

Structured Solutions Using Options on Futures

Introduction

Structured investment outcomes have always been a benefit of using options in a portfolio. Utilizing option contracts can create a wide variety of outcomes, with both risk and reward being defined when the position is entered. Options on futures offer the same opportunities to create defined risk/reward outcomes. This paper explores three consistent methods of using end-of-month (EOM) options on E-mini S&P 500 futures (ES) contracts to create unique outcomes.

Strategy Data and Methodology

Each of the following scenarios involves trading the following month's options on ES futures that expire on the last day of each month. The strategies do not necessarily need to utilize EOM options, as there are E-mini S&P 500 options expiring each week. However, since this study focuses on monthly performance, EOM options were chosen.

Each performance testing and return is based on a \$50,000 account in place at the beginning of the testing period for each strategy. In the case of ES futures and options strategies, the number of contracts traded is based on the equity in each account. In all instances, the amount of capital is more than enough to cover the required margin associated with outstanding positions.

Historical data for all examples was gathered from Bloomberg. The options and futures pricing represents the end-of-day settlement prices for each instrument. Index and exchange-traded fund (ETF) data utilizes the end-of-day closing price for the respective market or trading instrument. Performance is calculated on a monthly basis beginning with January 2013 through September 2019. Finally, ES futures market performance is based on monthly returns, with rolling into the next expiration occurring on the last day of the month before a contract expires. For example, on the last trading day of February, the March contract would be sold and a June contract purchased as June is the next expiring contract after March.

Case 1: ES Futures/Options Strategy vs. S&P 500 Total Return

The first example compares a strategy that is consistently long one ES future and consistently short an EOM 5% out-of-the-money call versus the total return for the S&P 500. Selling the out-of-the money call actually creates a slight drag on performance; however, the additional trade lowers the volatility associated with this long futures, short call option approach. For example, Exhibit 1 shows the position at the end of June 2019 when the ES Jul 31st 2895 call sold at 4.20 and the September future was trading at 2756.00.

Exhibit 1: Strategy Position Implemented on June 28, 2019

Long 1 September ES Future at 2756.00
Short 1 Jul 31st 2895 Call at 4.20

Source: Bloomberg

Both hypothetical accounts begin with \$50,000 on the last day of 2012. Exhibit 2 shows the growth of \$50,000 with exposure to both investment approaches through September 2019. Each market approach has positive performance, which would be expected based on market activity over the past few years. However, the strategy position outperforms the buy-and-hold portfolio over time, with the futures/options strategy account growing to \$128,000 while a portfolio that matches the total return of the S&P 500 increasing to \$120,000.

Exhibit 2: Growth of \$50,000, January 2013 – September 2019



Source: Bloomberg

Exhibit 3 breaks down some of the performance attributes for both the futures/options strategy and the buy-and-hold portfolio. The average annual return for the strategy-based approach beats the buy-and-hold portfolio by 0.77%. This does come with slightly higher volatility of returns, however, as well as a larger loss for the worst month and a lower gain on the best month compared to the S&P 500 portfolio.

Exhibit 3: Performance Statistics

	Strategy	S&P 500 TR
\$50,000 Growth	\$127,825	\$119,959
Average Annualized Returns	13.39%	12.62%
Average Annual Standard Deviation	11.98%	10.60%
Best Month	7.23%	8.44%
Worst Month	-10.47%	-9.03%

Year	2013	2014	2015	2016	2017	2018	2019*
Strategy	45.64%	17.29%	-2.27%	12.71%	24.06%	-7.50%	18.38%
S&P 500	32.39%	13.69%	1.38%	11.96%	21.83%	-4.38%	20.55%

* First 9 months of 2019
Source: Bloomberg

This approach of consistently owning the near-month future and selling an out-of-the money call is very favorable alternative to a buy-and-hold portfolio. However, most market participants that use derivatives are seeking risk/return profiles that differ from buy and hold. The next two examples demonstrate these sort of investment goals.

Case 2: ES Futures/Options Strategy vs. Leveraged ETF

A second example of using futures and options on futures to create a structured return compares performance to an ETF that offers two times the daily performance of the S&P 500. Leveraged exposure has become more popular through the introduction of ETFs that offer these sorts of returns. However, leverage, properly used, has always been a benefit of using futures and options on futures.

This derivative strategy combines a two long futures, one long 5% in-the-money EOM call, short one 2.5% out-of-the-money call, and short two 5% out-of-the-money calls. An example of this strategy's position at the end of January 2019 appears in Exhibit 4.

Exhibit 4: Strategy Position Implemented on January 31, 2019

- Long 2 March ES Futures at 2505.25
- Long 1 Feb 28th 2380 Call at 154.25
- Short 1 Feb 28th 2570 Call at 34.50
- Short 2 Feb 28th 2630 Calls at 15.50

Source: Bloomberg

As Exhibit 5 shows, both the leveraged ETF and the ES strategy approaches benefit from the multi-year bull market. However, a consistent futures/options strategy returns almost \$30,000 more than placing money with an ETF that offers two times the performance of the S&P 500. Note that the \$50,000 using the futures/options approach grows to about \$250,000, while the leveraged ETF investment increases to about \$221,000.

Exhibit 5: Growth of \$50,000, January 2013 – September 2019



Source: Bloomberg

Exhibit 6 indicates that the performance statistics associated with a strategy-related approach versus a leveraged ETF are favorable for the strategy approach. The average annual return for the strategy is 23.66% versus 22.84% for the leveraged ETF, an outperformance of 0.82%. This performance is actually accompanied by lower volatility of returns, with the annual standard deviation for the strategy-based approach 1.77% lower than that of the leveraged ETF. The best- and worst-month statistics also favor the strategy-based approach.

Exhibit 6: Performance Statistics

	Strategy	2x Lev ETF
\$50,000 Growth	\$249,925	\$220,489
Average Annualized Returns	23.66%	22.84%
Average Annual Standard Deviation	19.76%	21.53%
Best Month	18.07%	17.45%
Worst Month	-13.89%	-17.93%

Year	2013	2014	2015	2016	2017	2018	2019*
Strategy	121.30%	30.19%	-7.91%	19.54%	40.50%	-11.00%	26.02%
Lev ETF	70.62%	25.41%	-1.32%	21.78%	44.32%	-14.71%	39.32%

*First 9 months of 2019
Source: Bloomberg

Leveraged returns are one goal for using derivatives, but lowering the risk profile of a portfolio is also an objective when using derivative contracts. The final case study in this paper looks at how to replicate a traditional buy-write strategy using futures and options on futures.

Case 3: Buy-Write with Futures/Options vs. BXM Index

The final example of a good use of options on futures demonstrates how to duplicate a consistent buy-write strategy with strong performance. Buy-write strategies often underperform just buying and holding the underlying security, but some investors find these strategies attractive due to the lower volatility of those returns.

The BXM Index has been around for years and is used to demonstrate the performance of a consistent strategy selling S&P 500 Index options against a portfolio that replicates the performance of the S&P 500. The BXM strategy consistently sells a one-month at-the-money call. The same strategy is implemented using ES futures combined with selling an at-the-money call option on ES futures each month.

For example, at the end of July this strategy would have been long the September ES future at 2982.25 and sold the closest strike option, the 2980 against this long short, much like an option would be sold against a stock to create a covered call. The positions appear in Exhibit 7.

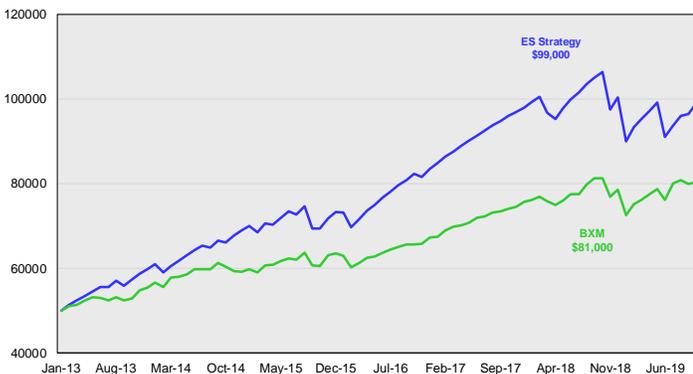
Exhibit 7: Strategy Position Implemented on July 31, 2019

Long 1 September ES Future at 2982.25
Short 1 Aug 31st 2980 Call at 46.00

Source: Bloomberg

As Exhibit 8 shows, a consistent buy-write strategy using ES futures and options results in \$50,000 growing to about \$99,000 over the time period tested in this paper. The BXM Index is also higher, but \$50,000 only rises to \$81,000.

Exhibit 8: Growth of \$50,000, January 2013 – September 2019



Source: Bloomberg

The average annual returns shown in Exhibit 9 are very strong for the ES strategy when compared to the BXM index, at 10.28% versus 7.01%. This outperformance is accompanied by a higher annualized standard deviation at 7.92% versus 6.51%. However, the Sharpe ratio based on the strategy portfolio is 1.29 versus 1.08 for the buy-write index, showing superior risk-adjusted returns.

Exhibit 9: Performance Statistics

	Strategy	BXM
\$50,000 Growth	\$99,075	\$80,433
Average Annualized Returns	10.28%	7.01%
Average Annual Standard Deviation	7.92%	6.51%
Best Month	3.68%	5.06%
Worst Month	-10.33%	-7.73%

Year	2013	2014	2015	2016	2017	2018	2019*
Strategy	22.05%	14.69%	4.45%	16.09%	17.06%	-9.46%	10.16%
Lev ETF	13.26%	5.65%	5.24%	7.07%	13.00%	-4.77%	10.88%

*First 9 months of 2019

Source: Bloomberg

Options on futures and futures are often equated with more speculative market activity. However, like all derivative instruments, they may be used to achieve a variety of desired outcomes. This paper simply highlights three basic ways to achieve unique goals solely using options on futures in a single market. The potential uses stretch far beyond these examples, as well as beyond just futures on the S&P 500 E-mini contracts.

About TABB Group:

TABB Group is a financial markets research and strategic advisory firm focused exclusively on capital markets. Founded in 2003 and based on the methodology of first-person knowledge, TABB Group analyzes and quantifies the investing value chain, from the fiduciary, investment manager and broker, to the exchange and custodian. Our goal is to help senior business leaders gain a truer understanding of financial market issues and trends, so they can grow their businesses. The press regularly cites TABB Group members, and analysts routinely speak at industry conferences and gatherings. For more information about TABB Group, visit www.tabbgroup.com