Options Worksheet

OPPENHEIMER

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BUYING XLK ETF PUTS FOR PARTIAL PORTFOLIO PROTECTION
Without Commissions

Buying ETF put options is a strategy that can be used in anticipation of a market decline to provide partial protection for a portfolio of stocks that has a high correlation to the XLK ETF. The strategy is designed to limit downside risk while still allowing room for upside appreciation without disturbing the portfolio. The profit potential of the portfolio is reduced only by the cost of the puts. The portfolio's potential for dividend income and appreciation is unaffected. Should the market decline as anticipated, profits on the puts could partially off-set the loss in value of the stock holding. Conversely, should the market continue to advance, the portfolio will realize the gains, less the cost of the puts, which can be viewed as the insurance premium. Maximum risk is limited to the cost of the puts (plus the amount that the puts are out of the money). Buying ETF puts for portfolio protection is not a strategy to be employed a routine basis. European Index options i.e SPX,DJX, may trade at a discount if in the money prior to expi

OPTION STRATEGY: BUY 91 DEC 110 XLK ETF PUT OPTIONS EXPIRING IN 2020 AT A PREMIUM OF $6.10 EACH FOR A GROSS COST OF $55,510. THIS STRATEGY WILL PARTIALLY HEDGE A $1,000,000 PORTFOLIO.

Percent Market Change	Level at Expiration	Unprotected Port Value	Profit/Loss Put options	Total Value (Puts + Port)	% Change	% Offset	Loss Otherwise On Portfolio
Down 15%	97.65	$850,000	$56,875	$906,875	-9.31%	38%	$150,000
Down 10%	103.39	$900,000	$4,641	$904,641	-9.54%	5%	$100,000
Down 7.5%	106.26	$925,000	($21,476)	$903,524	-9.65%		
Down 5%	109.14	$950,000	($47,684)	$902,316	-9.77%		
Down 2.5%	112.01	$975,000	($55,510)	$919,490	-8.05%		
Unchanged	114.88	$1,000,000	($55,510)	$944,490	-5.55%		
Up 2.5%	117.75	$1,025,000	($55,510)	$969,490	-3.05%		
Up 5%	120.62	$1,050,000	($55,510)	$994,490	-0.55%		
Up 7.5%	123.50	$1,075,000	($55,510)	$1,019,490	1.95%		
Up 10%	126.37	$1,100,000	($55,510)	$1,044,490	4.45%		
Up 15%	132.11	$1,150,000	($55,510)	$1,094,490	9.45%		

Days to Expiration = 123 Computation using beta could yield a different number of puts.
** Note ** The portfolio values above are adjusted to reflect a portfolio beta of 1.00.
Tracking error will occur if the underlying portfolio does not exactly match the components of the option used and; the number of contracts used to hedge the portfolio may overprotect the underlying portfolio as the result of rounding up or down to full contract amounts.

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The previous table shows the overall returns of the protected and unprotected portfolio if the XLK ETF remains unchanged, or moves either up or down by 5, 10, and 15% at the expiration of the options. Cost of the puts was deducted in computing profit/loss. With the XLK ETF currently at 114.88, an investor with a $1,000,000 portfolio of stocks with a high correlation to the XLK is concerned about the market. The concerned investor decides to hedge the portfolio, by purchasing XLK Dec 110 put options at 6.10 ($610.00). Based on the $1,000,000 portfolio value, 91 puts are purchased for a total investment of $55,510. The formula used to determine the number of puts to best implement this strategy is Portfolio Market Value/Aggregate Exercise Price of Put = Number of Puts to Hedge Portfolio: $1,000,000/$11,000 = 90.91 rounded to 91. (Not adjusted for Beta.) Computations using Beta could result in use of a different number of puts.

A. MARKET DECLINES 10.00%

If the market declines by 10.00% and XLK ETF drops from 114.88 to 103.39, corresponding to the DJIA's fall from 27884 to 25096, the $1,000,000 portfolio will fall in value to $900,000 (assuming 100% correlation), for a loss of $100,000. The puts, however, would then have an instrinsic value of 6.61 (110.00 - 103.39). Assuming the hedger then sells the puts at $6.61, a price reflecting the intrinsic value with no premium for any remaining time value, for a profit of $4,641 ($60,151 - $55,510). The potential loss to the portfolio is effectively reduced by $4,641 for an overall loss of only $95,359 instead of $100,000 on an unprotected portfolio (a 4.64% offset). As the table shows, the puts will continue to provide a "safety net" to the portfolio as the market declines.

B. MARKET ADVANCES 10.00%

If the market advances by 10.00%, and XLK ETF climbs from 114.88 to 126.37, corresponding to the DJIA's move from 27884 to 30673, the portfolio will increase from $1,000,000 to $1,100,000 (assuming 100% correlation with the Dow) for a gain of $100,000. The hedger could lose up to the entire amount paid for the puts ($55,510), but prior to expiration might choose to sell them to recover any remaining time value the options may continue to carry. The maximum loss, however, will be limited to the $55,510 premium, which can be viewed as the cost of "insurance" to protect the portfolio. In an advancing market, the portfolio will continue to realize the gains after the one-time cost of the puts, or "insurance," is deducted.

C. MARKET UNCHANGED

If the market remains unchanged, with the XLK ETF holding at 114.88, corresponding to the DJIA at 27884, the $1,000,000 portfolio would continue to hold its value. The hedger could lose up to the entire amount paid for the puts, but might choose to sell them to recover any remaining time value the options may continue to carry. The maximum loss will be limited to the $55,510 premium.