

Artemis's Cole is finding 'crisis alpha' in volatility markets

</hedge-funds-review/feature/2257022/artemis-s-cole-is-finding-crisis-alpha-in-volatility-markets>

27 Mar 2013, Christopher Cole, Hedge Funds Review



Donald Rumsfeld was on to something when he contemplated the importance of 'known unknowns' and 'unknown unknowns' in a famous 2002 press briefing. True knowledge is not what you know but certainty in what you do not. Trading volatility is about putting a price on that. The trader of volatility must be able to identify those Rumsfeldian 'known unknowns' and 'unknown unknowns' and simultaneously make a market in both.

Buying a Vix future, variance swap or put option provides exposure to the collective uncertainty of an unknowable future. Likewise, to short volatility is to express personal confidence in the status quo of market affairs despite a broader fear of change.

We quote this uncertainty in terms of expected volatility, convexity and correlation but what we are actually trading is human emotion. If you are familiar with Plato's allegory of the cave, volatility markets gauge our collective trust in the shadows on the wall.

The concept that you can value volatility like a stock or bond is a surprisingly new and controversial idea. Volatility trading executed at the highest level seeks to arbitrage differences in the perception of market uncertainty across time, space and asset classes in a dynamic way. If done correctly you achieve the nirvana of 'crisis alpha'.

Crisis alpha is defined as a return stream that achieves its highest gains in periods of market dislocation and generates neutral to slightly positive gains in more normalised environments. The concept of crisis alpha is central to the investment philosophy of Artemis Vega and every portfolio I manage.

We are entering a new golden age of volatility trading as an alpha vehicle. A decade ago people were not even aware that volatility was an asset class. But today the Vix index is so ubiquitous that it can be seen rolling across CNBC's ticker right next to the S&P 500 and Dow Jones Industrial Average.

Trading volume in Vix futures has grown 236% annually since 2009 with vega notional now seeking to rival the S&P 500 index (SPX) options market. For better or worse, listed volatility exchange traded products have risen in popularity, democratising volatility from Wall Street to Main Street.

Volatility was one of the few trades that did not fail the diversification test during the 2008 financial crisis. The Vix index has averaged a -0.71 correlation to the S&P 500 index since 1990. Keep in mind volatility trading is often more about where markets think volatility will be in the future as opposed to where it is today. For example, since the 2008 financial crisis, investors have been willing to pay much higher premiums to protect their portfolios against potential market crashes despite lower spot volatility. I refer to this as the 'bull market in fear'.

Low spot volatility does not mean cheap volatility. For example, in August of 2012 it was more expensive to buy one-year forward volatility with the Vix at 13.45 than it was the day after Lehman went bankrupt in September 2008 when the Vix was above 31 ([see Artemis third quarter 2012 letter 'Volatility of an Impossible Object' for more information](#)).

Most of the world only thinks about volatility in terms of directional bias. Investors stereotype volatility traders into one of two camps: tail risk funds that lose money waiting for a black swan that may never appear and anti-fragile short volatility funds that are a 100-year flood away from the inevitable blow-up and constant ridicule from Nassim Taleb. Due to this limited prism, volatility funds have a reputation for either slowly bleeding to death or blowing up spectacularly.

It is important to differentiate between crisis alpha and tail risk insurance. Although similar in philosophy, crisis alpha is not a substitute for portfolio insurance and does not promise protection against every negative event. The goal of crisis alpha is to skew the balance of risk and reward toward heightened market volatility while remaining an absolute return vehicle capable of generating consistent returns across different market environments.

The fund that seeks crisis alpha should have a positive risk-to-reward ratio overall but with the best gains reserved for market crashes such as 2008 and the summer of 2011. To achieve this end it may balance long volatility exposure with strategic shorts. By contrast, the tail risk fund is often only long volatility and will constantly lose money unless the black swan event occurs.

Tail risk is mostly intended as an insurance policy rather than an alpha vehicle. One day the

majority of institutional investors will make this distinction but until then there seems to be a lot of confusion.

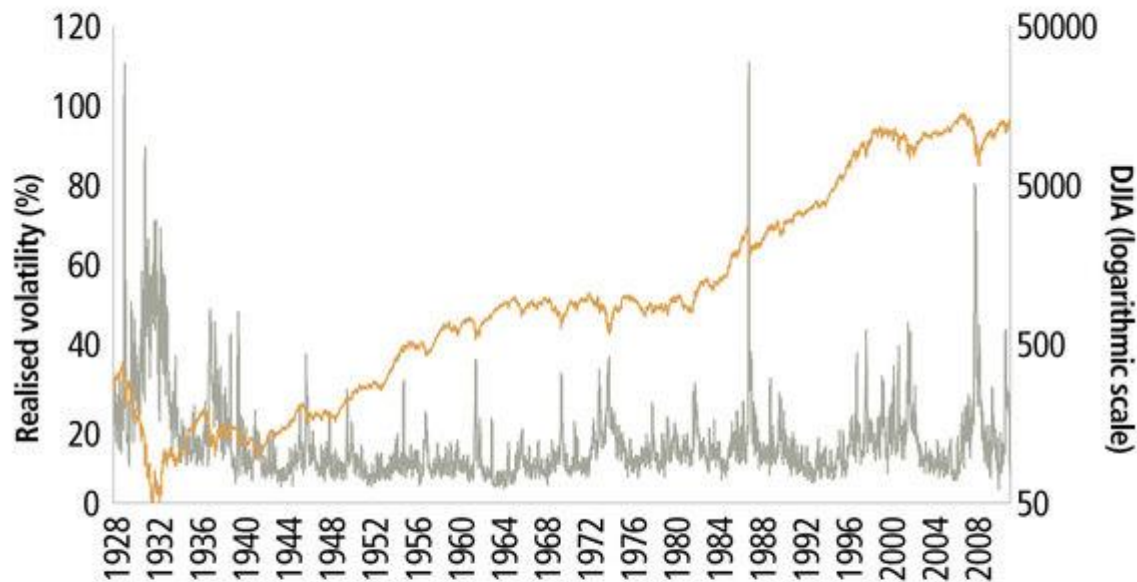
If I had a nickel every time someone asked if I managed a tail risk fund, I could probably buy myself a steamroller. The Artemis Vega Fund is designed to provide crisis alpha for its partners.

Volatility as an asset class can achieve more than investors give it credit for when viewed in a relative value framework. Crisis alpha relies on relative value volatility trading, which is conceptually similar to trading fixed income across different yield curves. In the same way the yield curve represents embedded expectations as to future inflation and monetary policy, volatility curves and skew contain embedded expectations as to future variance, probability of asset returns and tail risk across different asset classes.

You can find value in volatility by quantitatively valuing these expectations through time and trading over- and underpriced known unknowns in a comparative value framework. This is much more nuanced and effective than simple directional positions.

Volatility and market crashes

■ Dow Jones Industrial Average vs ■ One-month realised volatility of DJIA



Top deflationary volatility spikes (1928-2012)

Date	1m vol (%)	▲Vol	1m DJIA ▼
November 9, 1987	111.0	+163%	-26.72%
November 15, 1929	110.5	+122%	-41.75%
October 16, 1931	89.6	+109%	-15.15%
October 29, 2008	80.4	+52%	-18.80%
October 17, 1932	71.3	+41%	-8.04%

Source: Artemis Capital Management.

The correct combination of long and short positions can yield a payoff that exhibits positive exposure to tail risk (convexity) while limiting the cost of carry. In the most beautiful of all situations, given the right market dynamic you may even receive positive carry and tail risk exposure at the same time.

Volatility trading in a relative value framework can take on many forms. The Artemis Vega Fund seeks to dynamically trade different points on volatility curves in an effort to isolate alpha through temporal imbalances in uncertainty. Other funds may short overpriced volatility in one asset and use that to fund long volatility positions in a different but correlated asset class with cheaper implied volatility (eg, Vix futures versus SPX or gold versus silver).

A volatility trader could sell near-the-money optionality and use it to fund the purchase of far out-of-the-money options in an effort to profit from extreme movements or black swan events. The entire point is that these positions should be established in a way that tilts the portfolio toward positive performance in a crisis while achieving a much lower cost than an outright

hedge.

In the same way a long/short equity manager can 'dial in' beta exposure to the S&P 500 index, a volatility trader may control his exposure to a spot vol while taking advantage of mispricing in volatility derivatives. When done right this can be a very powerful concept.

Today there are still some who question whether volatility is even an asset class and whether the hedge funds that trade it are worth investing in. I find this humorous. To these people an asset is ideally something tangible, like a piece of paper with a corporate logo on it that fluctuates wildly based on human behaviour.

Alternatively, an asset class should have 'positive economic value' which, of course, has disqualified the Japanese equity market for the past 28 years. Most importantly, any real asset class should be useful and have a purpose in life. For example, in the event of the apocalypse you may be able to defend yourself from marauding biker gangs by bludgeoning them to death with your gold bars.

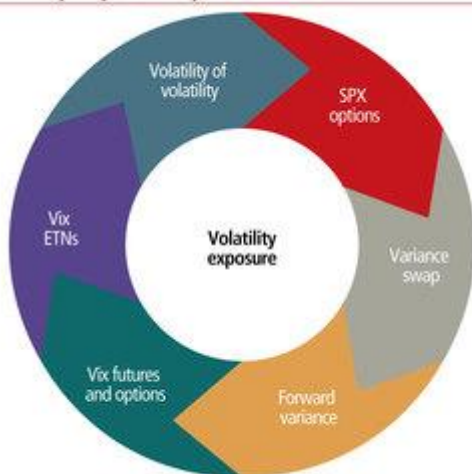
I am not certain if long or short volatility fits your definition of an asset class but what I do know is that volatility is the ultimate post-modern 'exposure' for our existential economic future. In modern capital markets, volatility (isolated or not) is one of the only true exposures relevant for alpha creation.

I admit that volatility may not be as easy to explain to your investment board as a Warren Buffet-style value investing strategy. If it were easy everyone would do it. What is really weird is that Berkshire Hathaway was one of the largest suppliers of volatility on the long end of the term structure until mid-2010. That is right. Buffet is a volatility trader in the most direct way. I have another shocking revelation. So are you. You just don't know it yet.

I am assuming that if you are reading this article, you have some role in active portfolio management. (If this is not the case and you are mistakenly reading *Hedge Funds Review* to learn about gardening, please accept my deepest apologies.) If so, your alpha derived from active management can largely be decomposed into two components: asset selection and volatility bias.

In highly correlated markets the asset selection component is negated and alpha becomes increasingly driven by rising and falling volatility. When this happens many classic hedge fund strategies converge to simple synthetic volatility trades. For example, strategies that rely on mean reversion such as traditional value investing, currency carry, pairs trading and statistical arbitrage become akin to shorting volatility.

Volatility exposure cycle



Source: Artemis Capital Management.

The common retail strategy of buying a stock on dips and selling on strength is literally part of the process for synthetic replication of a variance swap (rebalanced to one share every day). Remove the asset-selection component entirely and you are effectively shorting volatility.

Likewise, investment strategies that rely on trend following such as managed futures and global macro are akin to going long volatility. This is one reason why, like everything else, hedge fund returns are becoming more correlated with one another.

Why get your volatility alpha accidentally through other funds when you can go straight to the source and customise that exposure to your portfolio needs? Volatility exposure can be an effective overlay to traditional long/short asset selection alpha in a portfolio building block framework.

Volatility is not immune to central bank intervention. With the Vix at six-year lows, central banks have obviously succeeded in artificially suppressing variance. Ironically, financial repression has also created a powerful incentive for volatility exposure in place of investment-grade fixed income.

The post-2008 bull market in fear can be interpreted as an unintended consequence of portfolio theory gone awry in financial repression. Keep in mind that for the first time in history long volatility exposure and high-grade fixed income both result in negative carry when adjusted for inflation.

A quirk in the mathematics of portfolio optimisation on the efficient frontier means that extra negative correlation offered by volatility exposure is worth more than the incremental yield generated by high-grade fixed income. Hence the Federal Reserve has artificially incentivised portfolio managers to increase volatility exposure over investment-grade bonds so long as real rates remain negative.

Volatility exposure should be increased to 5%-12% of a portfolio until real rates become positive

even if those volatility positions are expected to lose money on a nominal basis compared with bonds. Do the maths yourself. It is pretty crazy.

In a world of uncertainty, volatility can be your unlikely saviour. While it is well-known that volatility exposure can protect you from deflation, what is less understood is the powerful role it can play in rampant inflation ([a full discussion is beyond the scope of this article; see Artemis first quarter 2012 report “Volatility at World’s End: Deflation, Hyperinflation and the Alchemy of Risk”](#)).

It is very easy to forget that after 100%-plus gains in equity markets since 2009, great risks may lay hidden in the unintended consequences of the greatest global monetary experiment in economic history.

I cannot predict the future but what I do know is that crisis alpha through model-free volatility trading will represent one of the most important developments in institutional portfolio management over the next few decades. That is one known unknown I am definitely willing to put my money on.

Christopher Cole, managing partner of Artemis Capital Management and portfolio manager of the Artemis Vega Fund, wrote this article.

[**For further reference, a creative animation visualising the movement of the S&P 500 index volatility surface over the past two decades using real market data can be viewed here.**](#)

[**More research is available from Artemis Capital Management.**](#)

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