

Protecting Against a Price Drop: Puts Versus Stop Orders

by Ryan McKeon

Article Highlights

- A stop order triggers an order to sell when a stock falls below a certain price, while put options give the investor to the right to sell at a preset price.
- Put options cap the downside of a price decline, but reduce gains by the amount of the premium paid for the option contract.
- If a stock drops temporarily, stop orders can be triggered. Put option contracts can be exercised or sold, often for a profit, depending on the investor's wishes.

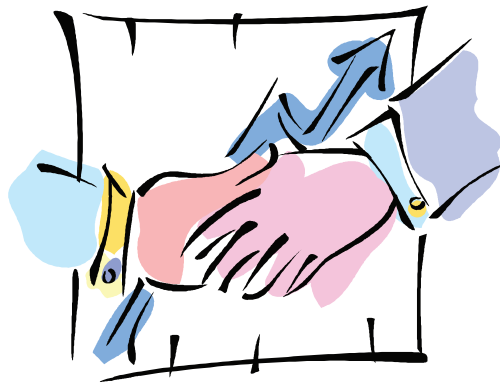
The following simple investment advice is often attributed to Warren Buffett: Rule number 1, don't lose money. Rule number 2, see rule number 1.

(The original source of this quote is difficult to track down, but numerous books, websites and industry publications use the quote and attribute it to Buffett.)

Of course, avoiding losses is easier said than done. Most investors recognize the importance of keeping losses to a minimum, but often find that implementing practical measures to ensure this is difficult. As an aside, although this article will make reference to preventing losses, the techniques discussed can, of course, also be applied to protecting unrealized gains from being reduced due to adverse price movements. One common method for minimizing losses is via the use of stop orders. This article discusses the buying of put options as an alternative to setting stop orders, and examines the relative strengths and weaknesses of the two strategies.

An Overview of the Strategies

A stop order is a standing order placed with a broker to sell when a particular price is crossed. When the stop order price is crossed it may trigger a market order (stop order) or a limit order (stop-limit order, which specifies a minimum price) to sell the stock. The stop order can be entered as good-til-cancelled (GTC): In theory this means that it remains on the account as a standing order as long as the investor



wants it to. In practice, most brokers place time limits on these orders, with cancellation occurring at some point (usually in two to six months, after which the stop order would need to be reinstated).

The New York Stock Exchange (NYSE) and other major exchanges have indicated they will cease honoring stop orders in the near future, although it is not clear at this time exactly how brokers will handle the change. It is possible that only those placing orders directly to the trading floor will have to adjust and that individual investors will still be able to place stop orders or similar “contingent” orders with their brokers. However, it is an opportune time to consider the strengths and weaknesses of stop orders and potential alternatives. One alternative to the stop order is using price alerts, which serve a similar role but do not automatically generate the closing trade. With price alerts, the investor is notified when a specified price level is crossed, but the trade has to be entered manually.

An alternative strategy for protecting a stock position is via the use of put options. A “protective put” refers to the strategy of buying put options on a stock the investor already owns. A put option provides the investor with the right, but not obligation, to sell the stock for \$X per share by the expiry [termination] date of the option contract. \$X is the strike price of the put option and effectively acts as the minimum price the investor can get for selling the stock during the life of the option.

Put options are not costless, as stop orders are. Rather,

put options require the investor to pay the option premium at the time of the trade. The option premium will differ depending on the expiry date chosen (further dated expiry is more expensive) and strike price chosen (higher strike price is more expensive).

How Put Options Work

The following example, using Apple (AAPL) and actual market data, illustrates the mechanics of the protective put:

- Apple stock was trading at \$93.44 per share on January 27, 2016;
- One of the available put options on Apple was a two-month contract with a strike price of \$90, and
- An alternative put option contract on Apple was a two-month contract with a strike price of \$85.

At this point in time in the market, the first option was trading for \$2.80, and the second for \$1.40. Note that stock option contracts cover 100 shares of stock by convention, so all prices discussed in this article should be multiplied by 100 to determine the actual dollar amounts required in practice.

One strategy available to the investor

is to buy Apple stock and then pay \$2.80 per share for the first put option. The effect would be that the investor has now made the minimum selling price for Apple stock \$90 per share for the next two months. This is in the same spirit as setting a stop order at \$90. As a practical matter, the investor would match up the number of shares with the contract size of the option. Since one option contract normally covers 100 shares of stock, the investor would buy one put option contract for each 100 shares of stock owned. Options exchanges have also recently started listing options on 10 shares of some stocks, with these contracts being named “mini” contracts and clearly labelled as such.

Alternatively, the investor could buy Apple stock and pay \$1.40 per share for the second put option: the two-month contract with a strike price of \$85. The effect would be that the investor has made the minimum selling price of Apple stock \$85 per share for the next two months.

The first put option offers better protection (a higher selling price), but costs more for the investor to buy in the market, as Figure 1 shows.

The figure illustrates the dollar

profit/loss on the three different trading strategies for a variety of different potential future stock prices (recorded on the horizontal axis). The three strategies are buying the stock at \$93.44 and holding, buying the stock at \$93.44 and buying a two-month put option with strike price of \$90 at \$2.80, and buying the stock at \$93.44 and buying a two-month put option with strike price of \$85 at \$1.40. The two positions that include put options clearly cap the potential downside of the stock investment, while reducing the upside by the cost of the option premium paid. Note that the reductions in gain at the upper-right end are relatively small compared to the differences in possible losses in the left half of the figure. This illustrates the primary advantage of buying a protective put on the stock.

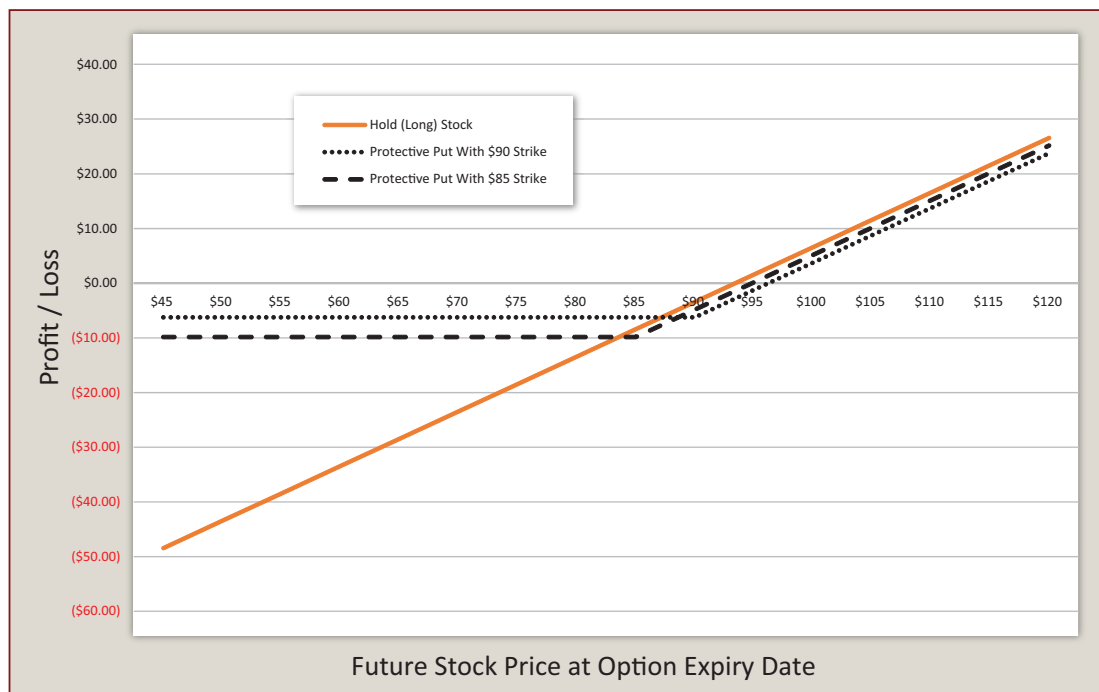
Comparative Strengths and Weaknesses

Some strengths and weaknesses of buying puts compared to setting stop orders on a stock are apparent from the aforementioned example.

The put option costs money and will eventually expire, resulting in a further cost to extend the protection by buying a new put option. This is in contrast to the stop order, which does not incur a direct cost and does not expire if entered as good-till-cancelled. (As noted earlier, it may be cancelled after some time by the broker, but the GTC order can be reinstated at that point without any direct fee.)

One might be tempted to address this issue by simply buying longer-dated put options. In the example above, the options were expiring in two months. The investor could purchase, for example, a

Figure 1. Potential Profits and Losses for Various Future Stock Prices



six-month put option with a strike price of \$90, instead of the two-month option mentioned above. However, the time until expiry on the option is factored into the cost. (In this case, the six-month, \$90-strike put was trading at \$6.30, significantly more expensive than the \$2.80 cost of the comparable two-month put option) A judgment call would have to be made by the investor as to whether the additional four months of protection is worth the higher premium.

The put option, however, has the major advantage of guaranteeing the selling price that the investor can get for the stock. The stop order is triggered when a price threshold is crossed, but there is no guarantee that the investor will actually receive the stop price when the stock is sold. If a market order is triggered when the stop price is crossed in a rapidly falling market, the price obtained for the sale of the stock could be significantly below the stop price. Alternatively, the stock could open for trading at a price well below the stop price after closing the previous day above it, leading to the same problem.

The above issues can be avoided by placing a stop-limit order (which specifies a minimum price that the stock can be sold at), but this has the disadvantage of not being executed at all should

the price fall below the specified limit. Therefore, the main goal of the stop order, which is to exit the position when the price declines, would fail.

The stop order has the further disadvantage of forcing an investor to exit an otherwise good investment during a temporary downturn. If the price of a stock falls simply because the whole market is down, the stop order could be activated and automatically sell a stock that goes on to perform well in the future. Some may see this as entirely the point of an automatic order: Enforcing discipline in closing positions and removing emotion from the sell decision. However, it can backfire in some circumstances, especially with volatile stocks.

An investor who employs a price alert or notification system rather than a stop order would avoid this disadvantage and instead retain the right to hold the stock and benefit from a price recovery. Once again, though, it is worth pointing out that ignoring the

previously determined exit price may not be in the investor's best interests. Holding losing investments for too long is a problem for many investors and is one meant to be addressed by the discipline of selling automatically when a predetermined price level has been crossed.

With protective put strategies, the option must be exercised by the investor; nothing happens automatically when the price of a stock declines below the put strike price [the option is "in-the-money"]. The exception is when the put option expires. At expiry, if the price of the stock is below the strike price, the order will be automatically executed at the strike price as intended, resulting in the sale of the stock. Automatic exercise of in-the-money options at expiry is conventional practice, but investors should confirm the exact settlement procedures and conventions for option expiry with their individual brokers before trading put options. This provides flexibility and even the potential to profit from a temporary stock price decline by selling the put.

Some examples will illustrate these relative strengths and weaknesses.

The Case for Put Options

An (admittedly extreme) actual

Contrasting Stop Orders and Protective Puts

Stop Orders	Protective Puts
No direct cost.	Investor must pay the option premium up front.
Does not guarantee the exit price of the stock position.	The exit price of the stock is known upfront and is firm: It is the option strike price.
The investor may be stopped out of a stock position that goes on to perform well in the future.	The investor has flexibility when the target price is crossed; the position is not automatically closed until the option expires.
A mental stop or notification system provides the investor with flexibility with regard to exiting the stock position or continuing to hold it when the target price has been reached.	The flexibility of the mental stop or price notification is also a feature of protective puts. Also, the put contract may increase substantially in value during a price decline, allowing the investor to realize a profit by selling the put while continuing to hold the stock.

What Is a Stop Order?

A **stop order** is an instruction to automatically sell stock when a specific price level is crossed. The stop order may be in the form of a fixed price level or it may be a trailing stop order, which follows the stock price and is a set percentage above or below it (depending on whether you are trying to capture gains or limit losses).

A **stop-limit order** is a stop order with additional instructions not to sell below a specified price. This restriction will cause the order to not be executed if the stock's price falls below the minimum price attached to the order.

example illustrates the potential for stop orders to be ineffective and motivates the case for buying put options.

Celladon Corporation (CLDN) closed on Friday, April 24, 2015, at \$13.68 and opened the following Monday (April 27) at \$2.93 following the release of bad news over the weekend. Clearly any kind of stop order would have been relatively ineffective against this catastrophic loss, given that the decline in price occurred over the weekend when markets were closed. A stop order of, for example, \$10 would have been triggered at the opening on Monday and filled at the price of \$2.93. A stop-limit order at the same price would not have triggered any sale at all, as the limit price of \$10 (or anything set close to it) would have been impossible to obtain for the stock.

By contrast, an investor holding a put option with a strike price of \$10 on the stock would have indeed been able to enforce his or her right to sell the stock at \$10, thereby locking in the previously determined worst-case price. In this case, the premium previously paid for the option would have been justified by the ability to sell at \$10 instead of \$2.93. Based on market data for Celladon put options with a \$10 strike price, the investor would likely have paid no more than \$3 for the put and possibly as little as \$1.20, depending on exactly when the protective put had been set up and which option expiry date had been chosen.

In cases of more moderate price declines, a put option offers the further advantage of potential additional profits. Consider a hypothetical example where the investor buys a stock at \$20 per share and sets protection at \$18 (either by setting a stop order at that price or by buying a put option with strike price of \$18).

Suppose the price of the stock falls to \$17 per share, but it is the investor's judgment that this is a temporary setback, perhaps driven more by broad market weakness than any trouble with the fundamentals of the stock. The investor believes that the stock price will recover and go on to produce positive

Key Options Terminology

Call: An option contract giving the holder the right, but not obligation, to buy an asset for a specific price in the future. The seller, or writer, of the option has an obligation to sell the asset at this price if called upon to do so by the option holder.

Expiry: The final date in the life of the option.

In-the-Money: Description of a call option whose strike price is below or a put option whose strike price is above the stock's current price.

Intrinsic Value: The extent to which the option strike price is more advantageous than the market price of the stock (from the point of view of the option holder). In the case of a put option with a strike of \$20, the intrinsic value would be \$5 when the stock price is \$15 because the right to sell at \$20 offers a \$5 advantage over the market price of \$15. The same option would have intrinsic value of \$0 when the stock price is \$25 because the right to sell at \$20 offers no advantage over the market price of \$25. Note that intrinsic value is never negative because the holder does not have to exercise the option if it's not to his or her advantage.

Put: An option contract giving the holder the right, but not obligation, to sell an asset for a specific price in the future. The seller, or writer, of the option has an obligation to buy the asset at this price if called upon to do so by the option holder.

Premium: The upfront price the buyer has to pay to acquire the option contract from the seller.

Strike Price: The specific future price governing the option contract. The strike price is fixed and does not fluctuate over time.

Time Decay: All else being equal, the value of an option tends to decline over time as the expiry date approaches. This happens because option time value reflects the market perception of what could happen to the stock price prior to the option expiry. The shorter that time frame is, the narrower the possible future scenarios for the stock price.

Time Value: The component of the option premium which captures market perception regarding how the price of the stock could change in the future prior to the option expiry. It is directly obtained by subtracting the option's intrinsic value from the option premium.

returns in the future.

If the investor had simply set an alert to be notified when the price drops below \$18, then this would be no problem. The investor would simply continue to hold the stock in response to the alert. However, if the investor set up an automatic stop order, then the stop order would be triggered and the

investor's shares would be sold at \$17.

The investor holding the stock and a put option at \$18, however, really benefits in this situation. The investor would be free to sell the put option contract and continue to hold the stock for the expected future gains. In this case, the sale of the put option would almost certainly be at a good profit, an

opportunity that any form of stop order does not offer.

There are two reasons why the sale of the put would be at a profit. First, put options are contracts designed to profit from a decline in the price of an asset, which is the most obvious feature of the scenario described above. Second, a less obvious benefit is that declines in stock price are often associated with a change in the perception of the volatility of the stock. Perception of greater volatility in the stock price is always a positive for the value of an option on that stock. A full explanation of why this is true is beyond the scope of this article, but the positive relationship between perceived stock volatility and option prices is well-known and firm. Widely used textbooks in derivatives, such as John Hull's "Options, Futures, and Other Derivatives" (9th Edition, Prentice Hall, 2014) or Don Chance and Robert Brooks' "An Introduction to Derivatives and Risk Management" (South-Western College Pub, 2012) provide detailed coverage of the phenomenon.

Working against the above two positive effects is that the passage of time, all else being equal, has a negative effect

on option prices. However, if the decline in stock price occurs over a relatively short time frame (a week or two), then this "time decay" effect will be weaker than the other two effects described.

Therefore, the opportunity to actually profit from a temporary setback in the price of an investment is unique to the protective put and a major benefit of the strategy. However, note that the decision to exit the put position (by selling the contract) and continue holding the stock is a major judgment call on the part of the investor. As mentioned previously, some may argue that the discipline of being forced to exit a position when the price moves against the investor is the whole point of protective strategies and that the investor should stick to the original plan to exit the position once a price level has been crossed. The profits from selling the put option following a stock price decline would obviously be eroded if the stock price continued to fall instead of recovering as the investor expected.

Conclusion

The relative strengths and weakness

of stop orders versus protective puts can be very quickly summarized as: buying puts has the disadvantage of costing money but the advantages of guaranteeing the worst-case desired price and providing greater flexibility with regard to exiting the stock position. It is an open question as to whether the cost of the put option is justified by the two advantages outlined; this is likely to be influenced by factors including potential volatility in the stock price and the cost of the put options.

Viewing the cost of the put option as a percentage of the stock price helps the investor appreciate the cost. In the Apple example, the put options cost \$2.80 for the \$90-strike put and \$1.40 for the \$85-strike put. These amount to approximately 3.0% and 1.5% of the \$93.44 market price of Apple. This cost is certainly not trivial, although we will note that these option prices were taken from a time of greater-than-usual market volatility and that option prices are lower during less volatile markets. This underlines the importance of setting up protection before periods of price declines and high volatility, when the cost of protection is relatively low. ▲

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Portfolio Strategies

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funds in Vanguard, are basically changing the nature of the fund industry. And I'm proud of the company we have here, proud of the people that work here.

I also have two other totally different achievements that I'm also proud of, and that will end my list. That is, I

helped lead the rebuilding of a school I went to, Blair Academy. It's now one of the strongest independent schools in America. I'm also proud of helping to build the National Constitution Center down in Philadelphia, which has the lofty purpose of trying to make the average American, people like you,

understand the meaning and importance of our United States Constitution.

When you get to improve the educational system, in a little way; increase awareness of our national heritage; start a good company with good values, strategies and structure; and have a good family, what else is there? ▲

John C. Bogle is founder of The Vanguard Group and president of its Bogle Financial Markets Research Center. Find out more at www.aail.com/authors/john-bogle. Charles Rotblut is a vice president at AAIL and editor of the AAIL Journal. Follow him on Twitter at twitter.com/CharlesRAAIL.