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of a premium to remain within the portfolio, which should be maximised. The probability distribution can be based on an empirical analysis of historical market amplitudes.

Once a number of option contracts with various strikes and maturities are written, the portfolio delta must be kept around zero and you need to take out risks where necessary and especially when risk is closed out, renew the position by rolling the strangles forward and monitor the greeks in due course.

Buying calls and puts and re-opening them at different levels/different maturities (rolling) does work very well in normal market conditions i.e. side-ways, positive or negative trending markets but coming to an event, it can mean trouble if you want to buy back the put positions with the various maturities and strike prices – in fact, you are trying to catch a falling knife! To preserve capital in an event, it is possible to short futures, although this is far from a perfect hedge as the futures are a linear contract (Gamma = 0) and options contracts are non linear (Gamma ≠ 0).

When options come closer to the money, the sensitivity of the option premium to changes in volatility tends to rise (see Figure 3). In the case of an event, volatilities tend to increase dramatically, thus option prices tend to increase more than the delta can explain.

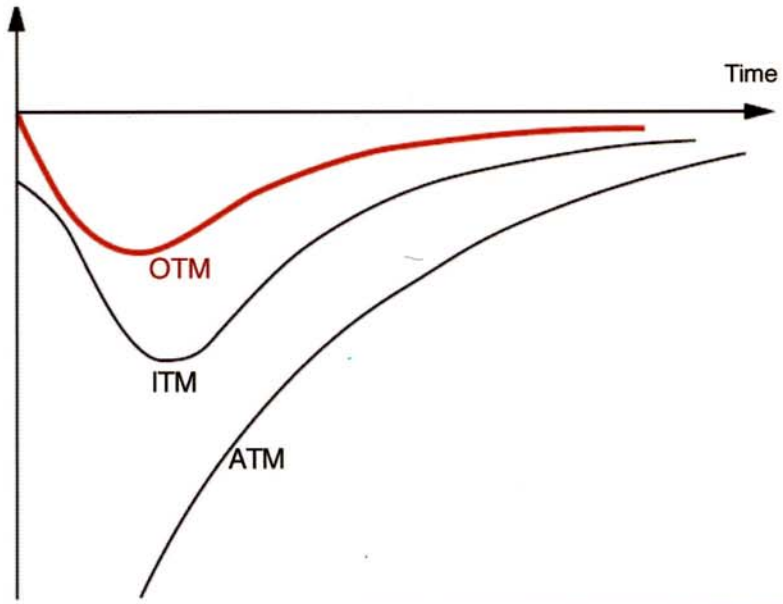
The number of futures to hedge the delta and the futures adjustment rate according to Gamma and the volatility impact needs to be calculated in advance. This is so that the appropriate number of futures can be executed quickly in case an event happens. This "emergency brake" should be released, after enough money has been made from the futures to close out the put position and subsequently re-open them at different strike levels. Hence, the futures are for hedging only, not for downside speculations.

The call position is to be adjusted accordingly to keep the net delta in line.

In general, it is of major importance to be very disciplined and rigorous throughout the "risk creation" and risk management of such positions. When you are not disciplined, one event is enough to wipe out a big chunk of the invested capital.

Now, where does such a strategy work best and what are the caveats to it?

Figure 3



OTM = "Out of The Money"
ATM = "At the Money"
ITM= "In the money"

As long as markets move within the earlier defined trading band, the strategy should deliver decent returns made of option time value. Sideways moving markets are perfect but also up/down trending markets or even bull/bear markets are good to deal with and can deliver decent uncorrelated returns.

Once the investment process and risk management is carefully structured and based on the assumption that markets are negative biased in the short run, negative fat tails should not be a big issue.

Trouble begins when markets suddenly tend to be positively biased/positively skewed over a sustainable period of time, let us say three months or so, as volatility levels decrease and the constant rolling of calls can become costly.

Summary

Theta as an asset class seems to be rather appealing, as it is capable of delivering consistent uncorrelated returns and most market environments.

To access the time value seems to be straight forward by extracting from it written equity index options.

An option time value strategy seems to be rather complex on the one hand but on the other hand, straight forward because most of the questions can be answered by simply applying basic option theory.

After all, in due course, it comes down to having a disciplined approach to carefully constructing and modeling the risk you are managing. An extensive experience and deep knowledge of trading in option markets can only help because theory, as we all know, has its pitfalls.

It is certainly a great advantage that time value strategies are not followed by many. It is a niche strategy which can deliver an attractive risk/return profile with low correlations to equities, bonds and even major hedge fund strategies.

INTELLIGENT COMMODITY INVESTING: OPPORTUNITIES AND CHALLENGES[1]

By Hilary Till, Premia Risk Consultancy Inc. and EDHEC Risk and Asset Management Research Centre

This article will discuss the historical underpinning of the current boom in commodity prices and alert the busy reader to some unexpected pitfalls when investing in this theme. We will conclude with some observations on how to potentially take advantage of this asset class' opportunities.

According to Bannister (2006, 2007) over the very long term, commodity producers periodically need sufficient pricing to replenish physical and human assets. "Every 15 to 20 years, farmers, miners, [and] drillers… [as well as] developing countries (that [are] tied to the land) must receive pricing power to replenish fixed

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assets and draw a new generation into the business, only [later] to be smashed against the rocks in a deflation for 15 or 20 years until the workers and assets are retired." In this harsh cycle, "commodities (and firms that produce commodities or service the needs of commodity producers) periodically out-perform the S&P 500 for decade-and-a-half cycles. One such cycle began 8 years ago".

During the current boom, the macro case for commodity investments has relied on the following three factors:

(1) Adverse supply shocks resulting from the ageing energy infrastructure in the US and Europe;
(2) expanding Asian demand, particularly from China; and
(3) as a dollar hedge.

There may be emerging oil scarcity, at least in politically stable parts of the world, but is that the whole story on the oil rally? Since the founding of the Federal Reserve Board in 1913, Bannister notes that it appears that money-supply growth has driven supply-inelastic crude-oil prices.

When we examine the period 31 December 2001 through to 31 December, 2007 we find that front-month crude oil prices have increased by about 380 percent in dollar terms. In view of Bannister's century-long analysis, one might wonder how much of the current price rise is due to oil scarcity and how much is due to monetary debasement?

If one denominates oil in, say, fractional ounces of gold rather than in dollars, one comes away with a rather different picture. Using gold as the "unit of account", crude has instead rallied only 61 percent over the six year period from the end of 2001 to the end of 2007.

"In an environment of monetary debasement ... [in which] cash rapidly loses ... its purchasing power, all goods, services and ... assets become currencies as investors ... [seek out ways] to protect the purchasing power of their ... [savings]", as discussed by Faber (2007).

The main issue with choosing other stores-of-value besides cash is whether the cost-of-carry for these investments is unacceptably high. This is a key question in deciding upon whether commodity futures investments are suitable for an investor.

For example, the Goldman Sachs Commodity Energy Excess Return subindex lost -30 percent in 2006, largely because of the steep contangos in the crude oil futures market at the time. This is plainly too high a cost for a portfolio hedge.

Because of the volatility of crude oil prices and the potentially prohibitive cost-of-carry for an investment focused on crude-oil futures prices, energy and commodity investors had been drawn to relative-value energy hedge funds, especially prior to 2007.

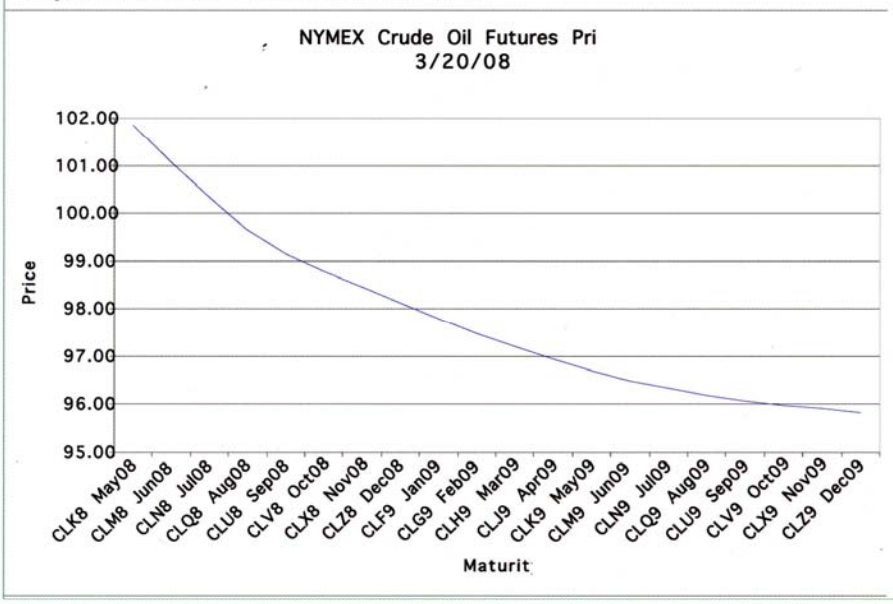
There are indeed potentially profitable spreading opportunities around build/draw cycles in commodity inventories. These opportunities tend to be monetised through calendar spreads and processor-margin spreads. Even with these strategies, there have been a number of challenges in profiting from energy relative-value trading due to frequent structural breaks in historical relationships. This was particularly the case during September 2006 with the Amaranth debacle.

Another recent risk concern has been how correlated the commodity markets have become with other risky assets, at least over short time horizons. Commodities were clearly not immune from sharp episodes of widespread deleveraging of risky investments, during the past two years.

Figure 1 Intraday Performance of Commodities within the Dow Jones AIG (DJAIG) Commodity Index on 16 August, 2007

Commodity		Price	Change	% Change
LMAHDS03	Aluminium	2543.00y	-9.00	-0.35
NGX7	Natural Gas	7.791	-0.046	-059
WZ7	Wheat	688 3/4	-8 1/4	-1.18
LCV7	Live Cattle	94.600	-1.325	-1.38
LHV7	Lean Hogs	67.550	-1.025	-1.49
LMZSDS03	Zinc	3230.00y	-65.00	-1.97
XBX7	RBOB Gasoline	187.43	-3.95	-2.06
GCZ7	Gold	665.20	-14.50	-2.13
CTZ7	Cotton	58.85	-1.33	-2.21
CLX7	Crude Oil	71.10	-1.73	-2.38
HOX7	Heating Oil	201.55	-4.99	-2.42
C Z7	Corn	336 1/2	-8 3/4	-2.53
LMNIDS03	Nickel	26500.0y	-800.0	-2.93
SBV7	Sugar	9.16	-0.29	-3.07
KCZ7	Coffee	119.30	-3.09	-3.17
BOZ7	Soybean Oil	35.27	-1.25	-3.42
SIZ7	Silver	12.290	-0.445	-3.49
S X7	Soybeans	821	-33 1/2	-3.92
HGZ7	Copper	314.80	-17.40	-5.24

Figure 2: NYMEX Crude Oil Futures Curve



Data: Bloomberg

One example of simultaneous deleveraging is from 27 February, 2007. At the end-of-the-trading day, one saw algorithmic strategies simultaneously deleverage across numerous risky investments, including within popular commodity plays.

Again, this phenomenon, became of concern on 16 August, 2007, the day before the Federal Reserve Board cut the discount rate. On that date, all commodity markets in the Dow Jones AIG Commodity Index were down, as shown in Figure 1, along with all other risky assets.

More recently, during the week of 17 March 2008, market participants appeared to embrace a "preservation-of-capital" stance in the aftermath of the near collapse of Bear Stearns. Not only did three-month US Treasury Bills hit a nadir of 39 bps in (annualised) yield but the commodity markets witnessed a weekly sell-off, the scale of which had not been seen since 1956, according to Carpenter and Munshi (2008).

How should investors be positioned going forward, even acknowledging that over short-time horizons, the fortunes of commodity prices may be strongly related to other risk assets?

The current function of (light sweet) crude oil prices is to search for the level that:

(1) Induces an appropriate production response;
(2) induces a weakening of strict environmental regulations; or
(3) reduces global consumption through an economic contraction.

One would clearly not advocate options (2) or (3); these options are solely presented to show what the levers are that would bring the oil market back into balance.

Given that none of these responses have yet occurred during a near quadrupling of oil prices (in dollars) over the past six years, it is an open question of how high oil prices (denominated in dollars) will go.

It may be difficult for institutional investors to access energy-futures relative-value strategies because of the lack of scalability in the back-end of both the oil curve and other energy derivatives curves. Perhaps these strategies will need to be limited to generating alpha on top of a structural exposure to commodities.

According to UBS (2008), the stock prices of the major US oil companies are still discounting only a $58-per-barrel price for oil. This discount could provide energy hedge funds, which specialise in petroleum-complex stocks, a structural edge.

What might be some of the implications of a structurally higher-priced energy market? One consequence may be reduced reliance on trucking in the US.

It is notable that Warren Buffet started investing in railroad companies last year.

The beneficiaries of the oil boom have obviously been the oil-exporting countries. What are they investing in? It is noteworthy that starting in the Spring of 2007, as the sovereign wealth funds became more formally organised in investing their dollar windfalls, that the turning points in oil prices have mirrored the fortunes of the Euro, which would be consistent with the well telegraphed currency-diversification activities by oil exporting countries.

Now, in examining the various choices of how to invest in the natural resource markets, one's decision is made simplest when an investment has the following characteristics:

- Positive carry;
- transparency; and
- scalability.

As of the writing of this article, this is precisely the state of the front-month oil futures contract at this time, as illustrated in Figure 2.

1 This article is based on a presentation given to the London chapter of the Chartered Alternative Investment Analysis (CAIA) Association on 23 January 2008 and to the Chicago chapter of CAIA on 19 February 2008. The ideas and opinions expressed in this article are the sole responsibilities of the author.

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CONVERGENCE IN FUND HEDGING - WHY IMITATION IS THE SINCEREST FORM OF FLATTERY

By Kate O'Neill, Henderson Global Investors

The introduction of UCITS III legislation across Europe means that traditional long-only fund managers are now able to implement hedge fund-style investment strategies for clients, in their pursuit of hedge fund-like returns. In this article we look at the types of strategies being adopted by the mainstream and explain why there will always be investor appetite for "pure" hedge funds.

When once asked what set him apart as the finest golfer of his generation, Jack Nicklaus replied, "I think I fail a bit less than everybody else". There is no doubting that the hedge fund industry has suffered a poor press of late and the failures of some funds has been seized upon with something approaching glee, despite it being the banking sector's malfeasance that made the most telling contribution to the global credit crunch.

While in the short term any setback within the hedge fund industry will generate a certain amount of schadenfreude from sections of the business press, in the long term there is a clear and unshakeable investment trend of convergence between traditional investment mandates and hedge fund techniques – quite simply because hedge funds have a greater propensity to outperform or "fail less" than their long-only competitors. The topic of

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