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"Men in general are quick to believe that which they wish to be true."
— Julius Caesar

One of my most memorable trades was a time I bought short-dated out-of-the-money S&P 500 index calls from a systematic overwriter. I remember buying these short-dated calls every month and needing to request a position limit exemption from the exchange in order to inventory several hundred thousand index options. I lost money on these calls almost every month I bought them. It was painful. That is, until the time they finally paid off.

I estimated the odds of getting an eventual payout were ultimately in my favor, making the trade a positive expected value bet over time. The problem was *time*. How much time did I have to endure, continuously losing money buying these? The options appeared "cheap," I calculated they had positive "edge," but I knew I was likely to lose in the short term and did not know how long I would suffer. My estimates indicated it could take about two years of continuous buying and bleeding premium (pain) prior to the expected payoff.

Fortunately, I got lucky and it only took about six months of consistently buying these calls until the options were worth about 50 times what I paid. I always remember those trades when I hear about weekly options.

Weekly options are the new most exciting trade in the market and much of the commentary is centered around selling them. Recent data indicate that more than a third of the volume in the S&P 500 options market has an expiration of less than two weeks. When you consider the sheer size of the S&P 500 market, which trades hundreds of billions of dollars of daily notional volume, you can see just how important the weekly contracts are.

Most of the research on weekly index options is limited to a few short years of backtests that generally promote naked selling in some way, shape or form. Often, these "high Sharpe, low risk" strategies start after 2008. Many people market these ideas, purporting that the blind selling of weekly options results in free money. We disagree.

At current premium levels, these strategies could have dangerous consequences. Systematically selling unhedged weekly index options is not as safe as it appears. While the S&P 500 weekly options have only actively traded for a few years, we have the benefit of observing the underlying index returns for decades.

How does selling naked weekly strangles in the S&P 500 at today's option prices perform over long periods?

Currently, selling a 3% out-of-the-money strangle on the S&P 500 with 5 trading days to maturity will generate about $2 in premium or 11bps (with the index at $1875). How does a strategy of selling weekly strangles perform through time if the option premiums are fixed at today's prices?

Since 1950, the S&P 500 has risen or declined more than 3% in 5-day rolling periods about 12% of the time. Most of the time—about 88% of the time—the naked strangle seller retains the $2. What happens the other 12% of the time when the market moves more than 3% in a week?

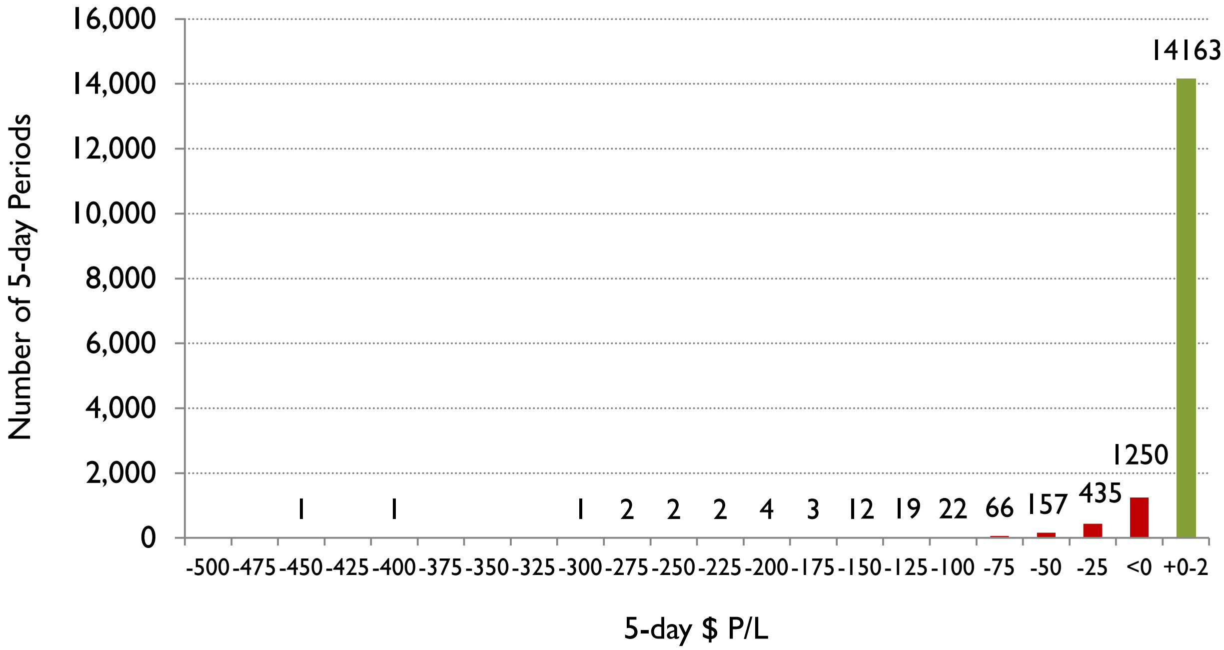

Figure 1: A histogram of the $ P/L of selling a 5-day 3% out-of-the-money put and 3% out-of-the-money call on the S&P 500 using 5-day rolling market moves since 1950 using today's option premiums as fixed.

While 88% of the time the seller earns his $2 (or 11bps), the average loss in the other 12% of the time is about $27.45 (or 146 bps of the index). The maximum loss was as high as $455 (or 24% of the index).

The expected value is therefore (88% × 11bps) + (12% × -146bps) = -8bps. Translated into dollars, you risk losing $1.48 per trade.

Based on this simple exercise, the expected loss of selling these options at current premium levels is only slightly better than the expected (negative) payout a casino owner will give you at the roulette table. Just like roulette, you may show profits over stretches of time. Ultimately, however, a negative expected value trade repeated over time will wipe you out.

The risk of ruin from systematically investing in negative edge trades over time is extremely high.

At the current low premiums, the math shows the odds favor buying the weekly options. How high must the premiums be on the weekly options such that the odds favor selling them? An easy exercise is to calculate the breakeven point based on the historical 5-day movements of the S&P 500.

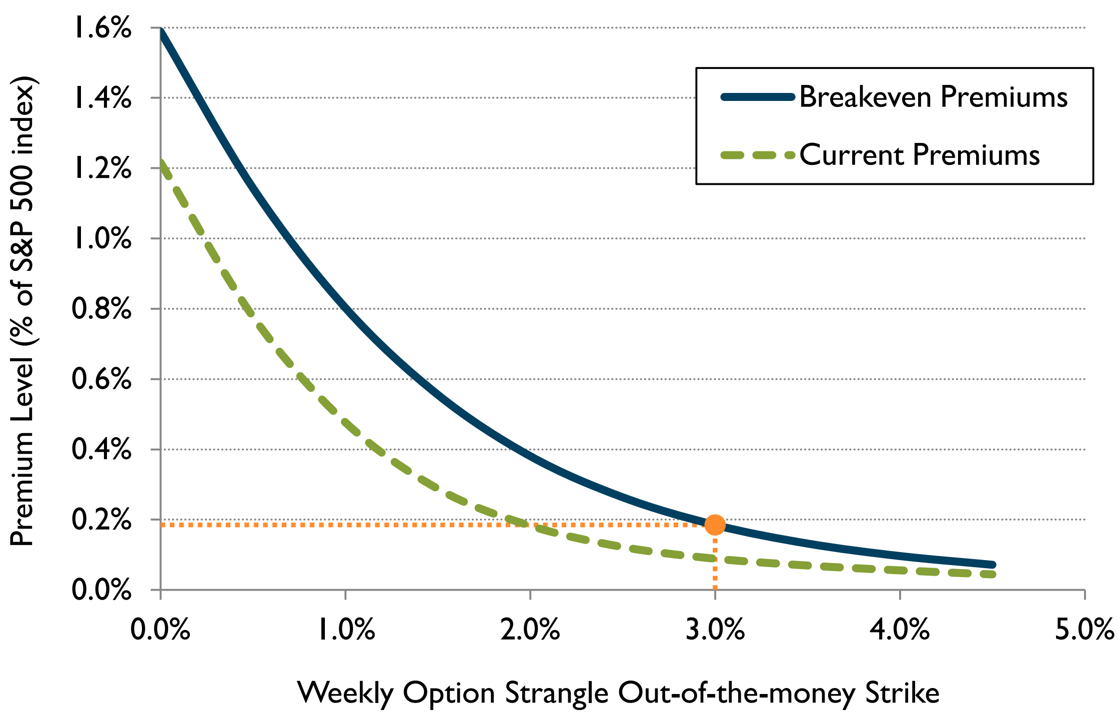

Figure 2: Current option premiums and option premiums required to break even by trading a 5-day at-the-money straddle or out-of-the-money strangle at different strike prices.

From our earlier example, the 5-day 3% out-of-the-money strangle breakeven level is 18.5bps. If the premium collected on the strangle exceeds 18.5bps, selling it would have a positive expected value according to this analysis.

It is important to remember, however, that having positive edge on any given option trade at a single point in time is not a guarantee of future profit. The edge can vary widely and the time required to realize the edge may be longer than an investor's willingness to wait.

We wrote about how long an investor should expect to wait before an investment pays off in a letter from last year.[1] Many would rather receive "certain" near-term income with the belief that the inevitable is far off in the future.

Trading weekly options can be a profitable and positive expected value business if done correctly. This involves knowing when to sell *and* buy them, how to size the positions and how to hedge them—all processes that require tremendous discipline. Being married to one side of the trade is dangerous.

[1] http://lakehillgroup.com/files/Lake_Hill_Capital_Management_May_2013_blog.pdf

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