

The Volatility Landscape -

Is it here to stay?

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As we have recently seen, market sentiment can change drastically when economic, political and even environmental factors combine to create uncertainty. With uncertainty inevitably comes volatility.

The most recent market volatility began during the last week of July due to tensions surrounding efforts to raise the U.S. debt ceiling to prevent a potential government default. Many figured a default by the U.S. would never happen however the market is always looking for a catalyst. When you consider additional factors such as European sovereign debt issues, the tsunami (and subsequent nuclear meltdown) in Japan, and a stagnant world economy, the market was plenty ripe for a jump in volatility.

August has brought about the highest levels of realized market volatility since the Financial Crisis of 2008/2009. The S&P 500 Index (SPX) 20- and 60-trading day realized volatility as of 8/29/11 was 52% and 32%, respectively. For some perspective, consider that the SPX 60-trading

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day realized volatility has averaged less than 16% from 1970-2010. As you would expect, implied volatility in the SPX (as measured by SPX options) jumped as well. The widely followed VIX, which is priced off of SPX options and is a measure of expected 30-day volatility, also reached its highest point of 48 since the Crisis. SPX volatility has had roughly one large spike every decade since 1970: the Financial Crisis (2008/2009), long-term capital management (LTCM) failure (1998), the Crash of 1987 and the bear market of 1974. The current volatility spike actually eclipses the readings in both LTCM and that in 1974 (20-trading day realized volatility). Are two such spikes in relative rapid succession a sign that volatility is here to stay?

PIMCO's Mohamed El-Erian wrote a piece last year titled *Uncertainty Changing Investment Landscape* in which he believes that volatility is here to stay. "It is the shape of dispersion that strikes us as particularly important. It seems that, wherever we look, the snapshot for 'consensus expectations' has shifted: from traditional bell-shaped curves- with a high likelihood mean and thin tails to a much flatter distribution of outcomes with fatter tails." In statistics, what El-Erian is describing is leptokurtosis - or skew. The normal bell curve of expected returns has flattened as extreme moves and black swans do and will happen more often than traditional investment risk management has factored in, leading to "fat tails" in the distribution. Options market-making is deeply rooted in theoretically pricing this bell curve - in fact, that's all

options trading really is. Probability distribution begins and ends with standard deviation. Options pricing is no different. The standard deviation, or volatility, is the one input that is, more or less, the only unknown. It is so important, that market-makers quote markets in volatility terms.

Is there really a "new normal" as it applies to options and probability distribution? Well, implied volatility is obviously elevated which is evident in the VIX futures term structure. Currently the VIX futures out through May 2012 are all 30 or higher. The 20 yr cash VIX average is 21.7. The VIX futures are basically pricing in a 50% premium to the historical average. Additionally, skew readings (SPX 3-month options) are in the top 5% of readings going back 6 years. Leptokurtosis is being priced in - at least to the downside. Volatility trading is often based on mean reversion - a return to the long run average.

The "new normal" put forth by some like El-Erian would intimate a regime shift in volatility trading. It may be taking hold, but I'm always wary of the "it's different this time" mantra. As with anything , time will tell.

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