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Simple Stock Index Option Strategies

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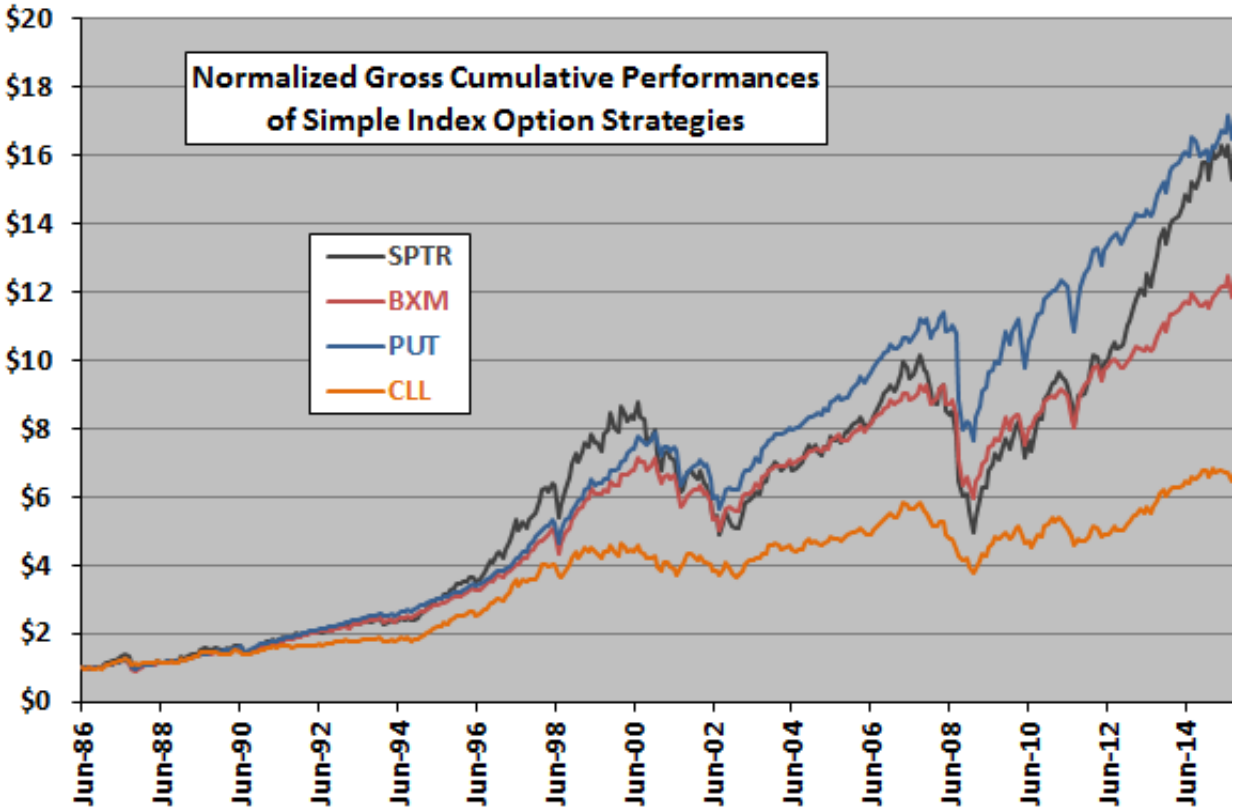
Do simple stock index option strategies (stock-covered calls, cash-covered puts and collars) outperform the underlying index? To investigate, we examine first the performance of the CBOE S&P 500 BuyWrite Index (BXM), the CBOE S&P 500 PutWrite Index (PUT) and the CBOE S&P 500 95-110 Collar Index (CLL), with the S&P 500 Total Return Index SPTR) as a benchmark. Since these series are modeled indexes rather than tradable assets, we then examine the relatively short records of exchange-traded funds (ETF) and notes (ETN) designed to track BXM, iPath CBOE S&P 500 BuyWrite Index ETN (BWV) and PowerShares S&P 500 BuyWrite (PBP), with SPDR S&P 500 (SPY) as a benchmark. Using end-of-month levels/total returns for SPTR, BXM, PUT and CLL since June 1986, and for SPY, BWV and PBP since December 2007 (limited by inception of PBP), all through August 2015, *we find that:*

The following chart compares the gross cumulative values of $1 initial investments in SPTR, BXM, PUT and CLL at the end of June 1986. BXM tracks the underlying SPTR fairly closely, except after extended bull market runs. PUT mostly outperforms SPTR, and CLL generally underperforms. Results suggest that the premium carried by index put options is larger than that carried by index call options.

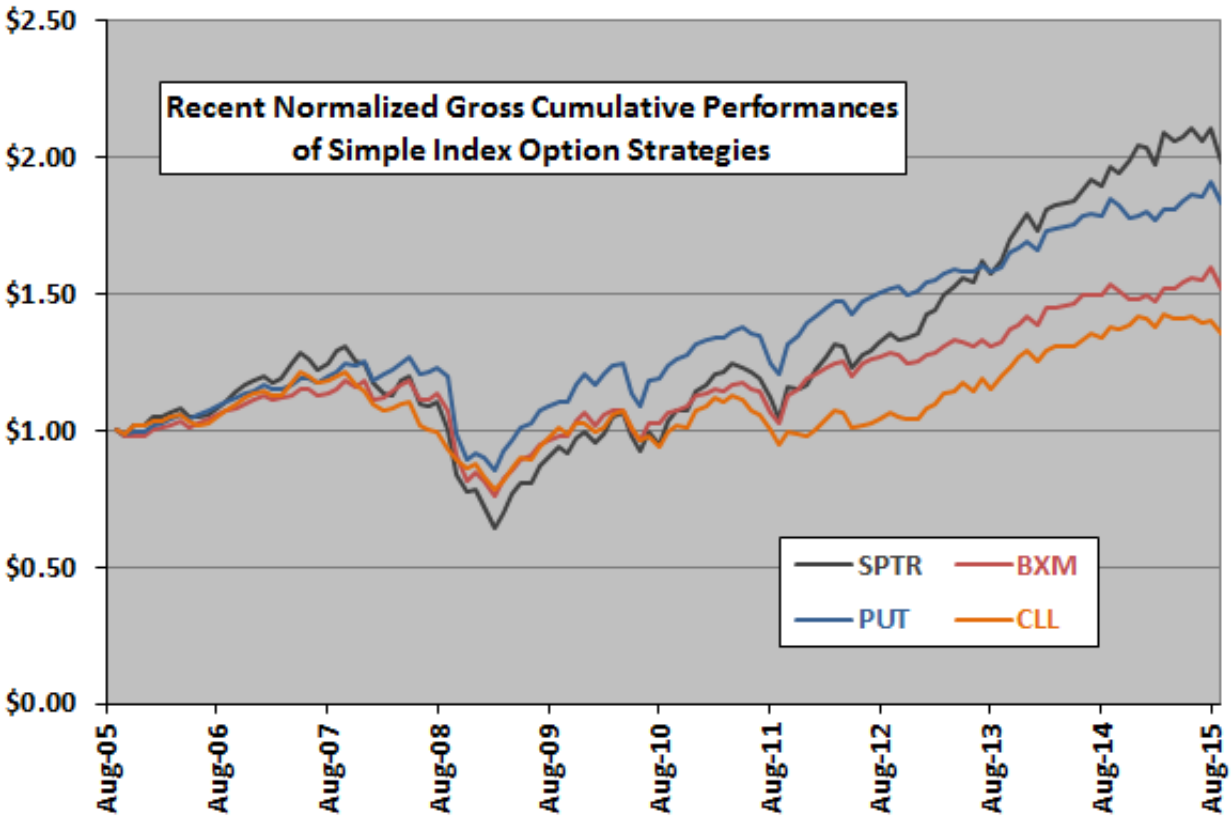
Compound annual growth rates (CAGR) for SPTR, BXM, PUT and CLL are 9.8%, 8.9%, 10.1% and 6.6%, respectively. Maximum (peak-to-trough) drawdowns are in the range -33% to -36% for the option strategies, compared to -51% for SPTR.

As a robustness test, we look at a recent subperiod.



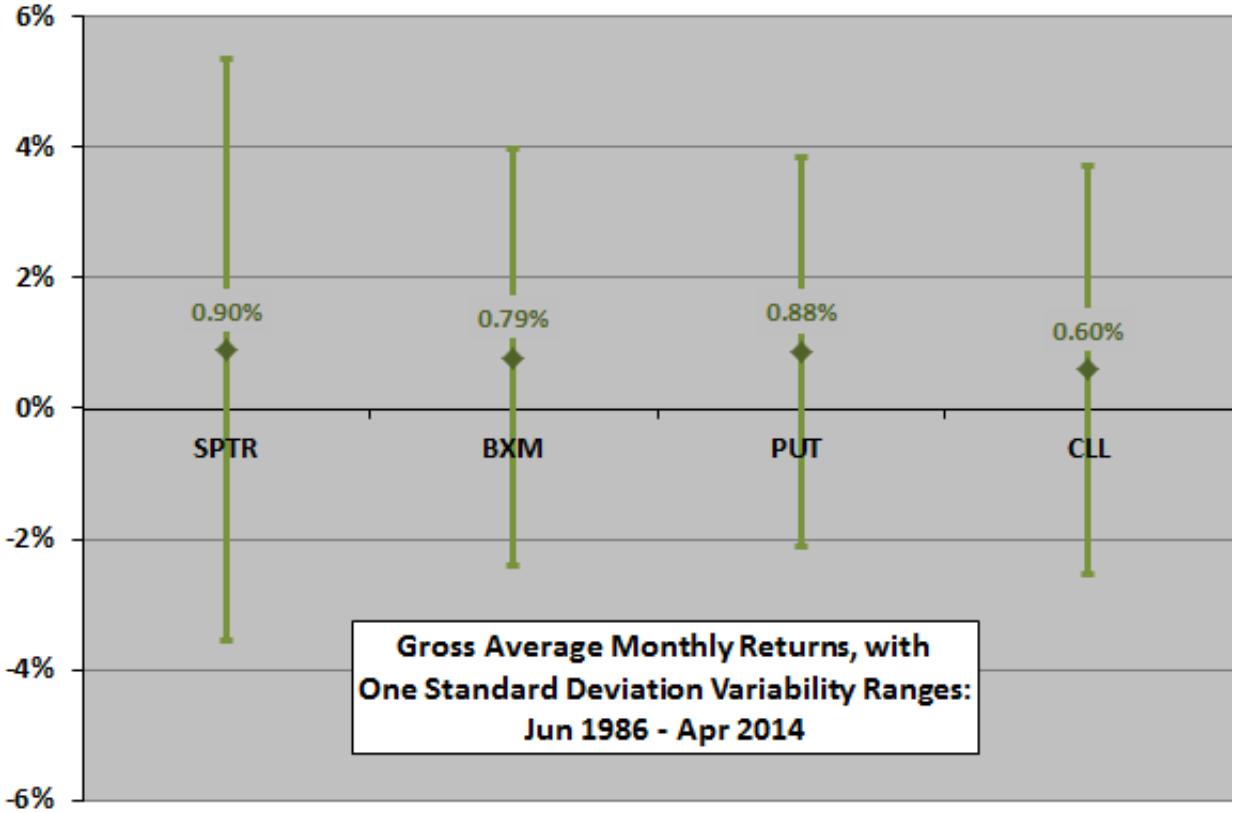
The next chart compares the gross cumulative values of $1 initial investments in SPTR, BXM, PUT and CLL at the end of August 2005. Results for the last ten years generally confirm those above for the entire sample period.

For a different perspective, we look at monthly return statistics.



The next chart compares average gross monthly returns for SPTR, BXM, PUT and CLL over the entire sample period, with one standard deviation variability ranges. PUT again appears most attractive, with relatively high average gross monthly return and relatively low standard deviation of monthly returns. Ratios of average monthly return to standard deviation of monthly returns for the four series are 0.20, 0.24, 0.29 and 0.19, respectively.

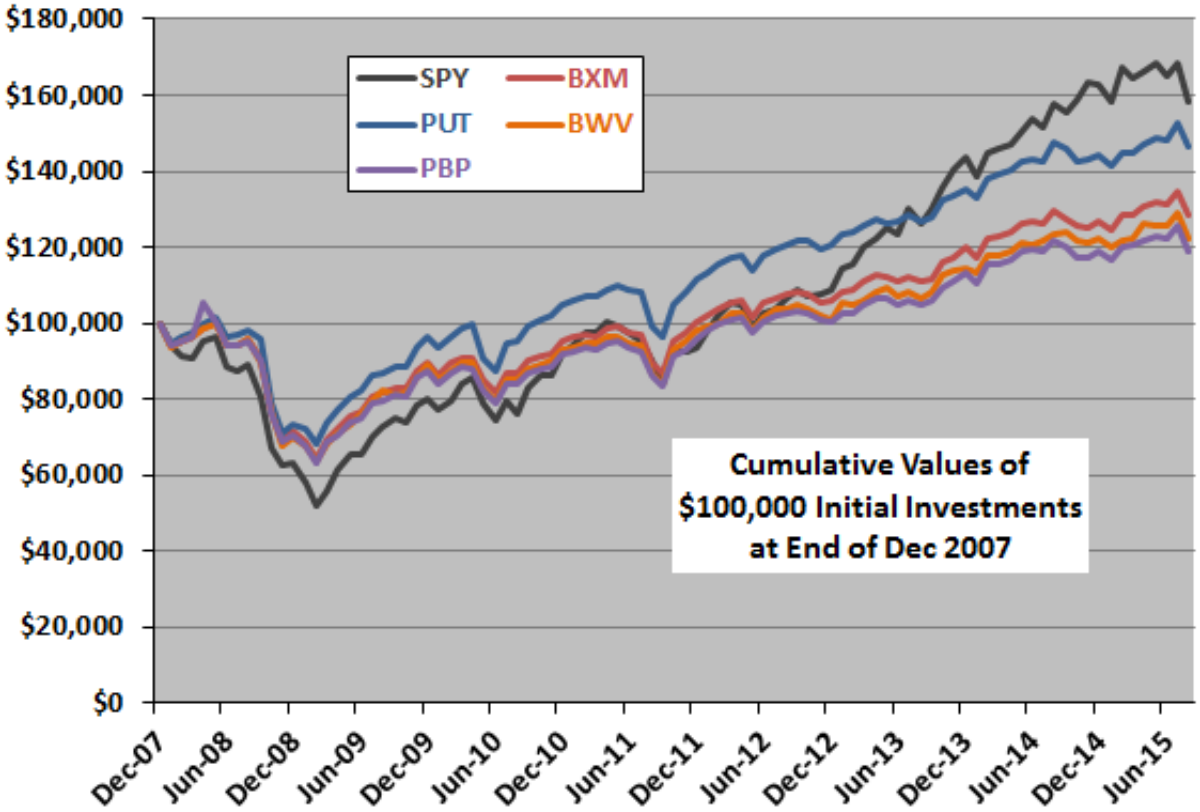
For more realistic performance of the covered call and put option strategies, we switch to the ETF/ETN implementations of BXM.



The next chart compares the cumulative values of $100,000 initial investments in SPY, BWV and PBP (and both BXM and PUT for comparison) over the available sample period. CAGRs for BWV and PBP are 2.7% and 2.3%, respectively, compared to 3.3% for BXM and 6.2% for SPY. The CAGR for PUT is 5.1%. Notable points are:

- BWV and PBP underperform BXM, reflecting the costs of implementation (trading frictions and management fees) of 0.6% and 1.0% per year.
- BWV and PBP substantially underperform SPY, undermining belief that an index covered call strategy outperforms buying and holding the underlying index. BWV and PBP do reduce drawdown during the 2008-2009 financial crisis (-36% and -40%, respectively, compared to -48% for SPY).
- As above, it appears that selling cash-covered index put options is superior to selling stock-covered index call options.

For another perspective, we look at monthly return statistics.

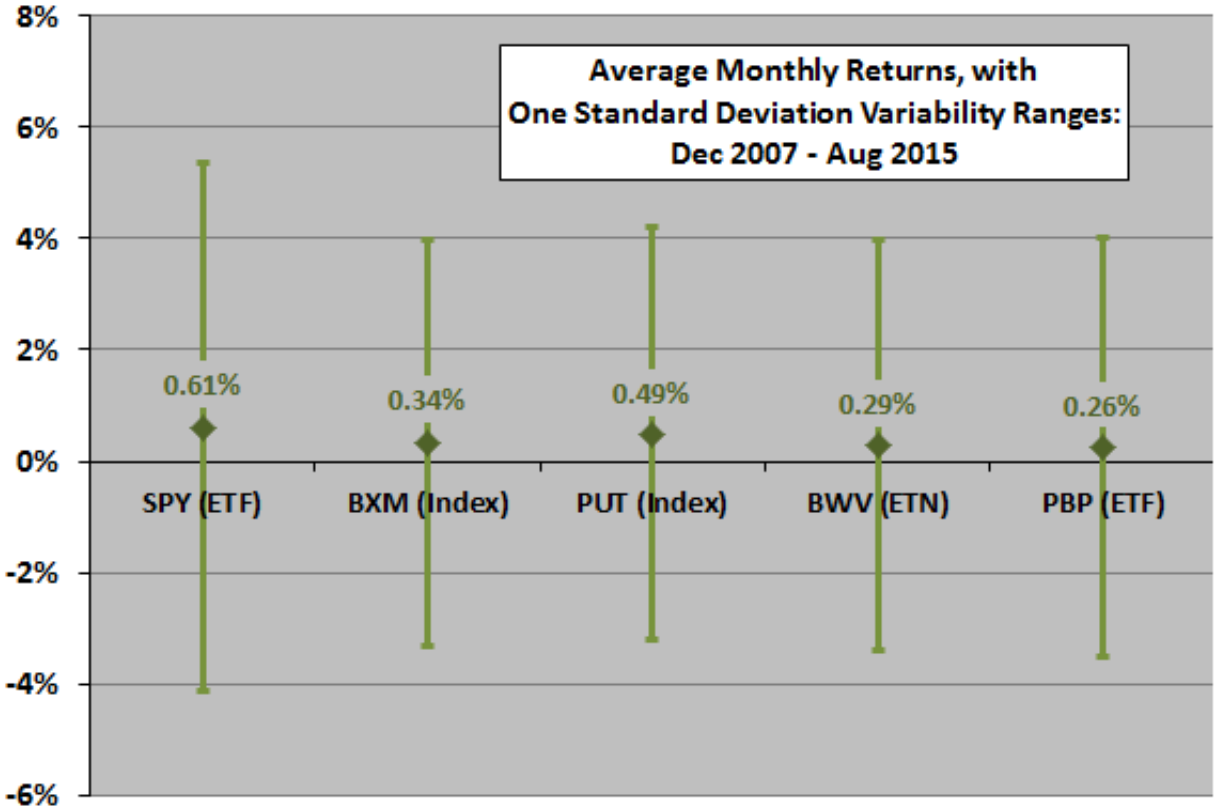


The next chart summarizes average monthly returns for SPY, BXM, PUT, BWV and PBP over the available sample period, with one standard deviation variability ranges. Notable points are:

- Option strategies are less volatile than the underlying index. Standard deviations of monthly returns for the option strategies are in the range 3.65%-3.77%, compared to 4.74% for buying and holding SPY.
- The average monthly implementation cost of BMV (PBP) relative to the ideal BXM is 0.05% (0.08%).
- Ratios of average monthly return to standard deviation of monthly returns are 0.13, 0.08 and 0.07 for SPY, BWV and PBP, respectively.

Correlations of BXM, PUT, BWV and PBP monthly returns with SPY monthly returns are in the range 0.87-0.90.

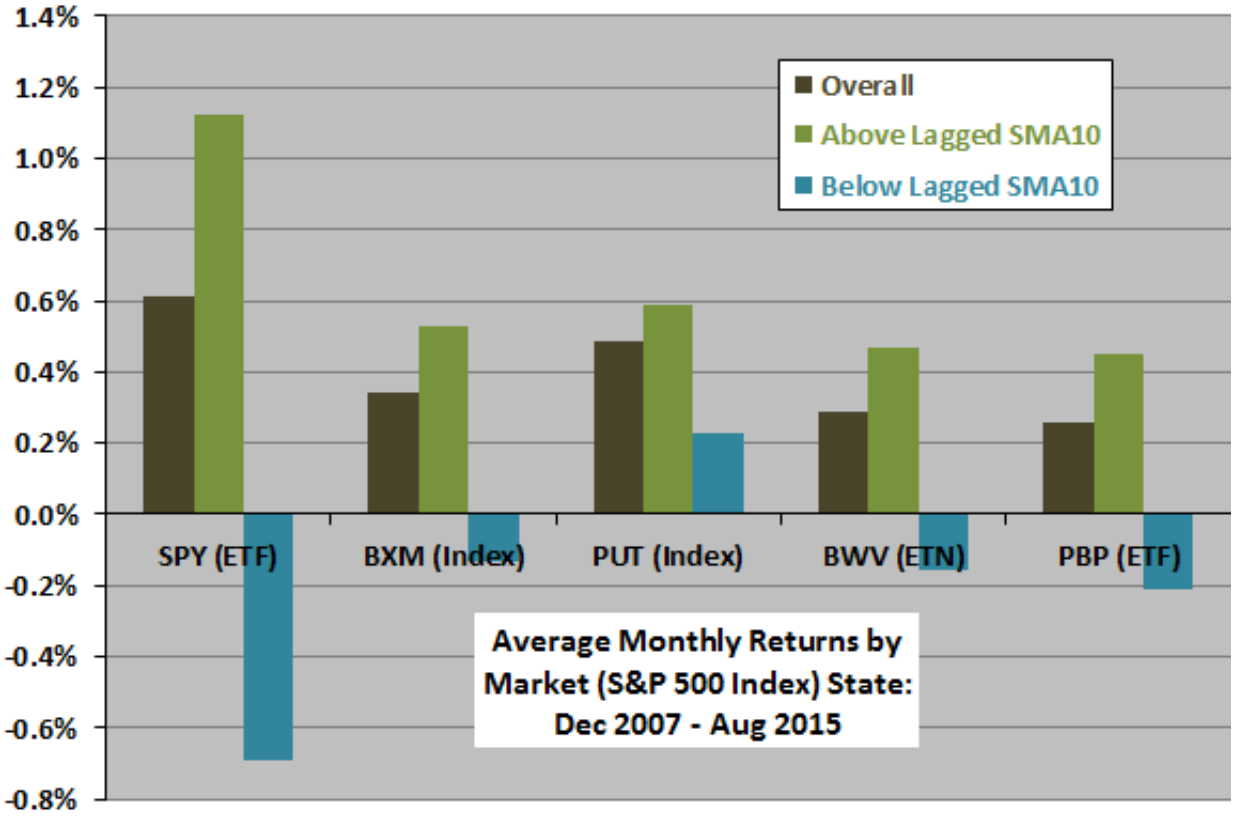
How do returns vary by market state?



The final chart summarizes average monthly returns for SPY, BXM, PUT, BWV and PBP according to whether the prior-month S&P 500 Index is above or below its lagged 10-month simple moving average (SMA10) over the available sample period. Notable points are:

- All assets/indexes perform better when the prior-month S&P 500 Index is above SMA10 (bull state) than below (bear state).
- Only PUT generates a positive return during the bear state, perhaps due to highly elevated put option premiums in this state. However, this return is gross of frictions and fees.

Assuming 0.2% one-way trading friction, no return on cash and no tax implications of trading, holding SPY (cash) when the prior-month S&P 500 Index is above (below) SMA10 materially outperforms the simple index option strategies based on CAGR (9.4%), monthly return statistics (return-standard deviation ratio 0.28) and maximum drawdown (-13%).



In summary, *evidence from simple tests offers little support for belief that simple index covered call strategies are preferable to buying and holding the underlying index. Selling cash-covered index put options is potentially attractive.*

Cautions regarding findings include:

- As noted, use of indexes with no accounting for implementation costs tends to overstate expected performance.
- As noted, the sample period for the ETF/ETN implementations of BXM is short, especially in terms of number of bull and bear markets.
- Simple option strategies executed with narrower indexes, individual stocks or other assets may perform differently.

See also this past live test of selling cash-covered index put options.