

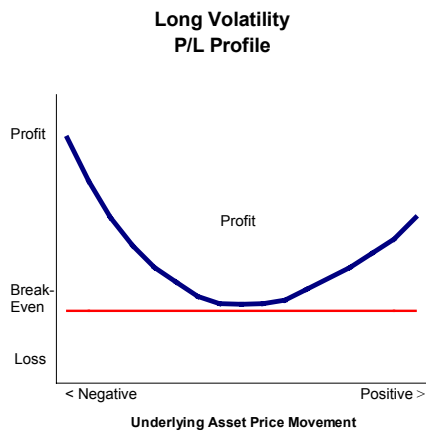
Volatility Arbitrage from the Short Side
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One sector currently sparking interest in the alternative investment arena is Volatility Arbitrage (VA). The definition of arbitrage is the opportunity to buy an asset at a low price then immediately to sell it on a different market for a higher price, effectively a riskless trade. Volatility arbitrage is the process of executing riskless trades in volatility.

For this purpose volatility may be measured in two specific ways. Firstly the historical or statistical volatility which measures the extent of an asset’s movement or speed of movement. And secondly implied volatility which is specific to options and measures the rate of an option’s price change implied by current trading.

One of the most popular VA strategies is to buy options cheaply and simultaneously sell the underlying securities expensively. The advantage of such a trade is that it immediately locks in a small profit and can then be managed so that, should volatility pick up dramatically, a larger profit may theoretically be made. This strategy’s profit and loss profile may then be plotted to show the profit or loss at each price level on the underlying asset through to expiry. The shape of this profile is a curve (Chart 1) wherein the lowest point of the curve will be a small profit and each end a larger profit. The snag comes if the underlying asset experiences a period of low volatility, because no arbitrage opportunities may present themselves and assets may be tied into non-performing strategies.

Chart 1



Source: Oxeye Capital Management

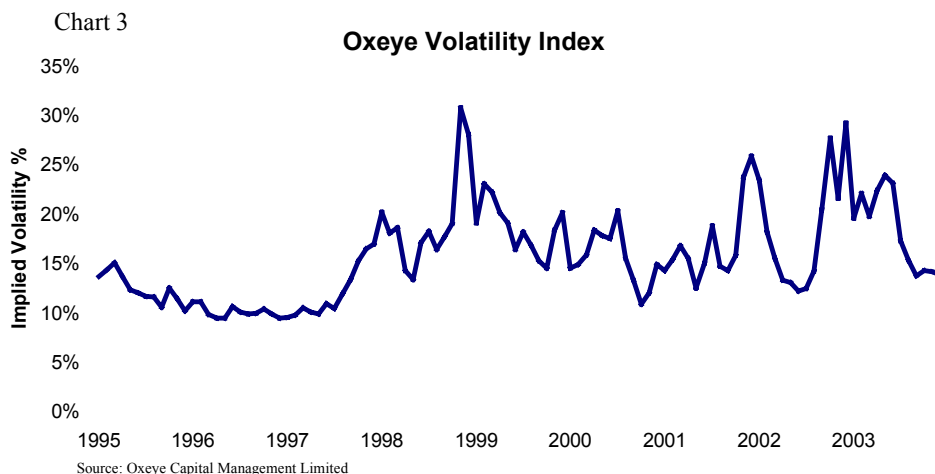
Chart 2



Source: Oxeye Capital Management

At Oxeye we take a different approach. The idea is that since most of the time markets are trading in a statistically definable range there will be long periods of low or declining volatility. At such times it is hard to make money from long volatility strategies because the time value of the options (known as theta) tends to bleed away. Short VA strategies on the other hand tend to make money at such times; in fact they have a greater chance because they profit from more types of market / volatility environment than long VA strategies. Long VA strategies are dependent on periods of sharply rising volatility, which as per the Oxeye long term volatility history (Chart 3) only rarely occur : 1998, 2001 and 2002 being 3 such occurrences in the last 10 years. This means that in all other periods the market was either: (1) gently rising with volatility

falling, (2) gently falling with volatility gently rising or (3) moving sideways with volatility falling. All of which are environments friendly to the VA seller who will cash in on



regular small profits which, assuming he gets his sums right, take care of the occasional large-ish loss. But what happens when that loss does come along? The loss is limited to the 2 lower levels of the W (Chart 2). In the event of a huge 1987 style move the outside slopes of the W kick in and the strategy becomes long of volatility and benefits from the greater ratio of long out-of-the-money options relative to short in- or at-the-money options. Other benefits include the self-healing aspect of the process in that normally the occasional large losses stem from a period of sharply rising volatility. In a similar vein to ‘averaging down’ the volatility seller takes in a higher income during periods of sharply rising volatility and then, as volatility subsides, enjoys a steady period of profitability which quickly pays for any losses from the spike in volatility (usually a matter of 6 months or so in Oxeye’s experience). In a similar way to insurance underwriting the market prices the risk and pays the risk-taker an acceptable premium for being in the market. This gives an attractive return to drawdown ratio and compares favourably with long only strategies where it may take many years to recover bear market losses.

To conclude, such a strategy might hardly be termed an investment process, but more of a risk management exercise which, when combined with more traditional investment strategies, may be structured to produce a well-balanced and flexible approach for the modern fund manager.

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