Publication: *Investment and Technology*
Type: Monthly trade magazine
Journalist: Simon Mumme
Date: October, 2008

Fear, not greed, puts volatility managers on the money

When faced with a threat to their portfolios, most institutions try to hedge out the threat as a primary line of defence. That reaction suits volatility managers just fine: hedging strategies bring a nice transaction flow, carrying regular pricing inefficiencies, into this uncrowded corner of the options universe. SIMON MUMME reports.

The near future will not be as tumultuous as most of us believe – this has been the experience of recorded market history to date, at least.

Investors' fears of the future have generally been more menacing than what has eventually transpired.

And when those scared investors buy options to hedge out some of the threats to their portfolios, they pay nice premiums to their risk-taking counterparts. In the options universe, as in others, fear creates pricing inefficiencies, and profiting from fear is what volatility trading is about.

When an investor buys an option, their expectations of future volatility are reflected in the price they pay. This implied volatility often reverts to its historical mean, and the price of the option usually follows. That investors pay too much for protection presents a major inefficiency for volatility traders to exploit: implied volatility is almost always greater than actual volatility, providing shorting opportunities amongst other arbitrages. For Al Wilkinson, portfolio manager of the Pengana global volatility fund, investor fear is a tradeable commodity.

Al Wilkinson ...
father of the VIX 'fear index'

"Every financial decision that an investor makes has a volatility component. How do you value a security? How much risk do you want to take? Those measurements have been quantified and are tradeable in a number of contexts," he says.

"The idea of volatility is made once you get a price."

Wilkinson, a former director of the Chicago Boards Options Exchange (CBOE), led the team at that bourse which created the Volatility Index (VIX), also know as the 'fear index', which tracks the market's expectation of 30-day volatility as conveyed by the prices of options derived from the S&P500 index ("I'm the father of the VIX," he says). Most of the trades made for the Pengana fund are conducted through this exchange. Wilkinson says it's the volatility of S&P500 options – not the trend of the underlying index – that makes the institution a marketplace.

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"You're not trading the direction of the S&P500 – you're trading the volatility component."

The pain incurred by global markets during the credit crunch has seen option prices in the VIX reach levels higher than 42 and as low as 17, near its long-term average. On September 18, it posted a six-year high of 42.16. In the past 10 years, it has closed higher than 42 on two other occasions only: following the September 11, 2001, terrorist attacks on New York and in September 1998, in the aftermath of the Russian debt default and collapse of hedge fund Long Term Capital Management. In more moderate times, the VIX moves between 15 and 18.

Option premiums increase when investors see a turbulent future, but tend to be depressed when markets seem steadier and volatility levels plateau. The Pengana fund, which operates in a universe of 30-day outlooks, monitors the implied and historical volatilities of options and expects them to revert to their historical means, and places positions accordingly. This strategy contrasts with those of some other volatility traders, who form directional views on how fearful investors will be in the future. These managers would characteristically buy cheaper options when skies are clear, and sell the instruments short when conditions worsen.

IN A CLASS OF ITS OWN?

Given the large premiums that options-writers can earn by holding others' risk, and the demand they enjoy from equity and credit investors, the flow of hedging transactions which comprise the market for volatility should not abate. "Long-run returns for volatility strategies are determined by the equilibrium between the market's desire to hedge and investors' willingness to bear the necessary risk," argues Goldman Sachs in a November 2007 options research paper concerning volatility strategies.

Unless the number of investors selling volatility overwhelms the demand from hedgers, the sustainability of returns for short-volatility strategies should continue. "Given the size of the long-equity community and increased cross-over activity from credit investors,

Michael Hintze ...
CQS takes directional views on volatility

we believe that would be highly unlikely," the Goldmans researchers write.

The paper argues that the flow of hedging transactions provides a market in which investors in volatility can earn passive returns. Moreover, due to the large risk premium on offer, a small slice of volatility can significantly impact returns. From January 1996 to September 2007, the authors observe that some short S&P500 variance strategies had Sharpe ratios four times that of the underlying index and beat 12 of the 13 Credit Suisse/Tremont hedge fund indices.

By providing options to investors wanting to hedge their equity and credit exposures, "selling volatility" can generate plenty of passive returns that are big enough to warrant a "non-trivial" allocation, the paper says. Selling protection in hostile markets brings returns that often beat long equity exposures, providing a diversification benefit because its drivers of return are fundamentally different to those affecting equity markets. (However, since volatility strategies feed on hedging demand, the paper suggests they should be deployed on major indices.)

Here the paper argues, as does Wilkinson, that volatility is an asset class separate to equities and deserves to be considered in an asset allocation framework. The Goldmans definition of an 'asset class' states that investors with a passive allocation to the asset concerned should expect their holding to outperform cash 'significantly' over time. Furthermore, these returns should not be dependent on the skill of the investor alone, and should also provide good diversification from other asset classes when they decline.

> In the bear market between the Septembers of 2000 and 2002, variance-selling strategies built to match the risk of the S&P 500 trounced that index, returning 45 per cent against -45 per cent.

CQS, a $US10 billion hedge fund based in London, also views volatility as an asset class simply because derivatives are a different type of asset to trade than any other. And as far as volatility strategies are concerned, the direction of underlying securities is irrelevant.

The manager recently launched a global volatility fund that takes directional views on volatility, swinging from long positions in major indices as markers perform well to short as they decline. Either directional strategy, CQS believes, is dangerous in isolation.

Sometimes the fund will take directional views of the volatilities of individual stocks. In a dispersion trade, it will short the volatility of a major index while going long on the biggest 50 or 60 names in the same index.

The Goldmans paper says that variance swaps, where returns are linear not to volatility but to variance (the average of squared deviations from the mean), are "the purest play on the volatility risk premium embedded in option prices" because the payoff is directly linked to the difference between implied and realised variance. Also, since the payout of a variance swap is based upon the square of a standard deviation, they can generate larger returns than volatility swaps, whose payouts are based on standard deviation. The swaps also do not require a hedge against any shift in the relevant 'delta': the ratio comparing the change in prices of underlying assets to corresponding derivatives.

PACKAGING VOL INTO PORTFOLIOS

What has held many institutions back from investing in volatility, Goldmans says, is a combination of a lack of performance data, limited information about the types and potency of volatility strategies available, and uncertainties about risk management.

Volatility strategies need to be packaged, or "sized". Goldmans does this by blending a riskless asset, LIBOR, with a short variance swap, to meet desired risk levels. It observes that during a sample period, from January 1996 to September 2007, an S&P 500 short one-month variance swap instrument, designed to have the same monthly standard deviations as the underlying index, outperformed the bourse itself by 31.2 per cent to 9.6 per cent, with a Sharpe ratio of 1.6, four times higher than that of US equities. The strategies also outperformed 12 of the 13 Credit Suisse/Tremont hedge fund indices on a risk-adjusted basis.

An optimal risk-reward balance in a 60/40 equity/bond portfolio could be achieved if 5 per cent of the equity exposure was comprised of short S&P500 variance swaps that carried as much risk as the underlying index, the paper finds. This portfolio beat its predecessor in nine out of the 10 biggest monthly declines in the sample period by an average of 0.3 per cent, and by 1.08 per cent in the sample period overall, with a 0.49 per cent reduction in risk while holding a 0.48 correlation to the index (its annual performance was 9.5 per cent, with a standard deviation of 8.87 per cent).

In the bear market between the Septembers of 2000 and 2002, variance-selling strategies built to match the risk of the S&P 500 trounced that index, returning 45 per cent against -45 per cent. On average, the swaps priced in a 30 per cent monthly increase in realised market volatility, providing a thick cushion against underperformance.

But in steadily rising markets, or during a major repricing of risk, short variance strategies usually underperform. While the blended LIBOR-variance swap instrument had an average monthly return of -1.9 per cent, compared to the index's -8.4 per cent during the 10 biggest calendar month declines in the S&P500 in the sample period from January 1996 to September 2007, when the index returns beat 4 per cent, volatility strategies underperformed. At their worst, the maximum monthly losses of variance swaps designed to have volatility levels of 5 per cent (lower than many hedge funds), 10 per cent (similar to at-the-money option-selling strategies) and 15 per cent (like the S&P500) turned out to be, respectively, -5.7, -12.0 and -18.3 per cent. ■