Introduction to Forex Options Trading

Options

Options are one of the more difficult financial instruments to understand. Therefore, we have created this beginner's guide to explain what options are, how they are traded and what benefits and risks they present to the investor.

What is an option?

An option gives you the **right**, but not the **obligation** to either buy or sell an asset at a certain price on a certain date.

> *An example:*
> *If you have a contract stating that you can buy my car on June 1st at the price of USD 1,000, you have an option – an option to buy my car. If the value of my car is higher than USD 1,000 on June 1st, you will profit from buying it because you can then turn around and sell it for more than USD 1,000. On the other hand, if the price were less than USD 1,000, you wouldn't want to buy my car. Since an option gives you the right but not the obligation to either buy or sell an asset, you are entitled not to buy my car if the price doesn't suit you.*

Options Terminology

Call option	When you have the right to **buy** an asset you have a Call option. This type of option is the kind you had in the car example above. This type of option is the kind you had in the car example above.
Put option	When you have the right to **sell** an asset, you have a Put option. *If you buy the right to sell me your car for USD 1,000, you have bought a put option and you will sell it to me if the market price is less than USD 1,000. If the market price is more than USD 1,000, the option is worthless to you and you won't use it. Because you have bought from me the right to sell me the car, I am forced to buy it from you if you wish to sell.*
Strike price	The strike price is the price at which the underlying asset is either sold or bought if the option is exercised. The strike price is also called the exercise price. *In our example above, the exercise price was USD1,000.*
Premium	The premium is used in two different contexts. The premium can be

	a) the total price of the option or b) the amount by which the price of the option exceeds its intrinsic value. The latter definition is also known as the option's time value. When you buy an option, you pay a premium up front, entitling you to the opportunity to profit from a price change in the underlying asset. Your potential loss is limited to the premium, but you still have an unlimited profit potential. *Since you have a profit potential in owning an option on my car, I don't give the option to you for free. Its costs you a premium, the amount of which depends on the profit potential you have. We will return to this profit potential later.*
Exercise	You exercise an option when you invoke the right to purchase or sell the underlying asset at the price stated in the option contract. Options are only exercised.
Expiration date	The expiration date is the day on which the option expires. Options that can only be exercised on the expiration date are called European options. (There are also options that can be exercised at *any* time after the creation of the option contract and up to and on the expiration date, or just at discrete intervals, which are called American and Bermudan (also Mid-Atlantic) options, respectively. *In our example, if the Call option on the car for USD 1,000 is a European option and June 1 is our expiration date – June 1 is the only date when the option can be exercised. The option is only worth anything on that date if the market price exceeds the option strike price of USD 1,000.*

A Trading Scenario – Buying a Put Option

Here is a small example that illustrates an options trade on the forex market. With this trade, the trader is expecting a fall in the dollar vs. the yen (USDJPY):

Buy USD Put/ JPY Call
Strike 133
Expiration 6 March 2002
Premium 70 JPY PIPS
Spot reference 133.80

In this example, we hold a USD put / JPY Call option – or simply a USDJPY put. This gives you the right to **sell** USD (Put) and **buy** JPY (Call) at the price of 133.00. For this right, you are paying a premium of 70 JPY pips. Remember that when you are trading

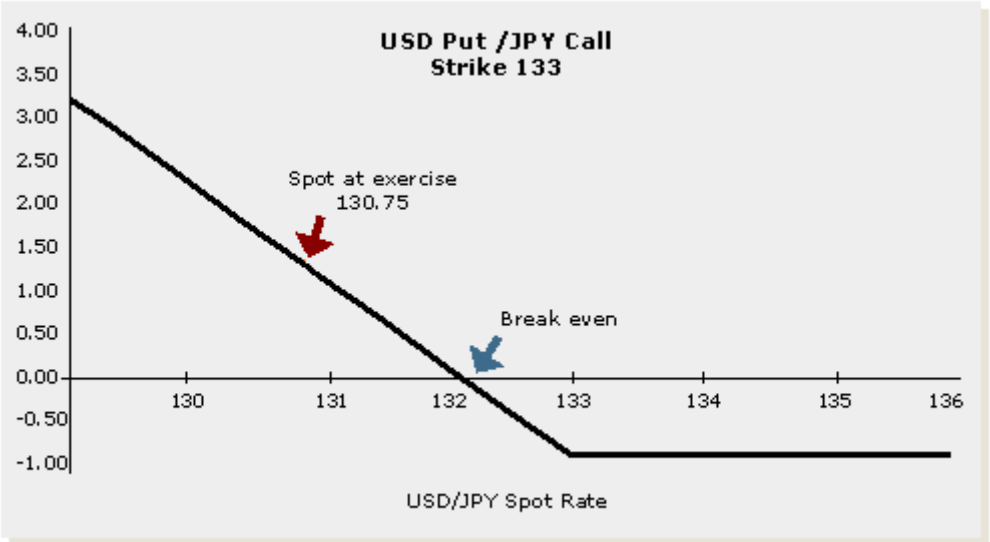
in currency pairs that you are always simultaneously buying/selling or selling/buying the two currencies. Therefore, currency options are simultaneously put/call options or vice versa.

In this scenario, the market price on the day you purchase the option is 133.80. When buying the option, you are speculating that the dollar will weaken significantly against the Yen and fall well under the 133 level in the coming days.

Let's say that, as you have anticipated, the option expires in the money (in this case, below the 133 strike price, meaning that the option has intrinsic value on expiration), due to a significant decline in the USDJPY spot rate. The spot rate on exercise date, 6 March 2002 is 130.75.

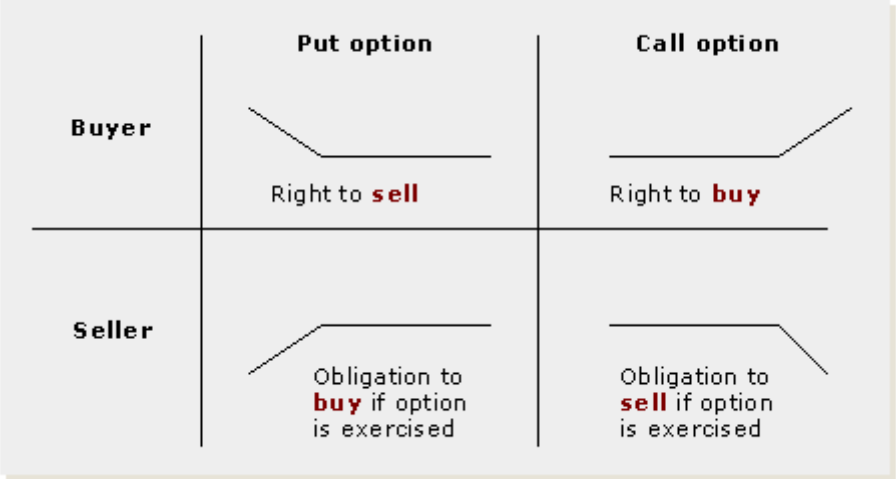
To realise your profits, you exercise your right to sell at the 133 strike price to the seller, or "writer" of the put option. Then you buy back USDJPY at the 130.75 market price to close the position and take the profit.
The profit scenario is then:
Strike price – closing spot price – premium
133.00 – 130.75 – 0.70 = JPY 1.55 profit

If the spot rate was quoted above the strike price (133.00), the option would have been out of the money and you would have lost your premium, but your risk in this transaction was limited to the premium and nothing more. Your profit/loss scenario is illustrated below. As you can see, you can make unlimited profit but the maximum loss is the premium paid. Because you paid the 70-pip premium up front, your break-even point is not simply the strike price of 133, but the difference of the strike price minus the premium, or 132.30.



The Profit/Loss Scenarios

The profit scenarios are illustrated below for Put and Call options. As shown, when buying an option, the profit potential is unlimited whereas the potential loss is limited to the amount paid for the premium. Selling an option gives you a premium up front, but the premium is also the maximum profit you can take. So, if you sell an option, the profit/loss scenario is the opposite of when buying one. (Limited gain, unlimited loss potential).



Why trade options?

- You can limit your risks (maximum potential loss is the premium if you are the buyer) and you will still have unlimited profit potential.

- Options require less money up front than if, for example, you take a regular spot position. This is because you don't buy the asset itself but only a contract that gives you the right to either buy or sell the asset at a given price. Therefore, you will only have to pay the premium upfront. On the other hand, if you are the seller of an option, you receive the premium, but then you have to place a margin deposit to guarantee the future performance of your position. Margin is typically 4%.

- An option offers you some important hedging opportunities, which we will return to later.

- Options can be traded OTC (over-the-counter), which essentially means that you decide the strike price, the exercise date and the currency pairs involved in the option contract. The market maker can then give you a quote for the desired contract. Standardised contracts are also available.

Option Pricing

See below for a graphic that shows how a call option is priced according to how close the asset price is to the strike price for the option.

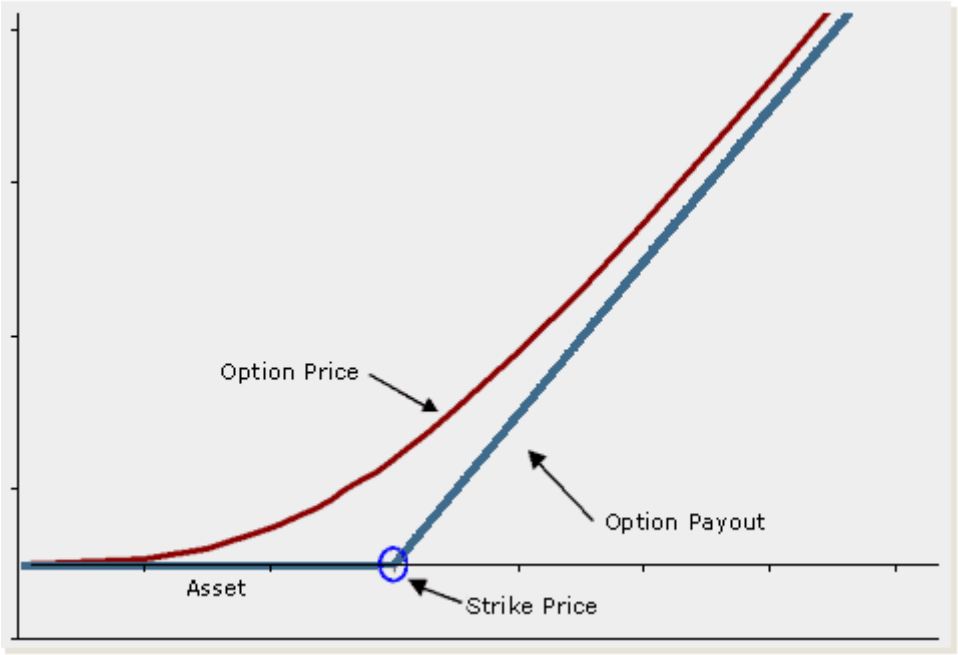


***Figure**: Option Price in relation to underlying asset price and strike price*

The value of an option has two elements 1) Intrinsic Value, which is the forward rate for the underlying instrument, less the strike price (blue graph) and 2) time value. The greater the time period until expiration, the higher the time value: either as insurance or as opportunity.

The time value also depends on volatility. Time value increases as volatility increases since the more the volatility, the less certain the future. The real value of an option is practically always greater than the intrinsic value during the life of the option. (Some deep in-the-money European put options may have a real value which is less than the intrinsic value, because of the trade-off between profits on the exercise of the option and the profit through reinvestment). On the exercise date, of course, the value is the intrinsic value because all unknown components in pricing the option are now known.

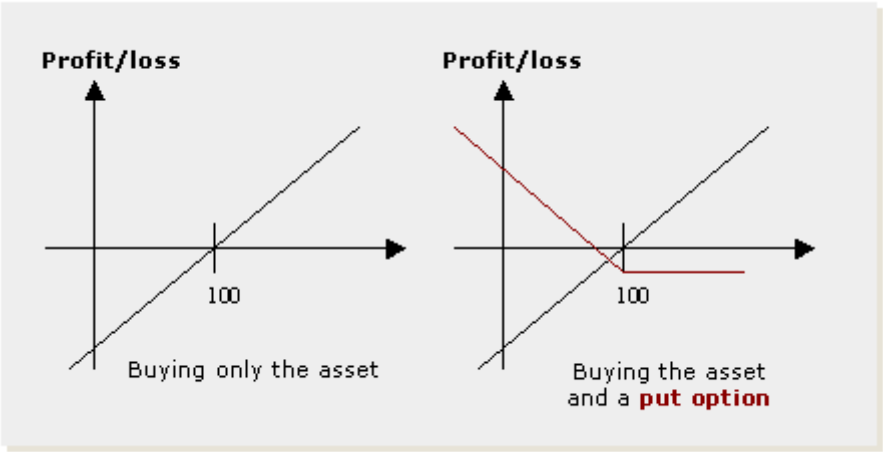
In our car example, let's say that the market price of the car has risen to USD 1,200, and that our call option with a USD 1,000 strike price is worth USD 250, thirty days before the option's expiration date. The intrinsic value is the difference between the price for the underlying asset in the options contract (USD 1,000) and the market price (USD 1,200). If you hold a call option, which gives you the right to buy the car at USD 1,000 and the market price is USD 1,200 the intrinsic value of the option is USD 200. So the price of the option is the intrinsic value plus the time value (in this case USD 50). When there is a great deal of time left to the expiration date of the option, the time value is great, because the uncertainty of what the final price will be on expiration of the option is also great. As the expiration date of the option approaches, the time value decays as the likely range of the price on expiration becomes smaller. Interest rates differentials in the two currencies involved in a currency option trade must also be take into account when pricing an option, an this is also a function of time.

Hedge ratio

An option price does not fluctuate in a one-to-one relationship with the fluctuations in the price of the underlying asset. This is because as the option strike price becomes closer to or further away from the current asset price, the probability of the strike price being in the money changes. In the graph above, you can see the relation of the option price to the underlying asset price. The word used to describe the relationship of the option's price change to the underlying asset's price change is the hedge ratio or delta. As you can see, as the option becomes more and more heavily in the money, the option value's price will fluctuate very closely with the underlying asset price, meaning that the delta is approaching 1. But as the strike price becomes further and further out of the money, the delta approaches zero, as the probability that the option will have any intrinsic value on expiration also approaches zero.

Hedging with options

Options are often used in combinational strategies with other options, or as a hedging tool for a spot position. A hedging strategy can be initiated to reduce a potential loss on the investment. If the investor buys a spot position at a price of 100, he has a profit/loss scenario as shown in the left-hand figure below. If the investor buys a put option, he can change the profit/loss scenario and reduce a potential loss. This is illustrated in the right-hand graph below. The advantage of hedging with options instead of using a "stop" is that you can stay in the market despite movements against your underlying position and still have an unlimited profit scenario. The disadvantage is that you must have a larger gain in the spot before the position makes a profit because you must pay for the option.



Hedging example

You speculate that the exchange rate of EURJPY will decline steeply in the next week

and have the capital to sell 1,000,000 EURJPY on margin at the spot price of 105.00. Now you want to protect your position in case of a rise in the EURJPY rate.

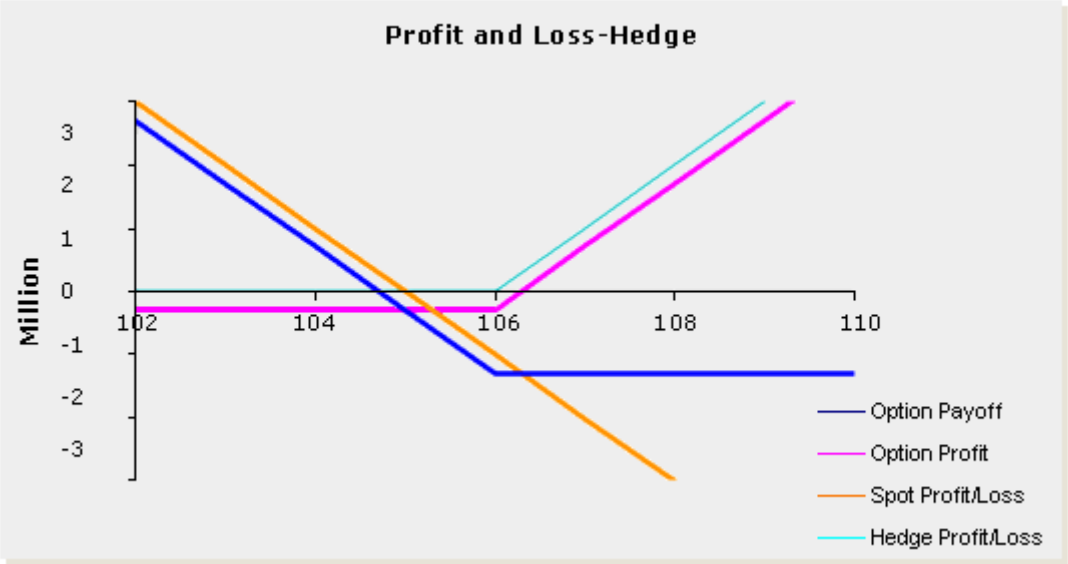
Protection can be done in two ways
1) you can place a stop order, or
2) buy an option.

1) Placing a stop
Let's say that you consider placing a stop, based on your analysis, at 106.00. Placing a stop order, you will, of course, **limit** the potential for loss to JPY 1,000,000 (around 9,434 EUR) if the stop (106) is traded, thereby closing your position.

2) Buy an option
The other way of protecting yourself from limitless downside in this scenario is with the purchase of a call option. Let's say that you purchase a one-week call option with the same strike price as the stop-loss order (106.00) at a cost of JPY 300,000 (EUR 2,857). As the holder of this option, you will maintain the potential for **unlimited** profit because your spot position can stay open until the exercise date without having to worry about losing more than the option premium (JPY 300,000) and the (JPY 1,000,000) loss when the price is at 106.00. The option will protect any final price above that level. That's because the call option gains value as the spot loses value. In other words, this option scenario can give you a staying power that is not possible with the use of stops. In any market, entering the market several times and hitting multiple stop losses is much more costly than establishing a more strategic options position. This is especially true in cases with high volatility.

The two strategies are shown in the graphic below. The thick blue line shows the profit/loss scenario for the hedged position. Keep in mind that in sideways markets, an option buying strategy can become costly because you are paying for time value that quickly erodes as the expiration date approaches.

Profit and Loss - Hedge



Another potential advantage of a hedging strategy is this: in the course of the option's life, you may reassess your view of the market and wish to actually close the short spot position (even at a loss) in the expectation that the market is going the other way. In this scenario, you close the short position but keep the option, hoping that it will come in the money before expiration. For example, let's say that after a few days, the spot price for EURJPY rises to 105.50 from the entry level of 105.00, and you have changed your mind about the direction of the market. Since you believe the rate will continue to rise, you close your spot position for a loss, but hang on to your option until the expiration. At any level above the break-even point of 106.3 you will begin to make a profit. And again, the option itself might be resold before expiration.

As shown, options offer you many ways of trading in the market and reducing your risks as well. To see how this is done on the Client Station, please proceed to our Forex Quick Start, found in the main toolbar under Trading. Then choose Forex and then the Forex Quick Start.

Glossary

For more information on the trading conditions at Saxo Bank, go to the Account Summary on your Client Station and open the section entitled "Trading Conditions" found in the top right-hand corner of the Account Summary.

Asset	In options trading, one often speaks of the *underlying asset*. This is the financial instrument upon which options, a derivative product, are based. For example, the underlying asset for IBM stock options is the IBM stock itself.
Call option	Gives the option holder, in return for paying a premium, the right to buy from the of the option at the strike price.
cross	Any of the two currencies needed to trade Foreign Exchange crosses, such as the British Pound Sterling and the US Dollar

	(written as GBPUSD).
Delta	A measure of the proportional change between two items. The delta is used to understand how an options value will change relative to changes in the price of the underlying asset. The delta can vary between 0 and 1. If an option's delta is 0.5, a $1 move in the price of the underlying asset will produce a 50 - cent move in the option. Keep in mind that the delta changes depending on how deeply in or out of the money the option becomes as the price of the underlying asset changes.
Exercise date	The date on which the buyer of an option contract can exercise the right to buy or sell the underlying instrument at the strike price. Options are normally only exercised if they are in the money.
Hedging	A position or combination of positions that reduces the risk of your primary position.
Hedge ratio	Change in option price/Change in underlying spot.
In the money	An option is in the money if it has intrinsic value.
Intrinsic Value	The amount by which an option is in the money. In the case of a call option, intrinsic value is the current price for the underlying asset less the strike price. For a put option the intrinsic value is the strike price less the price for the underlying asset. If the difference between the prices is not positive in either case, then the intrinsic value is zero.
Margin deposit	Funds that a trader must have in a margin account that represent a percentage of the current market value of the securities held by the trader. Sellers of options must have additional funds besides the option premium itself in their accounts to protect against possible losses incurred by the market moving against the options position. The required margin will vary according to the option type and whether the seller also has a position in the underlying asset. For more information on the trading conditions at Saxo Bank, go to the Account Summary on your Client Station and open the section entitled "Trading Conditions" found in the top right-hand corner of the Account Summary.
Market maker	A recognised institution or individual willing to trade certain securities any time that a trader wants to buy or sell.. The incentive for the market maker to buy or sell at all times is the spread, or difference between bid and ask prices.
Option	A privilege sold by one party to another that offers the buyer the right, but not the obligation, to buy (call) or sell (put) a security at an agreed-upon price during a certain period of time or on a specific date. Options are formally referred to as options contracts. Options are traded for almost all financial instruments, including stocks, futures, and currencies. Many options are traded on public

	exchanges, but a significant volume of options trading, especially for the forex market, takes place over the counter (OTC). Options can be used for a vast range of purposes, but generally, they are most commonly used in two ways. First, a party can purchase a put or call option as a tool for outright speculation, i.e. buying an option in the hope that the underlying instrument will rise or fall dramatically in price. Secondly, a party may purchase an option as a hedge in order to protect from losses or protect unrealised profits in the underlying instrument. Option buyers take a limited risk (the cost of the option, or its *premium*) with the potential for nearly unlimited profit. Sellers of options have a different agenda and are taking unlimited risks for the sake of a limited profit, unless they are selling *covered* options, in which a position in the underlying instrument guarantees against a loss in the option premium (but does not guarantee against a loss in the underlying instrument!).
OTC	*An abbreviation for over the counter.* A market where commodities and instruments are traded directly between two parties, for examplpe, between an an investment bank and a client. This is different from trading on a public exchange, which is an open market place. Over-the-counter products can be tailored to individual clients whereas exchanges trade standardised contracts. A large over-the-counter market has grown up in, for example, forex and forex options.
Out of the money	An option that has no intrinsic value. If an option expires out of the money, it is worthless. An out-of-the-money option is a call option with a strike price that is higher than the current market level, or a put option with a strike price that is below the current market price.
Quote	The current price offered or asked for a financial instrument.
Pip	The smallest amount, or simply, the increment, by which the quote for a forex cross can change. For example, if the quote for AUDUSD changed from 58.65 to 58.91, it will have risen 26 pips. For 100,000 AUDUSD, these 26 pips would represent 260 US Dollars. Forex options are also quoted in pips.
Premium	In the context of options, the premium is the cost of buying an option; it represents the maximum amount the option-buyer can lose (and is likened to an insurance premium) and is income for the option seller.
Put option	Gives the option holder, in return for paying a premium, the right to sell to the grantor of the option at the strike price.
Risk management	Trying to control outcomes to a known or predictable range of gains or losses. Options are often a very large part of any risk management program. Risk management in investing is ensuring

	that you understand as many of the possible outcomes as possible and that you have prepared your portfolio for these outcomes. Risk management may be as simple as placing stop loss orders to prevent large losses or as complex as hedging positions with options or diversifying a portfolio to ensure that you are not overexposed to a single industry or instrument type.
Speculate	Buying or selling something purely for profit rather than for some fundamental business or other need.
Spot	In foreign-exchange, the spot market is the market for buying and selling for immediate delivery. A spot position is a position purchased in the spot market and the spot price is the price for an instrument for immediate delivery, as opposed to a forward price, which is for delivery at a specific later date.
Stop	A buy stop is an order to buy at a specific price higher than the current market price and a sell stop is a stop to sell at a specific price below the current market price. Traders often refer to "stop-loss" orders. These are stops that are placed below the market when the trader is long and above the market when the trader is short. These orders are triggered when the market price hits them to prevent further losses in the trader's position. Stop orders are not always executed at exactly the price specified, as the market may be too volatile.
Strike price	Also called the exercise price. The price at which an options holder can buy or sell the underlying instrument.
Time value	The amount by which the value of the option exceeds the intrinsic value.
Underlying asset	The asset (instrument, index or reference rate) upon which the options derivative is based.
Volatility	There are two types of volatility: 1) Historical volatility is actual volatility based on volatility realized in past movements in the market. 2) Implied volatility is the volatility interpreted from the price of options. So, the implied volatility is the expected spread of movement of an underlying asset’s price predicted over the term of the option derived from the known prices of options and the other parameters used in the calculation of those prices.