

Risk Mitigating Collar Strategy

Option-Based Risk Management In a Multi-Asset World

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Summary of

Option-Based Risk Management in a Multi-Asset World

By Edward Szado and Thomas Schneeweis (April 2012)¹

The Options Industry Council (OIC), as part of its mission to provide education and research to institutional investors, helped sponsor a paper on the performance of the collar strategy against a range of Exchange Traded Funds (ETF). The book was authored by Edward Szado, Research Analyst and Thomas Schneeweis, Professor of Finance, Isenberg School of Management, University of Massachusetts. Research support was provided by OIC. Research results, however, represent those of the authors and do not necessarily represent the views of the OIC.

The 2008 financial crisis and the associated decline in equity markets rekindled interest in option-based equity collars as well as in protective investment strategies in general. Many asset classes which were generally considered effective equity diversifiers faced significant losses during the crisis. The contagion across asset classes during the financial crisis suggests that protective option-based investment strategies such as collars, when implemented on a wide range of asset classes, could provide portfolios with greater downside risk protection than standard multi-asset diversification programs. In the recent book, Option-Based Risk Management in a Multi-Asset World, Szado and Schneeweis extend their previous research on the performance of equity-based collar strategies (Szado and Schneeweis [2010])² by considering the impact of collar strategies across a wide range of asset classes, including equity, currency, commodity, fixed income and real estate. The results of the analysis show that for most of the asset classes considered, an option-based collar strategy, using six-month put purchases and consecutive one-month call writes, provides improved risk-adjusted performance and significant risk reduction.

Figure 1 and Exhibit 1 illustrate the benefit of an equity collar strategy on the popular SPDR® S&P 500® (SPY) ETF. Over the 55 month study period ending December 30, 2011, the 2% out-of-the-money (OTM) passive SPY collar returned over 22% (4.5% annually), while the long SPY experienced a loss of over 9% (-2.1% annually). The collar earns its superior returns with less than half the risk as measured by the standard deviation (8.4% for the collar versus 19.5% for SPY). One of the most telling statistics supporting the potential benefit of equity collar protection is the maximum drawdown. During the study period, SPY experienced a maximum loss of 50.8% while the 2% OTM collar reduced this negative performance by 4/5 to a maximum loss of 11.1%.

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² Szado, Edward and Thomas Schneeweis, "Loosening Your Collar – Alternative Implementations of QQQ Collars," *Journal of Trading*, Spring 2010, Vol. 5, No. 2, pp. 35-56. The full 2010 paper and summary are also available at: http://www.optionseducation.org/news/research_articles.html#qqqcollar

Figure 1: Growth of \$100 SPY 1-Month Call/6-Month Put Balanced Collars

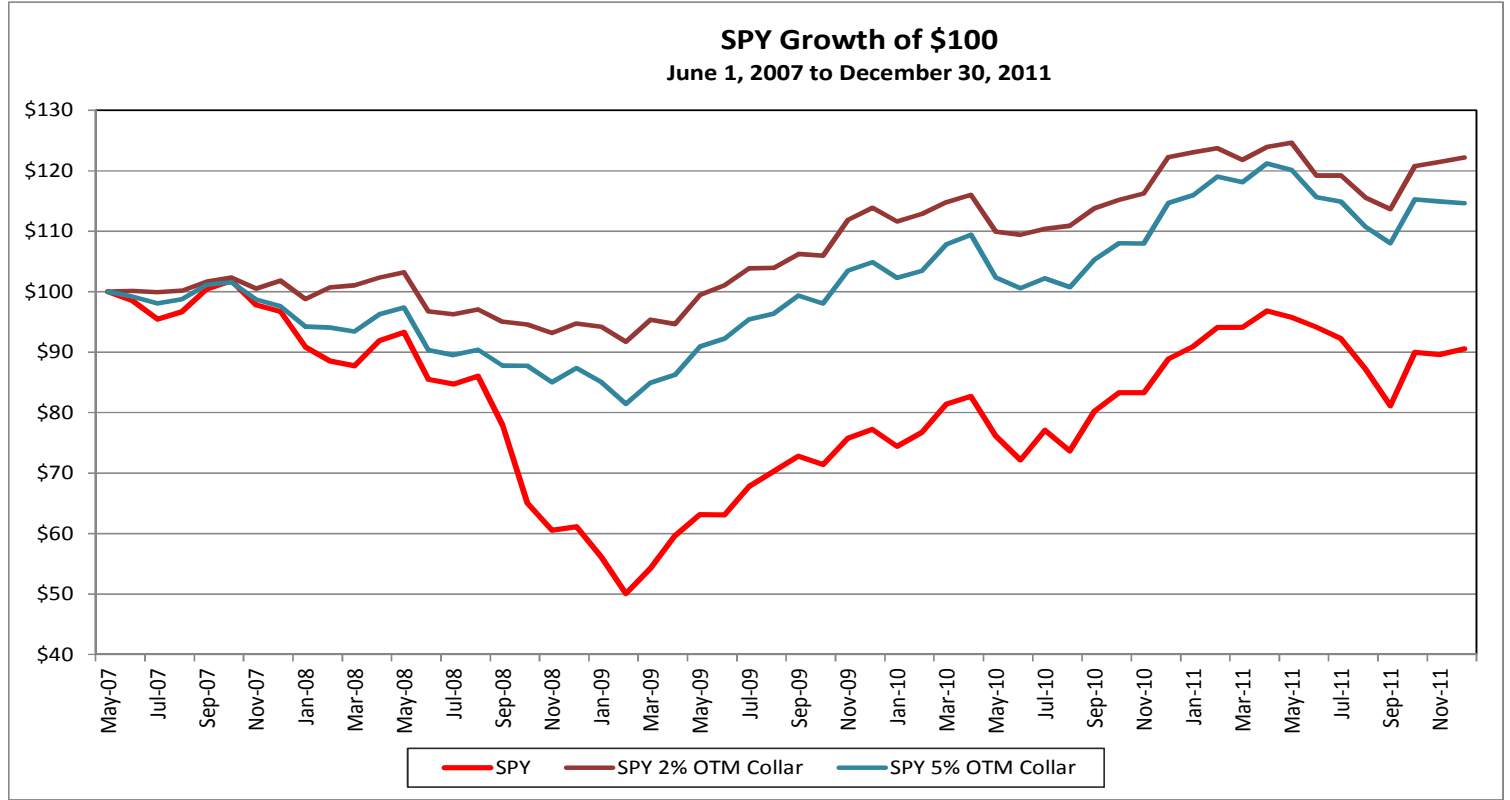


Exhibit 1: Summary Statistics SPY 1-Month Call/6-Month Put Balanced Collars

SPY Collar Summary Statistics June 1, 2007 to Dec. 30, 2011	SPY Total Return	ATM 1-Month Call, ATM 6-Month Put	2% OTM 1-Month Call, 2% OTM 6-Month Put	5% OTM 1-Month Call, 5% OTM 6-Month Put
Annualized Return	-2.14%	3.48%	4.47%	3.03%
Annualized Standard Deviation	19.46%	6.68%	8.37%	10.42%
Mean Monthly Return	-0.02%	0.30%	0.39%	0.29%
Median Monthly Return	0.01%	0.41%	0.57%	-0.03%
Period Cumulative Return	-9.45%	16.95%	22.17%	14.64%
Sharpe Ratio	-0.16	0.36	0.41	0.19
Maximum Drawdown	-50.80%	-8.99%	-11.13%	-19.81%
Maximum Run Up	93.38%	20.76%	35.85%	48.81%
% Down Months	47%	40%	36%	51%
% Up Months	53%	60%	64%	49%
Number of Months	55	55	55	55
Months in Cash		0	0	0
Months in Collar		55	55	55

In their book, Szado and Schneeweis evaluated the impact of collar strategies across a wide range of asset classes (See Exhibit 2) based on a set of trading rules with defined initial moneyness where a 6-month put is purchased and consecutive 1-month calls are written. At the close on the day before the Saturday expiration of the calls and depending on the particular passive implementation, the initial moneyness of the calls and puts were set at: 25%, 10%, 5%, or 2% OTM or at-the-money (ATM). At expiration, the calls were settled at intrinsic value and new 1-month calls with the specified moneyness were sold. The longer term put is held for another month. When the new 1-month calls are written, the net proceeds from the sale of the calls and the exercise value of the previous calls are fully invested in the strategy. The position is rebalanced to ensure a 1:1:1 ratio of the underlying ETF, the puts and the calls. Once the 6-month put expires, it is settled at intrinsic value and again rolled into new puts and calls with the specified moneyness and time to expiration. In order to include the impact of transaction costs, the puts are purchased at the ask price and the calls are written at the bid price when the options are established. A change was made from the previous paper's methodology² to avoid circumstances where the underlying prices decline significantly and new calls would have then been written at lower (crossed) strike prices than the existing deep in-the-money (ITM) puts. In these cases long put and long underlying positions would counteract each other and the new call would essentially be written naked. Since writing naked calls is inconsistent with the risk reduction purpose of the collar strategy, the new methodology implemented a rule to roll the puts to the strategy's target moneyness based on the current underlying price on the day the new short call position was initiated. The put sale was rolled at the mid-point between the bid and ask and the new put is purchased at the ask price.

The bid-offer spread portion of transaction/trading costs can have a significant impact on option-based trading strategies. For instance, the financial crisis featured significant fear, resulting in declines in liquidity and at times included option spreads exceeding 10% of the underlying price. In contrast to their earlier paper (Szado and Schneeweis [2010]²), when bid-ask spreads at the initialization of option trades are greater than 1% of the underlying price, the collar strategies presented in this book follow a rule whereby the position (long underlying ETF, long put and short call) is liquidated and the proceeds are invested fully in a cash like ETF (iShares Barclays 1-3 year Treasury Bond Fund - SHY). The underlying and the collar position were reestablished at month-end when the bid-ask spread again fell below 1%. Conceptually if the cost of implementing a collar becomes too high, investors may either consider remaining unprotected or liquidating the entire position. During the period analyzed, only four ETF collars were impacted by this rule. The Emerging Market Index (EEM) and Canadian dollar (FXC) strategies were liquidated into cash (SHY) for one month each. But High Yield Corp. Bond (HYG) and GSCI Commodity Trust (GSG) were transferred into cash for 5 and 9 months respectively (see Exhibit 2).

Exhibit 2: summary statistics 5% OTM 1-Month Call/6-Month Put Collars (study period 55 months except GLD*)										
ETF Symbol	ETF Annualized Return	5% OTM collar Annualized Return	ETF Annualized Std Deviation	5% OTM collar Annualized Std Deviation	ETF Cumulative Return	5% OTM collar Cumulative Return	ETF Maximum drawdown	5% OTM Collar Maximum drawdown	Months in Cash	
Emerging Market Index - iShares	-0.43%	5.87%	30.95%	14.05%	-1.97%	29.88%	-60.44%	-17.61%	1	
EAFE Index - iShares MSCI	-7.32%	-3.66%	24.52%	12.24%	-29.43%	-15.73%	-57.38%	-31.84%	0	
Australian Dlr Tr. - CurrencyShares	8.96%	5.24%	18.24%	10.92%	48.16%	26.36%	-31.75%	-18.82%	0	
British Pound Tr. - CurrencyShares	-3.98%	-2.78%	10.78%	7.00%	-16.99%	-12.13%	-28.09%	-18.41%	0	
Canadian Dlr Tr. - CurrencyShares	1.95%	2.84%	12.66%	8.19%	9.26%	13.67%	-23.74%	-9.13%	1	
Euro Tr. - CurrencyShares	0.31%	0.73%	13.62%	9.27%	1.43%	3.40%	-21.19%	-13.20%	0	
Swiss Franc Tr. - CurrencyShares	6.09%	6.63%	14.70%	9.51%	31.10%	34.20%	-17.65%	-10.37%	0	
Japanese Yen Tr. - CurrencyShares	10.14%	8.77%	10.37%	8.13%	55.69%	47.00%	-9.36%	-7.79%	0	
Gold Tr. - SPDR *	15.64%	8.80%	22.82%	13.65%	66.29%	34.35%	-21.95%	-11.30%	0	
GSCI Commodity Tr. - S&P	-4.74%	2.62%	28.83%	11.37%	-19.95%	12.59%	-67.85%	-19.34%	5	
Hi Yield Corp. Bond -iBoxx	5.29%	0.54%	17.01%	7.26%	26.63%	2.50%	-30.28%	-15.30%	9	
Russell 2000 - iShares	-1.51%	-0.09%	25.13%	14.17%	-6.72%	-0.42%	-52.42%	-23.87%	0	
DJ US Real Estate - iShares	-4.02%	-1.46%	33.27%	13.33%	-17.14%	-6.51%	-67.89%	-32.58%	0	
NASDAQ 100 - PowerShares	4.25%	1.75%	22.79%	13.16%	21.01%	8.28%	-49.74%	-28.80%	0	
S&P 500 - SPDR	-2.14%	3.03%	19.46%	10.42%	-9.45%	14.64%	-50.80%	-19.81%	0	
Barclays 20+ Treasury Bond - iShares	12.29%	5.85%	16.85%	10.97%	70.12%	29.76%	-21.80%	-17.02%	0	
U.S. Oil Fund - U.S. Commodity Funds	-5.32%	5.19%	37.79%	17.03%	-22.16%	26.11%	-76.20%	-33.76%	0	

* The inception date for the GLD ETF was November 18, 2004, with option data available from June 20, 2008. Study period = 42 months

Conclusions: In contrast to earlier studies which concentrated on equity markets, Szado and Schneeweis (2012) provide extensive analysis of the performance of collar strategies over a diverse set of asset classes including equities, currencies, commodities, fixed income, and real estate. Their study covers the period from June 1, 2007 to December 30, 2011, except for the GLD ETF which begins on July 1, 2008, the first full month after the June 20, 2008 inception of GLD option trading. The period of study was chosen to capture both the financial crisis as well as the following market recovery. The risk reduction and drawdown protection ability is evident in the results across all asset classes analyzed. As Exhibit 2 shows, the results are somewhat mixed from a total return perspective. Two currencies (Australian Dollar and Japanese Yen), the two bond ETFs (HYG & TLT) and the QQQ and GLD had higher cumulative returns than any of the collar iterations. The analysis suggests that with respect to total returns, option-based collar strategies tend to outperform when drawdowns are more aggressive and tend to underperform in periods of extreme run-ups. More importantly, while option-based collars may not provide complete protection for all products and in all market conditions, collars can provide significant risk control across a wide range of asset classes, significantly reducing volatility, drawdowns, and, in certain market environments, can also provide enhanced returns relative to a stand-alone investment.

To download the complete book:

<http://www.optionseducation.org/documents/literature/files/options-based-risk-mgmt.pdf>

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