TRANSCRIPT

Options 101: Options pricing

Konstantin Vrandopulo: I'm joined here today by my friend Mr. James Savage. We're both representatives of the Fidelity Trading Strategy Desk. And we're most definitely excited to spend the next hour or so here with you today, presenting on the topic of options pricing. I want to point out the fact to the audience that this subject is most definitely very near and dear to our hearts. We live and breathe options every single day. So, want to make sure that we are presenting to you not just from the perspective of education in a nutshell but also some of the experience of trading for both ourselves and clients all along our careers. So hopefully that comes through on the other end.

If you're not familiar with our group, you can always find more by exploring Fidelity.com/coaching or Fidelity.com/classroom and find additional daily live strategy coaching sessions that we do every single business day of the week.

Now this is part five of the five-part series. I don't want anyone in the audience to be alarmed by that. We're most definitely laying out the content in a straightforward manner today, so you don't have to think about the prior webinars as being prerequisites to this particular one. And with all that in

mind it would be nice of course if at some point you went through this whole library and got familiar with the topics that preceded this one.

But the agenda for today is three-pronged. Option price components, what goes into options pricing. The factors that are affecting the price of an option. And of course, how we're going to be using these factors and making our assumptions on these factors to plan a trade for both an entry as well as an exit. So, James, take it away, sir, talk to us about the option price components.

James Savage: Thank you very much for that, Konstantin. Yes, just want to reiterate the welcome to everyone in the audience as well. If you've been with us for the four prior parts, you'll know I started with part one and I'm happy to cap off the five-part experience with our options pricing class today. So yes, getting into these option price components.

And this is going to become very helpful when you're ready to finally determine what the fair value of an option is. Hopefully we want to be able to at least be either buying or selling these options at what we feel would be a fair value to us. So, it can be helpful for any options trader out there to just understand what factors are actually used in determining that price of your option. As you can notice on the slide, we have six bullet points in question.

So, these are going to be the six pricing factors that are used within that option pricing model to determine that option's theoretical price.

And yes, this is a beginner series. But if you have a little trouble with some of these concepts that's quite all right. I would say this would be even more of an intermediate or even a bit of an advanced topic when we start to break it down to this level of granularity.

So, what are our six factors? They are the stock price, the strike price. This is determined by our contract. Our time to expiration. Again, determined by our contract. Interest rate, also known as the risk-free rate, sometimes. Dividends. And volatility. Now three of these do typically get the most attention. And rightfully so. That is stock price, time to expiration, and volatility. And throughout the hourlong webinar today we're going to be focusing primarily on those big three. The reason being they have certainly quite a significant impact on our options pricing. Now what ends up happening is we take these six factors, we put them together into what's called an options pricing model. So, these six inputs will go into this model. The good news is you don't have to memorize the math equations. You might have heard terms that describe the various models that are used such as the Black Scholes model, the binomial, or even trinomial just to name a few among (inaudible) consider

many different pricing models. But as I mentioned you don't have to know the exact calculations. By all means, any of you out there that enjoy the challenge, you can go ahead and put these within those advanced calculations and come up with an option theoretical price. Fortunately, here at Fidelity we do have an option pricing calculator within our tools that can help you come to this theoretical price by entering a few of these pricing factor inputs. So again, once we put everything together, we'll get our theoretical price.

Now of those six option pricing factors five of them, they can be easily quantifiable. What are those? Stock price. We can look at a chart, can't we? Strike price. Time to expiration. Well, that's simply within our option symbol. We went over this in part one. Interest rate and dividends. We can look that up, can't we? We can find out what a stock has been paying. And we can find out what the interest rate is. But what about that final one, that sixth one, volatility? Let's not forget. Like stocks, options are affected by supply and demand. And that is going to factor into that implied volatility on an option.

So, stated quite simply, implied volatility can be used as a measure of an option's relative value. Now supply and demand for option contracts affects that IV. So, to put it in other words, IV is directly influenced by the supply and demand of options and the market's expectation of the share price movement.

Let's try to make this a little more easily digestible, to try to put this into the concept of well, why does it happen. Why is there changes of supply and demand? Why do our options prices increase and why do we get higher levels of implied volatility? We've got a great example here of in this case the demand section. So as traders or investors, this is an either or, anyone interested in either speculating or protecting say their positions can use options. We talked about that as one of the reasons for trading options. So as these traders and investors are expecting greater movements both up and down, volatility can move in both ways, they will start buying options for speculation or protection.

So, during these periods of higher demand as they are buying options for whatever purpose that they're using them for, that buying pressure raises implied volatility levels. And there can be scenarios where possibly the stock price isn't moving, dividends aren't changing, interest rates aren't changing, maybe time is only passing over one or two days, it's happening in a very short time, but you're seeing your option's premium rise. Oftentimes one can look towards IV levels and see them increasing along with those prices. So, one result of increased demand of options is going to result in more expensive premiums, again with all else being equal.

Now so I talked a little bit about from the demand side. Well, the same can be said about the supply side. As traders and investors feel that they possibly may no longer need those long positions, they're maybe no longer interested in continuing to speculate, or they're no longer interested in using options to possibly protect, buying options to protect maybe long positions, or they could also decide to sell options for income, maybe they feel that large movements are unlikely to take place so they want to sell options trying to profit on some type of neutral price outlook, well, that selling for whatever reason can bring down the demand. As options start getting sold what happens? Supply starts to increase. And what then is that net result? Lower implied volatility levels. So, what's going to happen? As these options continuously get sold, we are going to see these options prices have lower premiums. Also, again with all else being equal.

So hopefully just understanding the relationship of supply and demand and its effect on your options pricing can help understand that X factor that we often call volatility. Now this doesn't mean that we should forget some of those concepts we learned in the prior courses as well. If you can remember intrinsic and extrinsic value, this still applies. We know that those six factors influence our pricing, but we can still define our options price as being either intrinsic or extrinsic. Again, quite simply hopefully this is review. Intrinsic is the in-the-

money amount of that option if applicable. Because we know options tend to be out of the money and have no intrinsic value. The extrinsic, also known as time value, is everything that's left over in our options premium. This can be sometimes all of the premium or very little. This is just going to be dependent on what that extrinsic or time value component of our options price. So then remember, after the data from our six inputs get run through our options pricing model and come up with our final theoretical price, we can still separate it as intrinsic and extrinsic values. This oftentimes just helps traders understand their premiums. And in a little more sometimes easily digestible format.

So, going over those six factors I gave a little bit of a clue what we're going to be covering today, didn't I? Three of them in particular are going to be what we're going to spend the majority of our focus on. So now that we covered it from a high level, Konstantin, I think it's time, let's break it down and start going into at least one of them. Get started.

VRANDOPULO: Perfect, James. So, factors that affect the price of an options contract. These three factors that we're focusing on today, stock price, time to expiration, and implied volatility dynamic, or the dynamic of constantly

changing supply and demand of option market participants, are the three factors that we're going to be taking into account.

Now some of you might say, "Well, guys, why are you discounting the other three? Do they not matter at all?" Well, let me explain why we're discounting them very shortly here. The strike price is going to be a part of the negotiated contract that you're entering into. So, the strike price is not something that's going to be moving. The dividend environment for the majority of underlyings that we're going to be trading, whether they're individual stocks or exchange-traded products, is going to be an environment that is communicated by the boards of directors and the management teams ahead of time and will not be willy-nilly changed week after week or month after month. Interest rate environment. Well, as we know we have been in a very low interest rate environment for an extended period of time, really since the great financial crisis of 2007 and '08. We also know that the fed funds rate right now is near zero. We also know that the Federal Reserve has communicated to us that that is not going to be changing for the foreseeable future as it stands currently. So probably not until maybe the beginning of 2024. So, if interest rates are going to start becoming a much bigger component of the future, it might be a factor that we would like to cover in the future. But for now, interest rates are very well communicated to the marketplace and I would

imagine that if interest rates started to change dramatically, we would have bigger fish to fry. So, we'll focus on stock prices, time to expiration in days, weeks, quarters, months, years, and implied volatility.

So, first thing, the stock's price. And we're not talking here about price-to-earnings ratio or price to sales. We're talking about the nominal value of a stock per share. So, we know that an option is a derivative product. It derives its value partially from the price of the underlying. The higher price stocks and exchange-traded products are going to be representing higher notional values for each individual contract. We know that the contract is standardized. Each contract if it's regular and standardized, it represents 100 shares of an underlying. So, you get that leverage effect with options.

Well, let's use this example. So, if a stock is $1,000 per share versus a stock being $5 per share, how much of notional value do I represent with each individual contract, whether it's a put or a call? We have to multiply it out by 100, don't we? So, a $1,000 per share stock, it would be controlling a notional amount of $100,000. With a $5 stock we're controlling 500. So just on that sheer premise hopefully it makes sense that the higher price the stock is going to be in nominal terms per share, the more expensive in dollar terms those options we could expect to be.

In addition, of course we have some option Greeks to help us determine on what and how the options value is going to change if the underlying's price starts to move. We know that stocks generally don't tread water, they move up and down. So, we have an option Greek delta that helps determine how our options premium or value is going to change given a $1 or one-point move in the underlying stock. So, delta is one of those Greeks that I think is the most well-known in the industry and it's used in three different ways.

Number one, if my stock goes up $1 or my index goes up one point, how much can I expect to lose or gain based on my option delta? So, let's use an example. Number one, we have to remember that all of the options on the options chain whether you're using Active Trader Pro or you're using Fidelity.com or your mobile device, the Greeks for those options are going to be presented to you from the perspective of you being long those options. So, for calls the deltas are going to be positive. And for puts the deltas are going to be negative, representing that again long sentiment. If I'm long a call, I'm hoping for the stock or the ETF or an index to go up. If I'm long a put, I'm betting or expecting the opposite to be true.

The at-the-money strike, an example being stock is trading at $100 and I'm looking at a 100-strike call or put, is going to have a delta, barring any

extraneous circumstances, of 50. Now let's think about that. If I have a delta of 50, 0.50, and I multiply that out by 100, 0.50 ends up being 50, if the stock goes up $1, and I'm long a 100 strike call, I can expect my options price to rise by 50 cents. If the stock goes down $1, I can expect my options price to go down by 50 cents. So, it gives us the sentiment of share equivalency in our control on our directional bias. What do I mean by that, share equivalency? Well, if I own 100 shares of stock and the stock goes up a buck, I'm going to make $100. If I own a 50-delta call and the stock goes up $1, I'm going to make $50. So that's an equivalent of you controlling 50 shares.

The deeper in-the-money calls with strikes below the current price are calls that are going to be in the money and are going to have higher delta values. So, an example of our 100 strike versus $100 stock. Imagine that you are looking at an 80-strike call. It would have a much higher delta than 50. And of course, the opposite would be true for puts that are in the money. The strike above the current price. So, for a put to have an 80 delta you'll be looking at the price above the current price. Maybe at a 120 or a 130, with the hopes that the stock is going to go down.

Now what does it also give us? Delta gives us an approximation of the probability that that option contract will expire in or out of the money on the

day of expiration. Now notice that I'm not saying you making money or losing money. But the probability of that strike being in or out of the money. In my earlier example if the stock is trading at $100 and I'm looking at an 80-strike call, well, it's already $20 in the money, isn't it? So, the probability of that lower strike that has a higher delta being in the money at expiration given the fact that it's already in the money is much higher than the call option strike that is out of the money. So, giving us that approximation of the probability is another great way to think about it of what potentially could happen based on the current market participants' expectation of occurring in the future.

Now talked about delta from both being long and short. Talked about three ways that we could use delta. Very powerful Greek. James, let's talk about time decay, that component of time to expiration, in a little more detail.

SAVAGE: Absolutely. And so, in addition to how much an option price moves for each dollar the stock moves we also need to understand how our option premiums change for each one day's passing of time.

And there is another Greek that we're going to be going over today. And I bet many of you didn't think you'd be learning some Greek today. And that is going to be theta. And we'll get into that in just a moment here. But first

before getting into the theta Greek let's just cover some of the basics of time decay.

So as time passes the extrinsic value or the time value, we'll say of an options premium erodes faster as we get closer to expiration. So, in other words there is an acceleration of time decay the closer we get to expiration. More time value will be lost relative to a further-dated option with of course all else being equal.

And we can see this concept illustrated on the right side. So as both of those lines get closer to that zero days on the x-axis here, that line, that slope of that line, becomes steeper and steeper. If we look at the 30-day period between 120 and 90 days for either line, it is far more we'll say linear than that final 30-day period. Same 30 days of time but very different slopes of that line. Now just to illustrate and understand why there's two lines, this also helps us we'll say visually realize that concept of how that time decay affects strike prices as well.

That higher line is corresponding to an at-the-money contract. These are strikes close to where the stock is trading at. Versus the yellow line there that is both in-the-money and out-of-the-money contracts. One thing to notice is

that the at-the-money contract throughout the life of the option stays higher than in the money and out of the money. This goes back to a concept that we talked about in previous parts that at-the-money options have the most time value.

Now as time is passing in both lines are, they slowly getting steeper in slope. But look at that at-the-money contract especially in the final 30 days. Because it has the most time value in and of itself it is going to lose time value at the fastest rate of both in-the-money and out-of-the-money as well as contracts that were prior to this 30-day period.

So, going forward in your trades I want everyone to think about this concept of time decay. Not only how it's going to change due to the time to expiration but also due to strike price. And in that middle, we've got actually a snapshot from the options chain in Active Trader Pro illustrating theta. I'm going to get to this on the next slide. But just notice what's boxed out there. For the same strike price on the same underlying theta is over twice as large in November as it is for April. So, we'd say even if we were looking at this timeframe the sooner-dated option has greater theta than the longer-dated option. So, let's actually go over our Greek now and get a better understanding of some examples as well.

So, as we know theta, so that numerical value tells us just how much that option contract value is expected to change based on one day's passage of time. So, if we are looking at our options chain and seeing a theta value of 05 or 0.05 in this case, we would expect our options price to lose five cents of value for one day's passing of time, all else being equal of course. Because as we know other things will affect our options price. And just like with delta the same applies to theta. That theta value is not static. And we saw this illustrated perfectly on that chart. That five-cent loss in our hypothetical example today can be very different as time passes. Either next day, next week, next month. Again, due to that nonlinear rate of time decay, that acceleration of time decay. So, going forward in all of your trades we want you to keep that in mind. And fortunately, there is a way, and we saw this on our option chain, that you can keep tabs of how theta is changing as you're looking at your option contract. We can suggest to anyone now that you're familiar with theta, go ahead and add it to your chain. It lets you understand a little bit about how time is going to affect your trade, whether you're long or short.

So now we've just covered both the sensitivity to price, the sensitivity to time, delta and theta. And now let's absolutely spend some time on that X factor that we were talking about, volatility, and what is volatility.

VRANDOPULO: Perfect, James. So, I like to call volatility the unicorn that all of options traders try to saddle. I'll explain what I mean. And it's a tough job, believe me. What is volatility? Well, if we're talking about volatility from the perspective of what has happened in the past, it is the measure of relative price fluctuations of a particular stock. So, we're putting our statistics hats on and saying, "Well, we know how the stock behaved in the past." Some of you in the audience probably have used technical analysis before. You might have looked at historical volatility measurements. You might have used some sort of an indicator like the Bollinger Band for example to represent a relative envelope around a mean or a moving average.

Well, that is what we're talking about here. So historical volatility is the relative price fluctuations that have happened in the past. When we're talking about volatility that are coming to us from the world of options, we're really talking about it from the perspective of it being an output out of the marketplace. Now James on one of the earlier slides in the deck presented to us all these components. These six components that go into the grinder of an option pricing model and spit out a theoretical options value. Well, that's great for us to know. And some great minds have gotten a noble price for it, for Black Scholes. So that is a great tool to have in your pocket to say, "These are my

expectations for these factors. What will be the price of an option?" But what is the marketplace?

Well, it's an auction. At any given one moment in time, each individual option on an options chain or each individual underlying is going to have a bid and ask. So implied volatility in this circumstance becomes an output out of the marketplace. The marketplace is the option pricing model. So, measure of uncertainty or risk. We can think about it in these terms. That certainly makes sense to us. If all else equal, the price is not moving of the underlying, the time is not passing, the interest rate environment is not changing, the dividends are not changing, the strike price I'm already locked into in my contract, and the prices go down for that option contract that I'm looking at, well, implied volatility lowered. So lowered implied volatility, expectation of lesser movements in the future, and this presumptive thought of less risk.

If all else is equal and the option premiums are higher, then we are solving for it by saying implied volatility must be higher. The demand for options is higher. The market participants expect higher movements for an underlying security in the future and therefore perceived risk is higher.
Now some of you might be thinking well, more risk or less risk, does that necessarily correlate to opportunity. And ladies and gentlemen, this is what I

would say distinguishes options trading from just stock or ETF trading is that you can have an outlook on volatility and trade and have an outlook with a view. Is volatility going to be going up or volatility going to be going down? And have a trade set up in a way to take advantage of that. We cannot do that with a stock.

So how is it presented to us? Well, it's measured in annualized percentage terms. And that's a fancy way of saying that if I'm looking at an implied volatility value it is going to be standardized across the board. If I'm seeing an implied volatility value of 10 percent on a $100 stock, what that's telling me is that one, based on the way those options are trading one year from today your stock is expected to be up or down 10 percent 68 percent of the time. Giving you that one-standard-deviation expectation around the current mean. It gives you a range. It does not have a directional bias.

So, let's think back to our normal distribution curve. The stocks could go up. The stocks could go down. The x-axis on your normal distribution curve is the price of the stock. When I'm talking about a one-standard-deviation expectation or roughly two-thirds of the time, the stock could be expected in that range. Meaning it can go up to 110 or down to 90. And that would be a range one year out.

Now comparisons and differences in historical volatility versus implied. I've talked about the fact that historical volatility, also known as realized volatility by us traders, is something that is factual. It's real. It comes to us from the historical price action of the underlying that we're trading. So, we know exactly every single day where an underlying has closed. So, we have a lookback period of let's say 20 trading sessions representing about one-month worth of trading with that lookback, we're saying, "Hey, prices have been as high as this and as low as that. And the mean is somewhere in between. And these are the variances. So, 68 percent of the time, two-thirds of the time, the stock was in X range, 10 percent, 20 percent, 30 percent."

Implied volatility comes to us from the options market. It's the future. When we're trading options, we're not trading the past. We're trading the future. The past is not always going to be representative of what the future is going to bring. So implied volatility is the measure of expected volatility for that underlying going forward. Surely there are circumstances where historical volatility or the personality of the stock is probably affecting the types of actions market participants in the options world are taking. But there could be some events on the horizon that I'll talk about that are communicated to us ahead of time that might be binary events.

I would also like to point out that implied volatility is always given to us in calendar days and are based on a theoretical options price. Now some of you might be confused. What does that mean, a theoretical options price? Aren't options trading all the time? Aren't they bidding and offering at any given moment in time? Answer is absolutely, ladies and gentlemen. But we do not always have an exact option that is expiring let's say 30 days from today or 60 days from today or 90 days. We can be somewhere in between.

So, what the formula for implied volatility is trying to do is to give you that theoretical exactly 30-day option by weighing different expirations around that 30-day timeframe or 60-day timeframe. That's what we mean by that theoretical option.

Now considering event risk of binary events. So, this is a great way of visualizing implied volatility and historical volatility on the chart just like we would be when we're analyzing a price of a stock or an exchange-traded fund or an index.

If I just told you that stock XYZ's price is at $100 and gave you no other context it wouldn't mean much to us. The question that you would be asking is well,

what was it a week ago. How about a year ago? Has it been higher? What was the 52-week low? What was the 52-week high?

These are natural questions that you would be asking if you've been trading stocks or exchange-traded funds. It shouldn't be any different if you are looking at implied volatility. We should be asking ourselves the question well, if I have an implied volatility value of 10 is that high, is it low. What am I comparing it to? Where has it been and where is it currently in relation to where it has been?

So, studying charts of volatility could be very helpful because it allows us to make an assumption on what volatility might potentially do going forward. It gives us that historical precedent. Over a rolling 30-day option in this case we're presenting the 30-day historical volatility with the blue line. And IV mean for a 30-day volatility that is coming to us from the options world. What do we know about binary events? Well, some of them are communicated pretty well to us ahead of time. Things like earnings announcements. Are they happening before the bell, after the bell, on a particular date? Exactly when that is. We know that ahead of time, at least for the companies that are respected in the world. Can take the investable universe maybe as thinking about it as the Russell 3000 index. All of the small-

cap, mid-cap, and large-cap companies in the US. All that information is projected ahead of time. We know exactly when it's going to happen.

Product releases. Big events. We're seeing some of them just in the recent history. They're projected ahead of time. Hey, this is going to be a day when we're going to be announcing some new technologies potentially. Drug approvals. We're living in the year of 2020, the year of COVID, and we're having a lot of companies working on a vaccine currently. So, we don't know exactly when that vaccine news potentially is going to come out. But we know the relative timeframe. We know where the trials potentially could end and where we could get the results. So, some of these things are known by option market participants and are currently being priced into those options for the underlying that they track.

Now I've talked about implied volatility versus historical volatility. Is there a way to measure the implied volatility's changes on the options premiums going up or down? And there is. So, James, talk to us about vega.

SAVAGE: Yeah, fortunately we've got a Greek for that. That sometimes seems like a common reply. How does it change regarding prices of stock? How does it change regarding changing in a day's worth of time? How does the option price change for volatility changes?

Well, we've got a Greek for that. And vega is what we are referring to when it comes to changes of implied volatility. So vega is telling us how much our options contract value is expected to change based on one percentage point change in implied volatility.

Now just like with our Greeks we can use a lot of that similar type of formula here. And let's keep our examples similar just for simplicity's sake. Well, if our vega has a numerical value of 0.05, what does that tell us? Well, if implied volatility were to increase by 1 percent our options price should increase by five cents. And remember volatility changes can go both ways. So, what happens if volatility decreases and our vega says 05? Well, that means our option price should decrease by five cents as well.

And when looking at this on our options chain, this is where we can not only easily see it, but also help us with our outlook. Do we want this level of sensitivity to changes in volatility or don't we? So vega can help us understand it.

And we've got a great example over on the right showing well, let's put this into some real-world context as well. So, let's say that in our options outlook we're expecting an 8 percent drop in implied volatility after some type of

binary event, in this case an earnings announcement. If our vega is 0535, well, we can find out just how much we can expect that contract to change in value. We just take that in this case 8 percent. We're making it a negative number because we're expecting the drop. Multiply it by the number in our vega, 0535, and by our typical 100 multiplier that we do for options. So, it is going to tell us we're going to lose $42.80 in value with an 8 percent drop in implied volatility. Now keep in mind this isn't going to be exact. They're giving us this estimated number. But this is at least giving us some idea of what we can expect. Is this a good thing or is it a bad thing? Well, it depends on the strategy. Are you going to profit on a drop in implied volatility? Or are you going to take a loss with a drop on implied volatility? That's going to go back to your strategy which outlines the importance of choosing strategies based on your outlook. And this really brings us back to planning a trade. And part of that trade process, which is something that we here are available to assist clients on, and that is just having an idea and a trade process. So, Konstantin, now that we've covered, we can say those three we'll say primarily often looked at factors that influence our options price, let's put it into a real-world example such as planning a trade.

VRANDOPULO: Yeah, James. So, what do we need to plan a trade? And this is going to be part of your everyday arsenal. These are going to be the questions

that you should be asking each and every time. At least when you're starting out for sure.

Some of it is going to be second nature, is going to become second nature to you, as you get more and more involved. But at first writing down the reasons for that particular thought that you have. And sticking to the plan.

So, reasons for placing the trade. Outlook on the price movement. I would say that we're probably missing one here by saying outlook on not just the price movement but implied volatility as well. And then planning our entry, what sort of a trade it's going to be, and planning our exit.
So, reasons for placing the trade. Knowing exactly what it is that we're trading, why we're trading it, and what our current view on that underlying is going to be.

There could be a ton of reasons. Some of you in the audience are going to be short-term-oriented, some intermediate, some long. Maybe some of you are trading all three timeframes. But knowing what you're trading is the most important part. Understanding the macro condition behind a particular cycle, a business cycle. Understanding the stock's fundamentals and how they have been doing in the past. Are they improving? Are they deteriorating? Looking

at a chart. Trading a trend. Higher highs and higher lows. Or lower lows and lower highs. Breaking off support or resistance on the horizontal perspective in price terms.

Looking at some sort of a pattern on the chart. And trading for a breakout with a target up or down, bullish or bearish. Understanding that if I am looking at a company from the fundamental standpoint of view and looking at the chart, recognizing the trend, and recognizing the intermediate and short-term patterns, identifying support and resistance. I need to be aware of the things that may come at me from left field. What does this company do? Does it have an earnings announcement coming up? A binary event of plan by company's management that could reprice that asset based on the report that comes out. A product release. Again, drug approval. Or maybe a denial.

So, trading implied volatility is going to be a part of every single options trade whether we like it or not. So, if we think that there's a way for us to avoid volatility exposure when we're trading options, we're mistaken, ladies and gentlemen. We have to take a view on implied volatility whether we like it or not. We can either be short it, long it, or neutral it.

What direction is at play? Are we bullish? Are we bearish? Do we want to be engaging in option buying strategies or option selling strategies? We understand from our prior classes that we can be both bullish and bearish with puts and calls. Just depending on what side of the trade you're on.

So, understanding all of this, putting it all together, coming into a price outlook. Bullish, bearish, bullish positive delta, bearish negative delta. We talked about the fact that the options chain is presented to us from the perspective of long option holders. So, if I have a negative delta on the put, on the options chain, well, what happens when I short that put? Well, a negative and a negative makes a positive. So, I can be bullish with puts. I could be bearish with calls.

So, understanding how I want to position what makes the most sense and more importantly I think what gives us an extra option that we don't have with stocks or ETFs is being neutral with no directional bias. Hopefully if you're neutral a stock, if you're thinking it's not going to do much, you're not going to be shorting it or buying it, because it will only result in your capital being tied up. Opportunity cost. With all the potential risk and hardly any reward. Potential risk of being wrong directionally.

With options of course you can create strategies that are going to be delta-neutral or with deltas that are relatively close to zero and adjust accordingly based on implied volatility changes and the magnitude of price movements up and down along the way. So, for lack of a better term options are going to be giving us some options.

Now entry strategies are going to be incorporating all those things that I mentioned earlier. James, if we're thinking about the reasons why we're entering into a trade and we're checkmarking all of those bullet points and we're writing some answers next to those questions that were on prior slides, we also would of course know if the opposite was unfolding in front of our eyes and the market is trying to tell us that something is changing. We would have reasons to exit that idea or exit that trade. So, talk to us about entry strategies versus exit strategies and the importance of having both of those before you click the place trade button.

SAVAGE: Absolutely. So, as we oftentimes talk about it, as a trader, we want capital preservation to be of the utmost importance in all of our trades because that risk that we take, that is really one thing that we have under our control. We determine before we even put on our trade how much risk we're willing to take. So combining everything we've learned now in all these five parts once

your outlook has formed and it's time to pick your strategy and contract, you need to make sure that you're choosing the strategy that's going to be best suited for you. And that could be are you going to be a buyer or seller. We know that you can be bullish or bearish with both calls and puts depending on whether you want to be a buyer or seller. And they've got different risks and rewards. Very different profit-loss graph as we went over in part two and three. And different we'll say benefits and disadvantages.

In addition, the strike that you choose will play a big role in that initial sensitivity to the underlying price movement as well as can oftentimes be a big determining factor in the amount of leverage that you have as well. And then finally that expiration date needs to be part of your strategy and part of your outlook because you want it to be long enough or short enough to profit on whatever that perceived outlook is.

And then when we move over to the exit strategy as well, we want to establish a plan of when we both get out not only on the upside but also on the downside. So, on a loss as well. And we want to do this of course before we get into the trade. We've got some ideas that we put on this slide here about what you can use to sometimes define that risk and reward. Oftentimes I speak with quite a few clients that sometimes will look at it as percentage

terms. I want to make such and such percent. I want to make this much. I want to double or triple or what have you there.

As long as you go in with a plan, that can at least sometimes give you more of a realistic assessment of what you're looking for, and help eliminate sometimes those emotional triggers that we get when we start seeing -- and it happens to everyone -- losses on our trades. Do you want to set it by a price level? You want to risk one to make two? Risk three to make five? Any combination of it, it's going to be always dependent on you and your specific we'll say tolerance to risk and the acceptable reward that you'd like to have in relation to that risk.

And finally, we oftentimes like looking at charts here. Are you looking at specific technical signals? Are you willing to stay in the trade as long as such bullish or bearish trend continues? Are you willing to stay in the trade as long as respects certain possibly support and resistance levels you've identified? Now these three that we gave, this isn't an all-encompassing list. By no means is it that. We just want to give you some ideas possibly to help you get creative and thinking for your own trading style what is going to be an acceptable risk and reward target. And remember. If your outlook changes, reassess your exit strategy. This is something whereas Konstantin mentioned

earlier when it comes to trading options sometimes, we need to be a little more hands-on. We've got time. We've got volatility. We've got price. We've got many different factors to contend with. And we want to make sure we're continuously challenging our outlook to ensure that we are in a trade that we still believe in as well.

And then putting all this together. Now that we are at the culmination of this five-part options 101, well, we've got a few I'd say key takeaways, don't we? About just the overall theme of trading, of pricing. And Konstantin, why don't you tell everyone a little bit about what some of these key takeaways are?

VRANDOPULO: Yeah, very good, James. You summarized a lot of them in the exit strategy planning piece. I would say that as traders our number one job is to preserve capital. So, we're trying to make money. And the only thing that we can control is how much we're losing. We're trying to make judgment calls. And we need to exactly know when and how we're going to be wrong so we can quantify our losses.

Making sure that you're using all the components of not just price analysis and directional bias but also volatility analysis in conjunction. Evaluating your strategies through the prism of option Greeks. Understanding your current

exposures as you're putting the position on. And how those Greeks are changing along with your position as time progresses.

And most importantly I think for options traders, you need to realize that adjustments, profit taking, loss targeting is due when it's called for. And what that means is it could happen on any given day at any given time during the trading session. An option is a constantly changing asset. It has all the components that we talked about today in this dance. And they're constantly changing. So, it's never the same asset from the moment that you put on the trade. And that's the reason why they deserve and necessitate some additional caring and monitoring.

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