Protective Puts with S&P 500® (SPX™) Options

Situation
A fund manager owns a diversified portfolio of U.S. stocks, and is interested in protecting the portfolio while maintaining the ability to participate in upside moves in the market.

Market Assumption
Concerned about possible future stock market volatility that could hurt the value of the stock portfolio.

Possible Market Action
Construct a protective put position with long SPX puts.

More Discussion
Purchasing stock index put options permits a portfolio manager to hedge equity market risk by limiting downside risk while retaining upside potential.

The example that follows is based on a hypothetical situation and should only be considered as an example of potential trading strategies. Taxes, commission costs and other transactions costs, as well as tracking error have been omitted for the sake of simplicity.

As a simple hypothetical, assume Fund X's portfolio roughly matches the composition of the Standard & Poor's 500 Stock Index (SPX) and that the SPX currently is at a level of 1200.

Fund X's portfolio manager wants to establish a hedge to protect $120 million of the fund's value. Assume that the fund manager determines the number of put option contracts to purchase by dividing the amount to be hedged ($120,000,000) by the current aggregate SPX value (1200 x $100 or 120,000), i.e. 120,000,000/120,000 = 1,000.

If the premium for an SPX put with a 1200 strike price and 30 days until expiration is quoted at a price of 25, the total amount required for the purchase is $2,500,000 (1,000 contracts x 25 premium x $100 multiplier).

Returns for the protective put position under differing market conditions at expiration

Range of Market Outcomes	S&P 500 Expiration Level	Value of Unprotected Portfolio	Profit/Loss Index Options	Profit/Loss Protected Portfolio	Value of Protected Portfolio
+ 20%	1440	144,000,000	(2,500,000)	21,500,000	141,500,000
+ 10%	1320	132,000,000	(2,500,000)	9,500,000	129,500,000
+ 0%	1200	120,000,000	(2,500,000)	(2,500,000)	117,500,000
- 10%	1080	108,000,000	9,500,000	(2,500,000)	117,500,000
- 20%	960	96,000,000	21,500,000	(2,500,000)	117,500,000

Possible Outcomes

The Index Rises

At expiration, the puts have no value. However, in exchange for the cost of the puts (an insurance expense to the portfolio), the fund manager achieved the goal of establishing a hedge for a portion of the portfolio and did not incur the expenses of converting that portion of the assets to cash. Also, note that the portfolio retains any dividends associated with holding the assets. Given the assumption of a correlation between the portfolio and the index, the value of the portfolio increases.

The Index Falls

If the puts are at-the-money or in-the-money, an increase in the value of the puts may approximate the loss in the portfolio's value. Tracking error will undoubtedly have an effect on the actual losses in portfolio value if the composition of the portfolio does not match the composition of the index. However, the protective puts limit the portfolio's downside, and the portfolio retains any dividends associated with holding the assets. If the index falls but the puts remain out-of-the-money, the cost of the puts is an insurance expense to the portfolio.

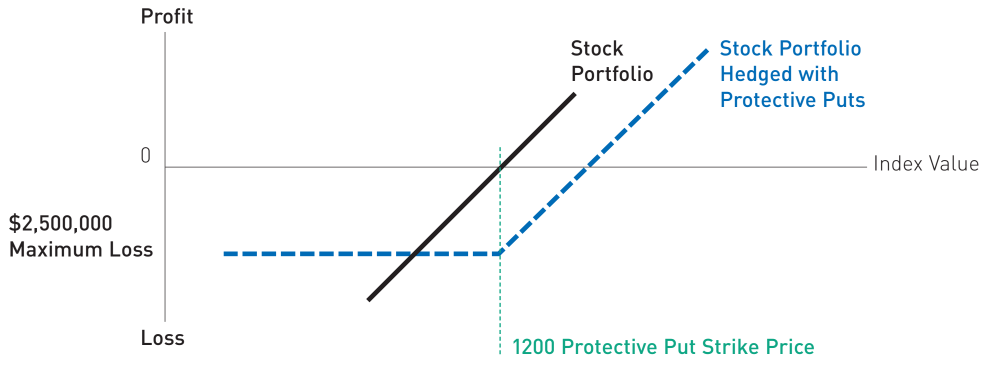
The Index Remains Stable

The puts have little or no value at expiration, resulting in a loss of the premium, which can be considered an insurance expense to the portfolio. This expense is, at least partially, offset by any dividends associated with holding the assets. The value of the portfolio remains approximately the same.

The chart below graphs index value versus potential gain/loss. Note that a protective put strategy is a combination of long put options and stock.

Stock Portfolio with S&P 500 (SPX) Protective Puts

(At expiration)



If you would like to read more about protective strategies, please visit http://www.cboe.com/protection.

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This discussion is designed to assist individuals in learning how options work and in understanding various options strategies. This discussion is for educational purposes only and is not intended to provide investment advice. Commissions, taxes and transaction costs generally are not included in this discussion, but can affect final outcome and should be considered. Please contact a tax advisor for the tax implications involved in these strategies.