks (which may not always be there). Others want to try to capture better risk-adjusted returns while exploiting inefficiencies they believe commodity markets still offer. What most investors on either side do agree on is volatility in this marketplace is high and likely to remain there for a while. What better environment for a skilled hedge fund manager to exploit?

References: (1) Akey, Rian P.,"Commodities: A Case for Active Management," *Journal of Alternative Investments*, Fall 2005: Volume 8, Number 2, (2) Akey, Rian P.,"Alpha, Beta and Commodities: Can a Commodities Investment Be Both a High Risk-Adjusted Return Source and a Portfolio Hedge?," Working Paper, May 2006, (3) Gorton, Gary, and Rouwenhorst, K. Gert, "Facts and Fantasies about Commodity Futures", Yale International Center for Fiannce Working Paper No 04-20, June 14, 2004, (4) Rogers, Jim, "Hot Commodities: How Anyone Can Invest Profitably in the World's Best Market", Random House: New York, 2004.