The ABCs Of Option Volatility

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Most options traders - from beginner to expert - are familiar with the Black-Scholes model of option pricing developed by Fisher Black and Myron Scholes in 1973. To calculate what is deemed a fair market value for any option, the model incorporates a number of variables, which include time to expiration, historical volatility and strike price. Many option traders, however, rarely assess the market value of an option before establishing a position. (For background reading, see *Understanding Option Pricing*.)

This has always been a curious phenomenon, because these same traders would hardly approach buying a home or a car without looking at the fair market price of these assets. This behavior seems to result from the trader's perception that an option can explode in value if the underlying makes the intended move. Unfortunately, this kind of perception overlooks the need for value analysis.

Too often, greed and haste prevent traders from making a more careful assessment. Unfortunately for many option buyers, the expected move of the underlying may already be priced into the option's value. Indeed, many traders sorely discover that when the underlying makes the anticipated move, the option's price might decline rather than increase. This mystery of options pricing can often be explained by a look at implied volatility (IV). Let's take a look at the role that IV plays in option pricing and how traders can best take advantage of it.

What Is Volatility?

An essential element determining the level of option prices, volatility is a measure of the rate and magnitude of the change of prices (up or down) of the underlying. If volatility is high, the premium on the option will be relatively high, and vice versa. Once you have a measure of statistical volatility (SV) for any underlying, you can plug the value into a standard options pricing model and calculate the fair market value of an option.

A model's fair market value, however, is often out of line with the actual market value for that same option. This is known as option mispricing. What does this all mean? To answer this question, we need to look closer at the role IV plays in the equation.

What good is a model of option pricing when an option's price often deviates from the model's price (that is, its theoretical value)? The answer can be found in the amount of expected volatility (implied volatility) the market is pricing into the option. Option models calculate IV using SV and current market prices. For instance, if the price of an option should be three points in premium price and the option price today is at four, the additional premium is attributed to IV pricing. IV is determined after plugging in current market prices of options, usually an average of the two nearest just out-of-the-money option strike prices. Let's take a look at an example using cotton call options to explain how this works.

Sell Overvalued Options, Buy Undervalued Options

Let's take a look at these concepts in action to see how they can be put to use. Fortunately, today's options software can do most all the work for us, so you don't need to be a math wizard or an Excel spreadsheet guru writing algorithms to calculate IV and SV. Using the scanning tool in OptionsVue 5 Options Analysis Software, we can set search criteria for options that are showing both high historical volatility (recent price changes that have been relatively fast and big) and high implied volatility (imarket price of options that has been greater than theoretical price).

Let's scan commodity options, which tend to have very good volatility, (this, however, can also be done with stock options) to see what we can find. This example shows the close of trading on March 8, 2002, but the