Commodity Derivatives Management

Volatility

The vast majority of CDM Trading's investment strategies are based on ***volatility***. The word ***volatility*** comes from ***volare*** meaning to ***fly.*** Volatility in relation to options refers to how much the price of the ***underlying*** asset ***flies about'.***

What is volatility and why is it so important to an option trader? The option trader, like a trader in the underlying asset, is interested in the direction of the market. But unlike the trader in the underlying, an option trader is extremely sensitive to the volatility or speed of the market. *Markets, which move slowly, are low volatility markets; markets, which move quickly, are high volatility markets.*

As you can imagine some markets are more volatile than others. Between 1980 and 1982, the price of gold moved from $300 per ounce to $800, more than doubling its price. Few traders would predict that a major stock index might more than double in a similar period. A commodity trader knows that precious metals are generally more volatile than interest rate instruments. In the same way, a stock trader knows that high-technology stocks tend to be more volatile than say utility stocks.

When traders discuss volatility, even experienced traders may find that they are not always talking about the same thing. When a trader makes a comment that the volatility of XYZ is trading at 20%, which volatility are they talking about? *There are several types of volatilities, future volatility, historical volatility, seasonal, forecast, and implied.*

However, the objective of the following information is to provide you with a basic understanding of option volatility. The level of complexity has been kept low and the amount of detail kept to a minimum. Therefore at this stage, we will cover the two main types of volatility, and how it effects our trading strategy.

Historical Volatility

Historical volatility is associated with the underlying asset. We can talk about the historical volatility of BHP, Gold, Crude Oil or the Aussie Dollar. It is a measure of price movements over a period of time. It is obtained by taking the standard deviation over the chosen period. If the time period used is 30 days for example, calculate the squares for all the price percentage changes for each day, add them together and divide by the number of days, and then find the square root.

The historical period may be ten days, six months or six years. The longer period will give an average or characteristic volatility, while the shorter period may reveal unusual extremes in volatility. It is essential that you become familiar with the historical volatility of the underlying asset before trading it. Historical volatility is seldom used alone in considering a strategy because different traders look at different time periods, and who is to say which is right? One trader may look at 20 days, another at 60 days, and another may look at a year.

Implied Volatility

Generally speaking, future, historical, and forecast volatility are associated with the underlying contract. We can talk about the *future volatility* of the SPI Index, or the *historical volatility* of the 3yr bond, or *forecast volatility* of the 10yr bond. In each case we are talking about the volatility of the underlying contract.

Implied volatility is associated with the option itself. We measure how expensive or cheap options are using a parameter called *implied volatility.* The term implied volatility comes from the fact that options imply the volatility of their underlying, just by their price. They use an option-pricing model (*e.g. Black-Scholes)* backwards to arrive at the volatility from the price at which the option is currently trading. ***Of the factors effecting option prices, all but one is known****.* The trader knows the futures price, the exercise/strike price, interest rate, and expiration date. ***The unknown factor is the volatility***.

Let's say the S&P 500 Index futures are trading at 1,100 and the 1,120-call option for 30 days is trading at 20.70 points. Using a volatility number of 30%, an option-pricing model produces a theoretical value of 16.50points. Obviously, the option is trading at a higher volatility than 30%. In this example, the volatility is about 40%. This says the market at this time is *expecting or IMPLYING volatility to be around 40%.*

Different strikes, puts and calls, and different times to expiration, all have their own *Implied volatilities.*

Note: Implied volatility depends on the theoretical pricing model being used. For some options, a different model can give a significantly different implied volatility. The accuracy of an implied volatility also depends on the accuracy of inputs into the model.

Trading with Volatility

Remember when trading options, one is basically trading volatility. The trader wants to ***buy low volatility*** and ***sell high volatility,*** and different strikes have different ***Implied volatility.***

If you are considering buying a bull call spread and the strike you are buying has a higher implied volatility than the strike you are selling, then the edge is against you. If you are buying an option, you need to buy when implied volatility is lower than "normal" or sell an option when it is significantly higher than "normal".

There are two ways of judging if the price of options is expensive or cheap. The first is by simply comparing the current IV with past levels of IV on the same underlying asset. The second is by comparing current IV with the volatility of the underlying (historical volatility) itself. When options are expensive or cheap by both measures, attractive trading opportunities may exist.

High Volatility

When the options of a particular asset seem more expensive than usual, the additional cost is usually justified by unusually high volatility in the underlying (historical volatility). While this may look to be a good opportunity to sell options, it is even more advantageous to sell options when the IV has moved higher than the historical.

In this case, the edge is with the trader who sells this high volatility, and that means selling options. Generally, any position in which you are short more options than you are long is *short volatility*. The purest selling strategy is a *naked strangle*, which involves selling both out-of-the-money puts and calls.

Out-of-the-money options are preferable in this particular strategy because it gives the underlying some room to fluctuate, and increases the likelihood of realising a profit. Generally, the farther out-of-the-money you go, the lower your returns, but the greater the probability of achieving those returns. By giving the underlying room to move, the trader minimizes his chances of having to make costly adjustments.

One other strategy for selling options is with a ***ratio spread***. This position consists of buying an option that is close-to-the-money and selling two or more options further out-of-the-money.

Low Volatility

Low volatility situations can be just as lucrative. There are arguments against buying options, based on the idea that time decay is against you. Time decay is a funny concept. Do you remember using 'imaginary numbers' in math class to deal with square roots of negative numbers? Time decay (or theta) is similar. It is an imaginary number. It says that if the underlying asset's price holds perfectly still, the option will decay at a certain rate as time passes. But what underlying asset price holds still? None. In fact time is what gives the asset freedom to move.

There is nothing wrong with buying options. When an option is fairly valued, then by definition, there is no advantage to the buyer or the seller. If you buy a fairly valued option, you have not taken on a latent disadvantage in the form of time decay, why? Because the underlying is constantly moving.

When buying options, it makes more sense to buy near-the-money, although it doesn't have to be a pure straddle (call and put at the same strike). That way a sharp move in the underlying has a better chance of helping the position. When the move happens not only does IV normally get a boost, but also the move will drive one of the sides deep in-the-money and give you a gain just from price movement.

Of course, this awaited price move might not happen immediately, that’s why it will pay to only buy options with plenty of time. You might even say that time is on our side.

It is interesting that long volatility positions have a completely different feel to short volatility positions. Short volatility positions often please the holder with steady, almost daily, gains, but can suddenly loose money, if the underlying makes a sharp move. Whereas long volatility positions seem to slowly loose value day by day for many weeks, and suddenly gain very quickly. Despite the opposite psychological effects, a mix of both types of positions belongs in the volatility trader’s portfolio.

Deciding when to close a long volatility position is usually more difficult, since the position will move quickly into profit with a sharp move in the underlying, and has probably become imbalance. Often there is the potential to make (or lose) more money with each additional day that you hold the position. What can help you make a decision is to identify whether volatility has returned to normal levels. If it has, you should consider closing the position. If it has not, you might consider continuing with an adjusted (re-balanced) position.

Finally, the concepts of option volatility, along with the time decay characteristic of options, are two important and often overlooked factors in option trading. These concepts can be difficult to learn and use, but the proper use of these option characteristics can result in a trading edge over the markets.

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