

Equity volatility backlash

Taking a long equity volatility position is a favourite macro hedge for risk managers and traders across asset classes, but the trade doesn't always work as expected. How has the volatility experienced in May and June affected macro hedging?

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Buying equity volatility has long been a way for dealers to macro hedge their portfolios, but the latest phase of the financial crisis has challenged the wisdom of such strategies. A dislocation between asset classes during the first half of 2010, coupled with the increasing cost of buying volatility, made certain hedges less effective than planned and has driven some firms that use macro hedging to rethink their approach.

The underlying assumption of buying volatility as a macro hedge is that equity market volatility will increase during periods of stress, meaning the contract pays out when it is most needed. That assumption proved correct at the height of the financial crisis in late 2008, when most markets dropped precipitously and equity volatility soared as participants sought to slash the risk on their books. However, it hasn't entirely held true this year. The sovereign debt crisis in Europe has not been as dramatic as the months following the collapse of Lehman Brothers, and the correlation between markets has been markedly less pronounced. While European debt and credit markets were quickly hit by the fiscal troubles felt by Greece, volatility only spilled into the equity market later on.

As an example, the cost of five-year credit default swap (CDS) protection on Greek debt moved from 280.5 basis points on January 4 to 384.4bp on February 1, before leaping to 824.5bp on April 27, the day Standard & Poor's downgraded Greek debt to junk. But the equity markets seemed initially unconcerned by the ballooning CDS spreads on Greece and other peripheral European sovereigns. The Dow Jones Eurostoxx 50 index hit a year high of 3,012.65 as late as April 15, while the S&P 500 index reached a 2010 high of 1,217.28 at the close on April 23. With equity markets showing little sign of stress, volatility also remained muted. Fifty-day historical volatility on the Dow Jones Eurostoxx 50 dropped from 19.79 on February 1 to 18.79 on April 27, according to Bloomberg. Fifty-day historical volatility on the S&P 500 likewise fell from 14.4 to 10.77 over the same period.

It was only in May that equity volatility started to climb as concerns about the severity of the eurozone crisis finally sparked selling in the equity markets. The Dow Jones Eurostoxx 50 hit a year low of 2,488.50 on May 25, while the S&P 500 closed at a low of 1,022.58 on July 2. Fifty-day historical volatility reached 39.14 for the Eurostoxx and 27.86 for the S&P 500 on July 1.

The initial de-correlation between equity and credit markets meant any long equity volatility position would not have worked as an effective hedge for credit or debt holdings in April. Only when equity market volatility began to rise in May would such a hedge have paid out. That contrasts with late 2008, when equity volatility hedges would have worked better, with equity markets turning at the same time as most other asset classes following the collapse of Lehman Brothers.

“What we saw in 2010 was a dislocation between asset classes that was certainly not what we saw in 2008. In 2008, we just saw a general flight from risk, but this year we’ve seen a much more nuanced reaction to market evolution. There has been a total disconnect between credit and equity markets in certain sectors that has made the macro-hedge environment more difficult,” says Dan Fields, global head of trading at Société Générale Corporate and Investment Banking (SG CIB) in Paris.

Despite the more complicated environment this year, market participants have been looking more fundamentally at their exposures since the onset of the crisis in an effort to find those macro hedges that work best and cost the least. For some, that would involve putting on hedges in asset classes they wouldn’t previously have considered.

“Before the credit crunch, asset investors were more focused on hedging within their own asset class, but there was an increasing realisation that in distressed climates, correlation between asset classes tends to rise. That has driven risk managers to shop around across asset classes to find the cheapest hedge. Of course, the further you depart from the original asset class, there’s always the risk the payout may not be as appropriate as the payout of being in the original asset class,” says Yazid Sharaiha, global head of quantitative and derivatives strategy at Morgan Stanley in London.

The balance between cost and the sensitivity of the hedge to a stress event is probably the greatest single challenge of macro hedging. This year, that balance appears to have been skewed as equity volatility was not initially triggered by stress in the debt market. But some participants still believe macro hedges can work in a stressed environment and are undeterred by the dislocation in European markets in April.

“We’re in an environment where macro forces are dominating everything and asset classes that historically exhibited a fairly low level of correlation have behaved in an extremely correlated manner. So we have worked with our clients and tried to identify those hedges that will perform best when liquidity falls. Our overall view at the moment is that short-dated options are a fairly good play,” says Dean Curnutt, president of Macro Risk Advisors, a New York-based asset management firm, and previously head of institutional equity derivatives and convertible sales at Bank of America.

Not everyone is so convinced of the merits of using equity volatility as a macro hedge. Some seasoned risk experts believe the cost is too high to justify at the current time, particularly as portfolios may already be underperforming, leaving little spare cash to invest in macro hedges.

“The real problem is that hedging equity volatility by buying protection can be extremely expensive over time and may offset your alpha strategy, leaving very little residual excess spread during normal times. Portfolios are yielding marginal returns at the moment, so to accept a 3–4%

cost to hedge your portfolio may wipe out all the potential upside,” says William Martin, chief risk officer (CRO) at Wilton, Connecticut-based Commonfund, and previously CRO for investment management at Bank of America.

For those willing to turn to the equity market as a macro hedge, simple out-of-the-money puts or option strategies are the favoured option. However, variance swaps have also been popular in recent years among more sophisticated investors. Variance swaps give investors a payout equal to the difference between realised variance and a pre-agreed strike level, times the vega notional. Because variance is the square of volatility, the variance swap offers buyers greater convexity in the payout than a straight volatility swap.

Variance swaps

Despite heavy losses on short single-stock variance positions at the height of the crisis, which caused many dealers to stop quoting on that product, index variance swaps have remained popular with investors as a macro hedge. As a result, some dealers ended up short variance in early 2010, either because they took a decision not to fully hedge the short positions built up through client trades in the mistaken belief that volatility would remain reasonably low, or because they were unable to source sufficient long variance to hedge the risk. When volatility spiked in May, they found themselves frantically trying to buy back variance at elevated prices – an exercise that wasn’t always successful.

“For dealers, it was really a tough challenge to find an offer on variance swaps in Europe in May, and variance swaps are trading at a premium now compared with historical prices. In 2007, every hedge fund and some asset managers had a systematic short variance swap programme and every dealer used to be long the variance swap. But there has been a lack of sell-side flow in variance swaps in recent months, so the market has gone more one-way and has become less liquid,” says Bruno Benoit, global head of equity flow derivatives for Europe at SG CIB in Paris.

Market participants see the spikes in volatility that began in May as a turning point for the variance market, after which dealers became uncomfortable being short volatility. As they pulled back, liquidity diminished and variance swaps became a less reliable and more costly hedging instrument for dealers and investors.

“In the first quarter, those running long volatility books were losing money and probably reducing their positions, and dealers were getting comfortable selling long-term volatility. The sudden increase in realised volatility around the flash crash on May 6 and the European sovereign issues put a lot of fear into the market and created concern about an imbalance between supply and demand. Suddenly, the volatility and variance market wasn’t a great place to find hedges,” says Alan Gerstein, senior portfolio manager at BlueMountain Capital Management in New York.

These short volatility positions are believed to have caused losses for a number of dealers that had built up large exposures in the early part of the year. On July 20, Goldman Sachs revealed its net revenues for equity trading had plunged from \$1.47 billion in the first quarter to \$235 million in the second quarter – just under 11% of the \$2.16 billion revenue it recorded in the second quarter of 2009. The decline was attributed to falling equity prices and higher volatility during

May and June that had caused problems for the short volatility position the bank had taken to satisfy client hedging needs.

“A significant driver of our lower equity trading revenues stems from our franchise clients who had been actively looking to hedge their portfolios by being long equity volatility positions. As a result of meeting franchise client and broader market needs, we had a short equity volatility position going into the quarter,” said David Viniar, Goldman’s chief financial officer, in an earnings call on July 20.

For other participants, the one-way variance market and increased cost of buying volatility have made variance swaps a less likely constituent of a macro-hedging strategy. Where a dealer might previously have bought variance swaps as a macro hedge that would give juicy payouts in the event of a spike in volatility, that position has now become prohibitively expensive. “As a bank risk manager, I might look to hedge my extreme black swan risk on equities through a long variance swap. In the past, the premium was much less than I would have to pay today and the size of the market was more significant. So the reality is that variance swap hedges will now make up a smaller portion of my macro-hedge portfolio than they did in the past,” says SG CIB’s Fields.

Alternatives

For Fields and other risk managers looking to macro hedge, the difficulties in the variance market during May and June have driven them to seek other opportunities across asset classes. The liquidity and relative cheapness of foreign exchange volatility has attracted some participants to use that asset class as part of their macro-hedging portfolio, but some dealers believe other opportunities remain at the more vanilla end of the equity volatility market.

In January 2009, Barclays Capital launched two new exchange-traded notes (ETNs) referencing the Chicago Board Options Exchange’s Vix index – the first volatility ETNs in the market. The more popular trading instrument, known as VXX, is linked to the shorter end of the volatility curve, while the longer-term product, VXZ, links to the three- to six-month part of the curve and allows investors to express a longer-term view on volatility.

“We deliberately designed VXX and VXZ to be as simple, transparent, efficient and fungible as possible. They give investors exposure to vega without the path dependency of options or the complications of variance,” says Joshua Spitz, head of European index derivatives trading at Barclays Capital in London.

The volatility ETNs have attracted significant volume, with 79 million VXX trades on May 20 and 46 million trades on May 6, the day of the flash crash, according to Bloomberg. But it’s difficult to judge which buyers have used the ETN as a hedge and which are retail investors taking advantage of the easy access to volatility. Some market participants believe the opportunity to buy volatility in an exchange-traded format, without the complications posed by over-the-counter instruments, does represent an appealing hedging opportunity.

“The Barclays ETNs have been very liquid and popular among those investors that are less involved in the OTC market and so don’t want to trade swaps and have to delta hedge their positions. There is a significant amount of vega in these products, so I think they’ve been a good alternative hedge for some firms,” says BlueMountain’s Gerstein.

But he adds that index variance swaps remain the product of choice for more sophisticated firms. “In terms of a hedging product, when I look across the market at the products available, I still think the easiest and best way to trade volatility in the liquid indexes is through variance swaps,” Gerstein says.

Other market participants agree bespoke OTC products often provide a better fit for sophisticated investors than standard exchange contracts. “I’m not a big believer in off-the-shelf products to hedge a customised portfolio – I prefer a diversified hedging portfolio that pulls in products from different markets that are relevant to the risk of your portfolio. That means looking across different asset classes, assessing the risk and return characteristics of each asset class and the embedded beta within the aggregate portfolio under different stress scenarios. These can then be used to construct a portfolio hedge that actually reduces the risk profile of your portfolio while leaving the upside potential of your alpha strategy intact,” says Martin of Commonfund.

SG CIB’s Fields is of the same opinion, and says macro hedging should never rely on a single product. Instead, those wanting to put on a macro hedge should take advantage of all relevant and appropriate trades across asset classes.

“In May and June, a long equity volatility position might not have hedged against the moves we saw on Portugal, Ireland, Italy, Greece and Spain. But we never would have expected any one asset class to hedge an entire portfolio, because we don’t expect full correlation between asset classes in every crisis,” says Fields.

Goldman suffers after long vol recommendation

Goldman Sachs’ profits from equity trading in the second quarter fell almost 90% year-on-year after stocks endured a torrid time in May. The bank had been positioned to profit from calmer markets, in part as a result of clients seeking to hedge against higher volatility.

Goldman’s results back up widespread rumours that have been circulating among rival dealers since May, when equity markets were hit by a combination of high volatility and skew – a rocky period for many banks (*Risk* July 2010, pages 53–55). Traders identified a number of firms that were thought to have suffered, but unanimously pointed the finger at Goldman, with some claiming losses there had reached \$250 million. Goldman traders and spokespeople refused to comment at the time.

Ironically, Goldman’s global research team recommended selling equity volatility – via a short S&P 500 Dec10/Dec11 forward-starting variance swap – as its number-one tip for 2010 in an investment outlook published at the start of December last year. The note summed up the coming year as “Exciting, with risks!”

Bank of America Merrill Lynch – another of the banks said to have lost money on short volatility positions – reported a \$678 million drop in equities profits in its second-quarter report, blaming “unfavourable market conditions and increased volatility, which negatively impacted the equity derivatives business”.

Any dealers that held short volatility positions or short variance positions going into May will have endured a rough ride. The rise in volatility in May followed intense anxiety about Greek

sovereign debt, contagion to other eurozone sovereigns and banks, and fears over the future of the euro.

There was also a peak in skew – the difference in implied volatility between out-of-the-money put options and out-of-the-money calls. Three-month 90–110% implied volatility skew on the Dow Jones Eurostoxx 50 index touched 15% on May 20, compared with a high of 12.8% seen after the collapse of Lehman Brothers in 2008, according to Deutsche Bank.