

ALTERNATIVE VIEWPOINT

Fueled by Randomness: Has the BXM Run Out of Gas?

OCTOBER 2015 | JOSHUA B. PARKER & ALAN L. SALZBANK, GARGOYLE

As part of its ongoing research of the effectiveness of hedging strategies, the Gargoyle Research Team studied the performance of the CBOE S&P 500 BuyWrite Index (BXMSM) for the past 15 years. We found that from January 2000 through December 2011 the BXM significantly outperformed the S&P 500, having a 3.12% annualized total return versus the S&P's 0.55%. What's more, it managed to do so while having a 24% lower volatility than the S&P.¹

The benefits of buy-writing are well documented. Buy-writing the S&P 500 can improve its risk-adjusted return. Two questions that remain are why it worked so well in the earlier period, and what went wrong in the period since 2012 when the S&P was up 74.56% and the BXM was only up 25.87%?

To answer these questions we need to keep in mind two of the benefits of overlaying a sale of calls on an index, which work together to improve risk-adjusted return. First, the buy-writer is reducing the volatility of returns; both upside and downside moves in the market are muted by the negatively-correlated, short call option position. Second, studies show index calls are typically overpriced, which makes the strategy even more compelling than the typical covered-call strategy for individual equities.²

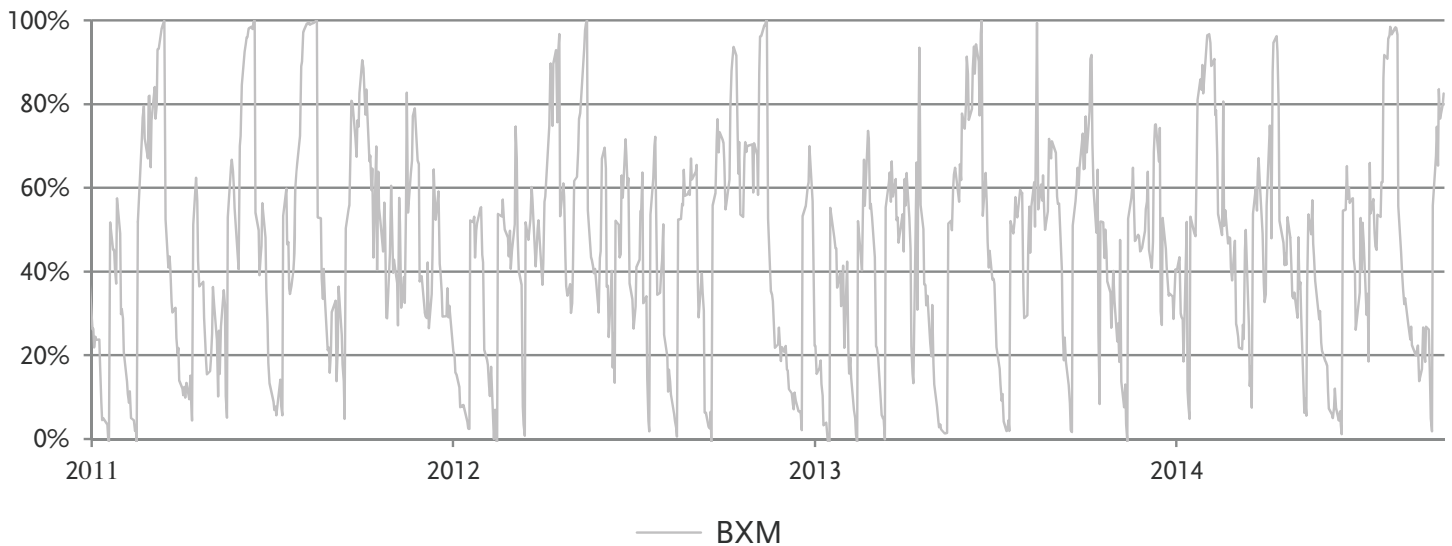
The BXM algorithm buys the S&P 500 and sells call options once a month, on Expiration Friday, leaving that position in place until the next Expiration Friday. The flaw in the BXM's static approach stems from the timing and constancy of the hedge. After sustained market moves in either direction, this static approach will cause the buy-writer either to be fully invested (when the market has moved low enough that the short calls become worthless, providing no further protection) or to be completely on the sidelines (when the market has moved high enough that further advances cause the losses on the short calls to exactly offset additional gains as the market advances). Furthermore, after bull moves, the short options are deep in-the-money and sell for parity; i.e., no additional premium is embedded in the price of the option. After bear moves, the short calls are so far out-of-the-money that they are virtually worthless; once again, no option premium. Making matters worse, this phenomenon occurs every month to varying degrees as expiration approaches. In most cases, as expiration approaches, the BXM is positioned in short options that have practically no premium, reducing the potential alpha of the strategy. These varying market exposures are experienced more or less on a random basis by the passive buy-writer. The random timing of the exposure fueled the performance of the BXM strategy in 2011, but hurt it in 2012 through 2014.

¹ Annualized monthly volatility for the BXM was 12.4% versus 16.3% for the S&P from 2000-2011.

² B. Feldman, D. Roy, *Passive Options-based Investment Strategies: The Case of the CBOE S&P 500 BuyWrite Index*, Ibbotson Associates (2004) (17-18).

The random nature of the BXM's passive hedge is illustrated in Figure 1. The graph traces the net long market exposure of the BXM from 2011 through 2014 on a daily basis. That exposure randomly varies from as high as 100% to as low as 0%. Near those extremes, the portfolio was not properly hedged. Moreover, the options were trading either close to parity or close to zero, and were therefore no longer overpriced, leaving the investor no additional edge.

Figure 1: BXM Daily Net-Long Market Exposure

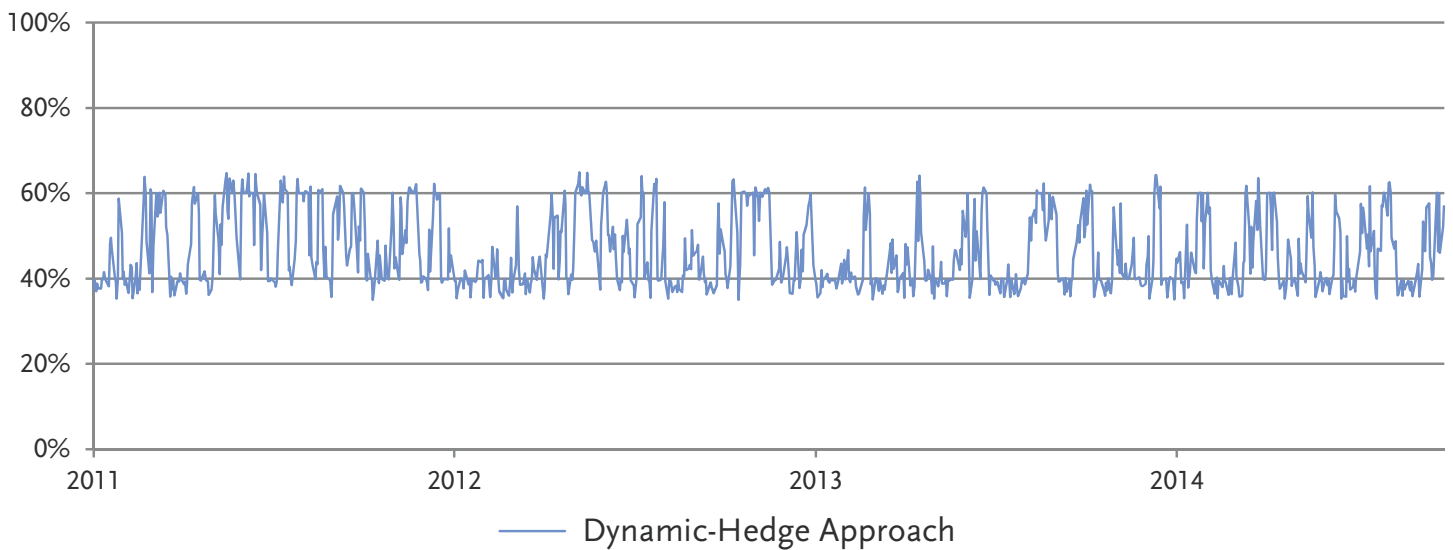


Source: Gargoyle

There is a better way. By constantly monitoring the option portfolio, and adjusting when necessary, the net long market exposure can be maintained within a predetermined band of acceptable exposure. Adjustments are made by buying back some of the options as the market rises or by selling additional overpriced options as the market falls. This has the dual effect of keeping the portfolio at least partially hedged (and partially participating) at all times and potentially increasing the amount of overpriced options sold over the long term.

Figure 2 shows the net long market exposure of Gargoyle’s Dynamic-Hedge Approach (DHA). The graph illustrates that at all times the net market exposure of the account was maintained within a band centered on a targeted 50% long exposure. In certain (random) months the volatility of exposure does not hurt the performance of the BXM, but that does not excuse its haphazard approach to hedging. As a matter of fact, the bulk of the outperformance of the DHA is directly attributed to periods in which the BXM is not properly hedged.

Figure 2: DHA Daily Net-Long Market Exposure



Source: Gargoyle

Table 1 details the performance of the BXM during periods in which the BXM was properly hedged (Inside Band), and periods in which it was not (Outside Band). The corresponding returns for the SPX and the DHA during those periods were measured and are shown as follows:

Table 1: Cumulative Returns of BXM and SPX 2000-2014

	Days	BXM	SPX	DHA
BXM Inside Band	1,623	60.68%	51.93%	65.01%
BXM Outside Band	2,150	13.28%	22.72%	64.25%
Total Return	3,773	82.03%	86.46%	170.25%
Volatility		11.38%	15.26%	9.24%

Source: Gargoyle

“Inside Band” represents dates where the net exposure of the BXM was between 35% and 65%.

During periods in which the BXM’s net long exposure is within the 35-65% band the returns of both the BXM and the DHA are both near 60% (60.7% vs. 65.0%, respectively). These compare favorably to the SPX return (51.9%) during the same periods. However, when the net long exposure is outside of the band (in either direction) the DHA does better than both the BXM and SPX. This should not come as a surprise to traders who are familiar with the trading axiom “cut losses and let profits run.” Essentially, the BXM violates that rule in every month that the market moves significantly. The DHA, on the other hand, adjusts to the trend of the market. This allows it to partially participate in up markets and partially protect in declining markets. By doing so the DHA outperforms the BXM 64.3% to 13.3%, respectively, in trending markets. This allows the 15-year return of the DHA to more than double that of the BXM (170.3% to 82.0%, respectively).

Table 2 demonstrates how the strong market has impacted the BXM strategy over the three-year period 2012 through 2014. The BXM strategy found itself outside of the 35 to 65% band 425 out of 754 days and underinvested more than 35% of the time (Below the Band = 265/754 days). During those periods the BXM underperformed the SPX -0.3% to 23.9%, respectively. The DHA approach returned a far more respectable 14.4% by adjusting market exposure and participating to a greater degree in the 74.6% market rally.

Table 2: Cumulative Returns of BXM and SPX 2012-2014

	Days	BXM	SPX	DHA
BXM Inside Band	329	8.52%	17.19%	9.20%
BXM Out of Band	425	15.98%	48.94%	31.01%
BXM Above Band	160	16.37%	20.17%	14.52%
BXM Below Band	265	-0.33%	23.94%	14.40%
Total Return	754	25.87%	74.56%	43.06%
Volatility		8.06%	11.75%	6.64%

Source: Gargoyle

In summary it appears clear that, once the decision is made to hedge a portfolio, the timing of that hedge should not be left to the random nature of market movements. By staying hedged at all times, returns and the volatility of those returns are improved.

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