Fischer Black
on
OPTIONS

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THE LONG AND THE SHORT OF OPTIONS TRADING (CONCLUSION)

If you think that options tend to be mispriced, but have no special opinions about movements in the underlying stocks, one of the best strategies is to put together a portfolio of long and short positions in options on different stocks. If you want to trade on your forecasts of which way the stocks are going to move, one of the best strategies is to put together a portfolio of long and short positions in both options and stocks, choosing between an option position and a stock position by whether the option is overpriced or underpriced, and by the size of transaction costs and costs of maintaining a position. But investors who have no opinions about the values and prices of either options or stocks may still prefer an investment strategy involving options. One such strategy is to mix a long position in call options with some form of lending.

Options with Lending

An investor who assumes that both options and stocks are usually correctly priced may still want a positon that limits his possible losses but gives him a chance of a large gain. He can buy options with part of his money and lend the rest. The lending might be in the form of a bank deposit such as a certificate of deposit, or it might be in Treasury Bills, or it might be in longer term private or government notes.

Of the possible mixtures of options with lending, let us look at those that have the same behavior in the short run as a portfolio that is 100% in stocks. In other words, let's look at those mixtures that go up or down about 1% when the portfolio of underlying stocks goes up or down 1%.

In particular, let us imagine a portfolio that's invested 10% in options and 90% in lending. For this portfolio to have the same volatility as a portfolio that is 100% in stocks, the options must be ten times as volatile in percentage terms as the underlying stocks, at least on average. Thus the options must be either near expiration or well out of the money. For example, if the interest rate is 10% per year and the stock has an annual standard deviation of 30%, a 6 month option with an exercise price of $40 will have about the right volatility when the stock is at $30. Note that this kind of option is so far out of the money that it is unlikely to be worth anything at maturity. The option might be worth about $.40. A mixture of 7 or 8 of these options would be worth about $3.00, and when mixed with $37 in lending, would give the same action as $30 put into one share of stock.

This kind of portfolio might fit the needs of an investor who wants to make sure that he doesn't lose too much, but who wants the chance of a large gain. The investor is sure of having the bonds he buys with 90% of his money, no matter what happens to stocks, so long as the bonds don't default. And if stocks go way up, he will make lots of money. If stocks double, his portfolio might be worth six times what he paid for it.

Sounds almost like he wins no matter what the market does. But that, of course, is impossible. He wins, relative to an all stock portfolio, if the market does poorly or if the market does very well. But he loses if the market does moderately well. In that case, most of his options will end up out of the money, and he will have little more than his bonds at the end. In fact, he is more likely to lose than to win with this strategy, but he has a small chance of coming out way ahead. It's a little like an insurance ploicy that pays the value of your home if it's destroyed by fire, except that it pays triple the value of your home if the fire is caused by lightning.

There are also certain expenses involved in maintaining this kind of position. There are the costs of setting up the position, the transaction costs in turning over the options, and the taxes that must be paid when gains are

realized on the options. Plus the taxes on the interest income. Many of these expenses are much lower if you just buy a stock portfolio and hold onto it.

In spite of all that, there are people for whom this strategy is perfectly suited. They like the limited losses and the possibility of extraordinary gains enough that they're willing to pay the price that's required.

Options Against Stock

There is another world of strategies that involve buying stock and selling options against it or buying options and selling the underlying stock short. The simplest of these is writing options one-for-one against existing stock positions.

Writing covered options is not, of course, a way of earning extra income on a stock. There is the possibility of extra income, if the stock goes down or doesn't go up too much, but there is also the possibility of losing on the options or having the stock called away if it goes way up.

It's best to think of writing covered options as a way of reducing your effective position in the stock. It reduces the amount you can make if the stock goes up, and it reduces the amount you can lose if the stock goes down. To avoid being fooled, you should analyze a position under a wide range of assumptions about the final value of the stock. Don't just look at what will happen if the stock stays where it is.

Covered options writing gives results that are essentially opposite to the results of buying a mixture of options and bonds. With covered options writing, you come out ahead of a comparable all stock portfolio if stocks don't move much, and you come out behind if stocks go way up or way down. To get the equivalent of a 100% stock portfolio, though, you'd have to buy stocks on margin and write options against them.

There's no accounting for tastes. Just as there are some people who would like the mixture of options and bonds, so there are some people who would like a levered covered options portfolio. And some, I suppose, who are quite happy with a portfolio of just plain stocks.

All this is true even if options are always correctly priced. If options are overpriced, as they frequently seem to be, then there are extra reasons for writing options against stock. And options that are correctly priced for a low-tax-bracket investor will be overpriced for a high-tax-bracket investor. A levered portfolio of covered options can be especially attractive for a high bracket investor. He'll have ordinary income treatment for his options gains and losses, and he'll be able to defer capital gains taxes on his stocks by not selling them, and he'll have deductible interest payments on his borrowing.

Beyond one-on-one options writing, there is hedging, with several option contracts against one round lot of stock. With the right hedge, the position can be protected against changes in value due to small moves in the stock in the short run. If options are overpriced, taking account of the investor's tax bracket, then a hedged position that is long stock and short options may make sense. If they're underpriced, a position that is long options and short stock may make sense.

But with both kinds of hedges, the extra costs of selling short must be considered. An investor who has to put up cash margin or cash collateral will be at a disadvantage. Perhaps this sort of position is best for exchange members and other professionals, who may have ways of avoiding the special costs of short sales. For example, a large brokerage firm may have customer stock available to sell short. So it won't have to bear the cost of borrowing stock.

As the stock price moves, a hedge must be adjusted if it is to remain neutral. Either the options position or the stock position or both can be adjusted.

But since it is impossible to readjust the position with every tiny move in the stock (partly because the stock may make sudden large moves), a hedge is by no means a riskless position. Even if it were possible to adjust the position continuously, the hedge would not be riskless, because its value would change with changes in the volatility of a stock.

Since a hedge must be adjusted if it is to remain neutral, this may not be one of the better ways to take advantage of the mispricing of options. The transaction costs may be too high with this method. I feel that a portfolio of long and short options positions makes more sense.

Options Against Options

Writing options against other options on the same stock is similar to writing options against stock or selling stock short against options. One big difference, though, is that all the options on a stock will be traded at the same exchange post, while options and the underlying stock will be traded at different exchange posts, and often at different exchanges. This means that professionals tend to be more active in spreading option against option than in hedging option against stock. Thus there may be fewer opportunities in spreading, especially for non-professionals, and more opportunity in positions involving options and stock.

Taxes, of course, make spreading attractive for many investors who would otherwise not be interested. Spreads can be used to transfer gains or losses between one year and the next, or to change capital losses to ordinary losses or ordinary income to capital gains. There are sometimes mixtures of long and short positions in options on the same stock that guarantee an investor a profit after taxes, no matter what happens to the stock.

Maintaining a neutral spread is like maintaining a neutral hedge. It is costly, and it can't be done perfectly. If you're trying to reduce risk

as much as possible, it's nice to mix spreads where you win if the stock moves a lot with spreads where you win if the stock moves a little. But good positions of both kinds may be hard to find. And it's not clear that the typical investor should attach that much importance to eliminating all risk. In the context of his other risks, a little risk in his options portfolio probably won't hurt. And if the options portfolio is most of his investments, he probably wants a net long position.

One final caution: with so many ways to use options, it may seem that options are for everyone. But they aren't. There are many people who would be better off buying a portfolio of stocks and holding on to it, or buying mutual fund shares, or just lending.

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