

# The case for commodities

**Byron Been and Beat Zaugg** discuss the sources of return of a passively managed fully collateralised commodity futures investment, potential benefits to a portfolio, available benchmarks and investment vehicles as well as a summary of past performance and risk

**R**ecent oil price spikes have drawn the attention of institutional investors to commodity prices. Although many investors have a certain exposure to commodities through the equities of producers, only a few have profited in recent years from the diversification benefits of investing in commodity futures. Among those pioneers are the City of Zurich pension fund and ABP in The Netherlands.

What economic function does the capital of these pension funds serve in this market? Within the commodity market place, there exists a time lag between when producers wish to sell their commodity immediately to guarantee a profitable price and when consumers need to purchase the commodity for their production process. Outside capital bridges, this gap by offering a 'profit guarantee' to the producers in return for a futures purchase price less than the expected future spot price.

This article discusses the sources of return of a passively managed fully collateralised commodity futures investment, potential benefits to a portfolio, available benchmarks and investment vehicles as well as a summary of past performance and risk.

Sources of return in commodity futures investments:

## CASH RETURN

Buying or selling a future does not involve a cash outlay of principal (with the exception of margin) which allows the cash to be invested in short-term instruments.

## NORMAL BACKWARDATION

The investor should be compensated for bearing the risk associ-

ated with the price change of the commodities. The source of this return comes from purchasing the future with a price less than the expected future spot price. Normal backwardation is generally associated with energy commodities and in markets where the hedgers are net short. Inversely, contango is generally associated with financial commodities.

## SPOT PRICE CHANGES

Commodity price changes can be generally regarded as positively skewed (having a larger number of very positive returns compared to negative returns) as unexpected events generally serve to reduce supply (weather, cartel intervention etc.) than to increase it. Conversely, equities have been historically negatively skewed. In the long term, it is believed by some that the continued high growth of emerging market countries will put an even larger strain on the producers of basic resources, especially energy as seen recently.

## REBALANCING THE INDEX

Within commodity indexes, the underlying futures generally exhibit low correlation of returns as well as mean reversion. Under these circumstances, rebalancing of exposures can lead to excess returns versus a



non-rebalancing strategy.

Are there benefits of commodity futures in a balanced portfolio?

An investment can generally be considered a separate asset class when:

- its returns are independent from other asset classes (low correlation)
- its return is both positive and significantly different from cash
- its return cannot be replicated with a combination of other asset classes

Besides these characteristics, commodities have also demonstrated returns in the past that were positively correlated with inflation. A positive correlation with inflation is important as both equities and fixed income

returns generally have a negative correlation to inflation.

A correlation analysis done with annual return data from beginning of 1970 to the end of July 2004 showed that the Goldman Sachs Commodity Index (GSCI) had a correlation of 0.28 with US CPI and a correlation of -0.23 with the S&P 500. The true advantage of commodities is that it catches the unexpected inflation shocks in the economy on a year over year basis. For the 13 of 14 years when inflation increased, the GSCI had a return higher than either the S&P 500 or the Lehman Brothers Aggregate. Conversely, when inflation decreased, the GSCI returned higher than the S&P 500 four out of the 20 years (six out of 17

## Graph 1 – PERFORMANCE SUMMARY

	Returns				Standard Deviation			
	3 Years	5 Years	10 Years	15 Years	3 Years	5 Years	10 Years	15 Years
GSCI	15.56%	18.00%	8.67%	8.69%	21.29%	21.03%	19.60%	18.81%
DJ-AIGCI	14.23%	15.21%	8.50%	—	13.57%	13.75%	12.99%	—
S&P 500	-1.48%	-2.24%	11.09%	10.43%	16.59%	16.68%	15.73%	14.64%
LB Aggregate	5.92%	7.25%	7.28%	7.67%	4.50%	3.92%	3.86%	3.95%
60% S&P / 40% LB	1.85%	1.86%	9.90%	9.60%	9.41%	9.71%	9.55%	9.15%
57% S&P / 38% LB / 5% GSCI	2.64%	2.75%	9.96%	9.67%	8.89%	9.24%	9.15%	8.69%
54% S&P / 36% LB / 10% GSCI	3.41%	3.63%	10.00%	9.73%	8.51%	8.91%	8.86%	8.33%

As of July 31, 2004; annualized in USD; all data estimated for DJ-AIGCI prior to July 1998

# as a strategic asset class



years higher than the Lehman Brothers Aggregate).

## BENCHMARK CHOICE

The benchmarks analysed are the GSCI and the Dow Jones AIG Commodity Index (DJ-AIGCI), as these are the most widely accepted benchmarks by both investors and managers alike. Both benchmarks represent unleveraged, long-only investments in commodity futures near to expiration with the principal being invested in cash instruments.

The differences between the two arise from the composition methodology. The GSCI represents 25 commodities and weights those commodities based upon average quantity of production for the last five years. The DJ-AIGCI represents 20 commodities and weights them using a combination of 2/3 liquidity (nominal value of futures being traded) and 1/3 production data. In addition, no more than 15% may be invested in one commodity and no more than 33% may be invested in any one group of commodities. The benchmark methodologies lead to the GSCI being heavily weighted in energy (approximately 70%) in relation to the DJ-AIGCI (near 37%). Within



▲ Byron Been

the GSCI and the DJ-AIGCI, the next largest sectors are grains (near 11%) and industrial metals (near 18%) respectively.

Comparing the two indexes, they are very similar in terms of mechanics (purchase of futures, rolling etc). It should be also mentioned that the GSCI has the longest time series (since 1970) whereas the DJ-AIGCI began in 1998 with prior data being estimated.

## PASSIVE INVESTMENT VEHICLES

A passive investment approach attempts to mimic the returns of the underlying benchmark and at times gain small amounts of



▲ Beat Zaugg

additional return through the rolling of futures and cash management strategies. The following investment vehicles are available for passive commodity indexes:

- Swaps; pay 3 month T-Bill rate in exchange for the return on the preferred benchmark
- Buying and rolling the underlying commodity futures contracts
- Buying and rolling the index futures contract
- Structured notes; bonds issued by third parties with returns similar to the index.

For small to mid-sized pension funds, an investment in the under-

lying commodity futures may be more suitable as swaps require a large degree of governance and index futures are usually associated with large spreads. Larger funds may be able to negotiate advantageous conditions for either the swaps or structured notes.

## PERFORMANCE

Performance of both commodity indexes over the short term is higher than the traditional indexes and over the long term similar to a standard US balanced mandate (60% S&P 500 / 40% LB Aggregate). The volatility of the commodity benchmarks is much higher, though the effect on the total portfolio results in lower volatility due to the low correlation of commodity mandates with traditional assets. Over longer term periods, it can be seen that commodities add an insignificant amount of outperformance. The real benefit is the reduction in overall portfolio volatility. Each 5% increase in allocation to the GSCI reduces total portfolio volatility between 30 and 50bp without significantly affecting returns and results in a portfolio with a higher efficient frontier.

## COMMODITIES AS A DIVERSIFIER

Commodities can be considered a separate strategic asset class as they have demonstrated positive returns similar to a 60/40 balanced mandate, have a very low correlation with existing asset classes and their returns cannot be replicated with existing asset classes. These returns can also be captured at a very low price (management fees and administrative/controlling costs) in comparison to other alternative assets as most such mandates are managed on a passive basis. In addition, commodities are more liquid than most other alternative asset classes.

Questions that should be considered are: which benchmark is most appropriate for the pension plan, what allocation to devote to this asset class and which manager should be selected for the mandate.

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