LIFFE Options

a guide to
trading strategies

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Introduction

Events over recent years have highlighted the volatility and uncertainty that is an inherent feature of today's financial markets. LIFFE's extensive range of options strategies not only provides for a wide range of views and enables users to gain leverage, but offers the advantages of execution within a single transaction, enabling competitive spreads and reduced exchange transaction fees. Unless otherwise stated, the strategies in this guide apply to all LIFFE's options contracts – on short term interest rate, government bond and swaps futures, commodity futures, equity indices and individual equities.

LIFFE Options - a guide to trading strategies shows when and how LIFFE's recognised option trading strategies can be used. Each strategy is illustrated with profit and loss profiles, plus details of decay characteristics and market sensitivities.

LIFFE Options Contracts

Options are available on the following LIFFE contracts:

Options on short term interest rate futures
Three Month Sterling
Three Month Euro (EURIBOR)
Three Month Euro (LIBOR)
Three Month Euroswiss

Options on government bond futures
German Government Bond (Bund)
Long Gilt

Options on Swapnote® futures
Two-Year Euro Swapnote®
Five-Year Euro Swapnote®
Ten-Year Euro Swapnote®

Options on Indices
FTSE 100 (American-Style)
FTSE 100 (European-Style)
FTSE 100 FLEX®
FTSE Eurotop 100
MSCI Euro
MSCI Pan-Euro

Individual Equity Options

Options on Non-Financial Futures
Cocoa
Robusta Coffee
White Sugar
Wheat

Serial Options

LIFFE serial options are short dated monthly expiry options. These have the benefit of lower premiums, can be used as a precision tool for hedging gamma, vega and theta exposures and in addition provide spread-trading opportunities against longer dated options. Exercise of a serial expiry month option will result in the assignment of a futures position in the nearby quarterly delivery month (e.g. exercise of a July serial option will result in the assignment of a September futures position). Serial options are available on the following LIFFE contracts:

German Government Bond (Bund) future
Long Gilt future
Three Month Euribor future
Two-Year Euro Swapnote®
Five-Year Euro Swapnote®
Ten-Year Euro Swapnote®

Mid-Curve Options

LIFFE Mid-Curve options are short-dated options with a longer-dated (Red month) futures contract as the underlying asset. Providing longer-dated exposure than LIFFE vanilla options, Mid-Curve options display higher implied volatility, greater time decay and higher vega than their traditional long-dated option counterparts. In addition, Mid-Curve options require less premium than longer dated options and typically display higher gamma and theta. LIFFE Mid-Curve options are available with March, June, September and December expiry cycles with two serial months, such that four expiry months are available for trading, with the nearest three expiry months being consecutive calendar months.

One Year Mid-Curve Options are available on the following LIFFE futures contracts:

Three Month Euro (EURIBOR)
Three Month Sterling

Recognised strategies

LIFFE's recognised strategies qualify for transaction fee reductions. All the components of the strategy must be booked to a single account. LIFFE does not allow the amalgamation of business from different clients to make up one side of the trade.

Option Only Strategies

The following strategies are comprised only of option components:

	LIFFE CONNECT™ strategy code	TRS strategy code
Call (Put) Spread	D	D
Combo	J	J
Straddle	S	S
Strangle	K	K
Guts	G	G
Butterfly	B	B
Condor	W	W
Iron Butterfly	I	I
Iron Condor	w	5
Call Strip	M	M
Put Strip	M	M
Calendar Spread	E	E
Diagonal Calendar Spread	F	F
Straddle Calendar Spread	N	N
Diagonal Straddle Calendar Spread	P	P
Jelly Roll	A	A
Straddle Strip	M	M
Box	X	X
Two by One Ratio Call (Put) Spread	H	H
Ladder	L	L
Synthetic Underlying	r	r
Call Spread vs Put	x	1
Put Spread vs Call	y	3
Straddle vs Call (Put)	z	7

Delta Neutral Strategies

In addition to the above strategies, LIFFE allows options and futures to be combined into a single strategy, traded through LIFFE CONNECT™. For equity options, the options are combined with a trade in the underlying share or alternatively the option can be combined with a trade in the Universal Stock Futures contract where this is available. Available delta neutral strategies are:

	LIFFE CONNECT™ strategy code	TRS strategy code
Volatility Trade	V	V
Conversion/Reversal	R	R
Call (Put) Spread vs Underlying	d	V
Straddle vs Underlying	s	V
Ladder vs Underlying	a	V
Combo vs Underlying	j	V
Calendar Spread vs Underlying	e	V
Two by one ratio spread vs Underlying	h	V
Call Spread vs Put vs Underlying	c	V
Put Spread vs Call vs Underlying	p	V

Basic option theory

In, at and out-of-the-money

A call option is in-the-money when the underlying price is higher than the option's exercise price, and is out-of-the-money when the underlying price is lower than the option's exercise price. A put option is in-the-money when the underlying price is lower than the option's exercise price, and is out-of-the-money when the underlying price is higher than the option's exercise price. An option is at-the-money when the underlying price is equal to the option's exercise price. In practice the option with the exercise price nearest to the prevailing underlying price is called the at-the-money option.

Intrinsic and time value

The option price, or premium, can be considered as the sum of two specific elements: intrinsic value and time value.

Intrinsic value

The intrinsic value of an option is the amount an option holder can realise by exercising the option immediately. Intrinsic value is always positive or zero. An out-of-the-money option has zero intrinsic value.

Intrinsic value of in-the-money call option = underlying product price - strike price
Intrinsic value of in-the-money put option = strike price - underlying product price

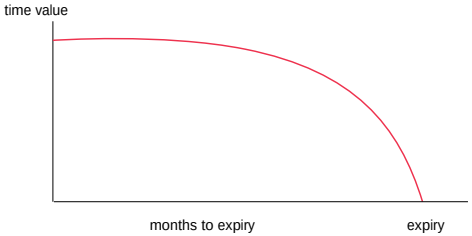
Time value

The time value of an option is the value over and above intrinsic value that the market places on the option. It can be considered as the value of the continuing exposure to the movement in the underlying product price that the option provides. The price that the market puts on this time value depends on a number of factors: time to expiry, volatility of the underlying product price, risk free interest rates and expected dividends.

Time to expiry

Time has value, since the longer the option has to go until expiry, the more opportunity there is for the underlying price to move to a level such that the option becomes in-the-money. Generally, the longer the time to expiry, the higher the option's time value. As expiry approaches, the value of an option tends to zero, and the rate of time decay accelerates.

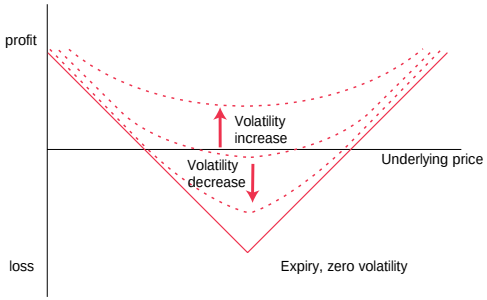
Time value decay curve



Volatility

The volatility of an option is a measure of the spread of the price movements of the underlying instrument. The more volatile the underlying instrument, the greater the time value of the option will be. This will mean greater uncertainty for the option seller who, will charge a high premium to compensate. Option prices increase as volatility rises and decrease as volatility falls.

Effect of volatility increase/decrease on long straddle



Option sensitivities

Throughout this brochure, the strategy examples refer to market sensitivities of the options involved. These sensitivities are commonly referred to as the 'Greeks' and these are defined below.

Delta: measures the change in the option price for a given change in the price of the underlying and thus enables exposure to the underlying to be determined. The delta is between 0 and +1 for calls and between 0 and -1 for puts (thus a call option with a delta of 0.5 will increase in price by 1 tick for every 2 tick increase in the underlying).
Gamma: measures the change in *delta* for a given change in the underlying. (e.g. if a call option has a delta of 0.5 and a gamma of 0.05, this indicates that the new delta will be 0.55 if the underlying price moves up by one full point and 0.45 if the underlying price moves down by one full point).
Theta: measures the effect of time decay on an option. As time passes, options will lose time value and the theta indicates the extent of this decay. *Both call and put options are wasting assets and therefore have a negative theta.* Note that the decay of options is non-linear in that the rate of decay will accelerate as the option approaches expiry. As the table below illustrates, the theta will reach its highest value immediately before expiry.
Vega: measures the effect that a change in implied volatility has on an option's price. Both calls and puts will tend to increase in value as volatility increases, as this raises the probability that the option will move in-the-money. Both calls and puts will thus possess a positive vega.

In this brochure, market sensitivities are displayed for each strategy in the form of a table based on the position at 30 days to expiry. This shows the approximate sensitivities for when the underlying is at-the-money, as well as when the underlying rises and falls. The tables show the sensitivities of a position as outlined below:

+++	= highly positive
++	= positive
+	= slightly positive
0	= neutral
-	= slightly negative
- -	= negative
- - -	= highly negative

Below the sensitivities table for each option strategy, there are brief explanations of movements in option sensitivities including brief descriptions of any departure from the sensitivities table that may occur (for example when the position is nearer to expiry).

Note that the sensitivities tables are not intended to be a precise guide to trading. They are designed to give an indication of how movements in the underlying will change the overall and relative market sensitivities of a position.

Summary of options and futures 'Greek' values

Individual option positions, e.g. long/short call options, have their own particular 'Greek' values. The table below summarises these values:

Changes in values

Position	Delta			Gamma			Theta			Vega		
	below strike	at strike	above strike	below strike	at strike	above strike	below strike	at strike	above strike	below strike	at strike	above strike
+ call	+	++	+++	++	+++	++	-	- -	-	+	++	+
- call	-	- -	- - -	- -	- - -	- -	+	++	+	-	- -	-
+ put	- - -	- -	-	++	+++	++	-	- -	-	+	++	+
- put	+++	++	+	- -	- - -	- -	+	++	+	-	- -	-
+ future	+++	+++	+++	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
- future	- - -	- - -	- - -	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Put/call parity

Of particular importance with regard to arbitrage trades is the concept of put/call parity. This is the relationship which exists between calls and puts. It states that the value of a call (put) can be derived from the value of a put (call) with the same exercise price, maturity date and underlying price. Hence, for LIFFE options on futures:

C=P+F-X where: C = call price
P = put price
F = futures price
X = exercise price

NB This assumes there are no carrying costs for options (which is the case for LIFFE's current range of options on futures where premium is not paid up front). A put/call parity price for premium up front options (such as LIFFE's FTSE 100 Index Options) can be found by slightly modifying this formula.

Arbitrage trades, such as those shown in this guide, are based on the relationships that exist between certain positions using options and futures. Referred to as synthetic positions, they are derived from put-call parity and, by using this relationship, it is possible to perform arbitrage between synthetic positions and their outright equivalent.

Notes on strategy construction

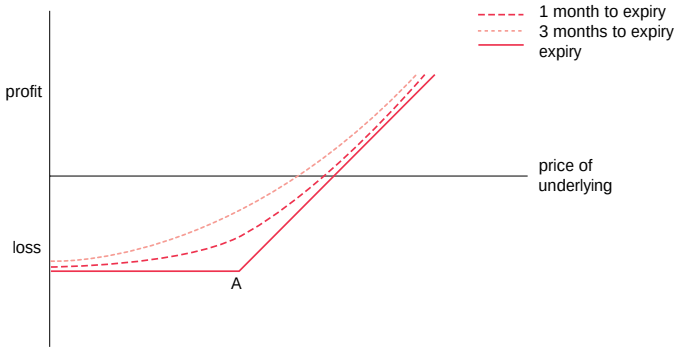
Profit/loss profiles: Profit/loss profiles are illustrated for each strategy where possible. The vertical axis shows profit above the horizontal break-even line, and loss below the break-even line. The horizontal axis represents the price of the underlying instrument (increasing from left to right). All potential profit and loss outcomes at expiry are shown in solid lines and the effects of time decay are illustrated with profiles at three months to expiry (lightly dashed lines) and at one month to expiry (heavy dashed lines). It should be noted that all profit/loss profiles and explanations do not include commission costs, costs of margin requirements, and other execution expenses.

Definition of at-the-money: For the purpose of these examples, the at-the-money level is considered to be where the underlying price is equal to the exercise price of the option contract. For symmetric strategies consisting of two strikes, the at-the-money level is taken to be the mid-point between the two strike prices.

Effect of time: The option strategy is analysed from a point in time 30 days from expiry. Note that the value of certain 'Greeks' may change as the position approaches expiry. For 'Calendar' based option strategies (see strategies 29-34), the effect of time decay is particularly important.

LIFFE Option Strategies

1. Long Call



The trade: Buy a call with an exercise price of (A).
Market expectation: Market bullish/volatility bullish. The more bullish the expectation, the further out-of-the-money (higher strike) the purchased call should be. A Long Call combines limited downside exposure with high gearing in a rising market.

Profit and loss characteristics at expiry:

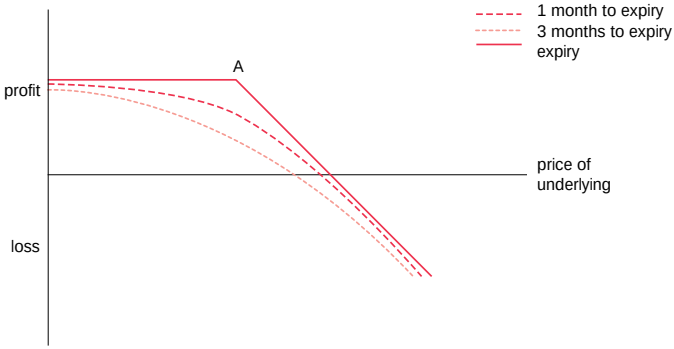
Profit: Unlimited in a rising market.
Loss: Limited to the initial premium.
Break-even: Reached when the underlying rises above the strike price A, by the same amount as the premium paid to establish the position.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	+	++	+++
gamma	++	+++	++
theta	-	- -	-
vega	+	++	+

Delta: Increases towards +1 as the underlying rises and the call moves in-the-money.
Gamma: Highest around the at-the-money level, particularly when the option is approaching expiry.
Theta: Value of position will decrease as option loses time value.
Vega: Value of position will tend to rise if expected volatility increases. Vega will be highest the closer the underlying is to the strike, and the longer the time to maturity.

2. Short Call



The trade: Sell a call (A).

Market expectation: Market bearish/volatility bearish. Holder expects a gradual fall in the market and lower volatility. The optimal strike is dependent on time decay and vega level; although, in general, the more bearish the expectation, the greater the sold option should be in-the-money (lower strike) in order to maximise premium income. Profit is limited to the premium received and thus if the market view is more than moderately bearish, a Long Put may yield higher profits.

Profit & loss characteristics at expiry:

Profit: Limited to the premium received from selling the call.

Loss: Unlimited in a rising market.

Break-even: reached when the underlying rises above the strike price A, by the same amount as the premium received from selling the call.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	-	- -	- - -
gamma	- -	- - -	- -
theta	+	++	+
vega	-	- -	-

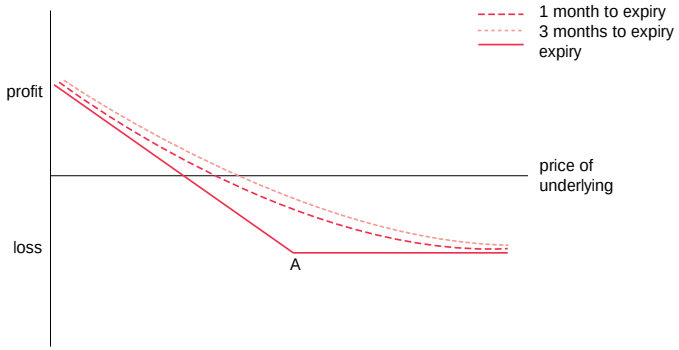
Delta: Decreases towards -1 as the underlying rises and the sold option moves in-the-money.

Gamma: Highest around the at-the-money level, particularly when the option is approaching expiry.

Theta: Value of position will increase as sold option loses time value.

Vega: Value of position will tend to fall if expected volatility increases. Vega will be highest the closer the underlying is to the strike, and the longer the time to maturity.

3. Long Put



The trade: Buy a put (A).
Market expectation: Market bearish/volatility bullish. The more bearish the expectation, the further out-of-the-money (lower strike) the purchased put should be. A Long Put combines limited upside exposure with high gearing in a falling market.

Profit and loss characteristics at expiry:

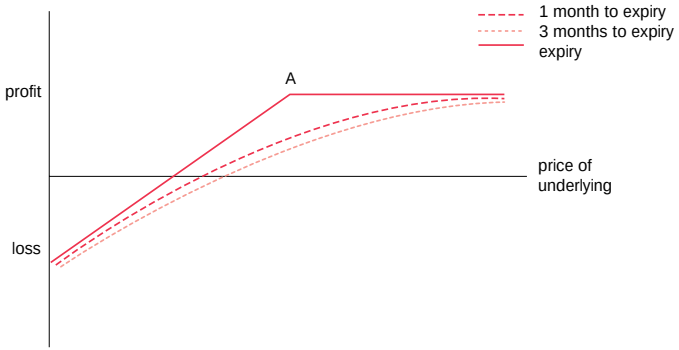
Profit: Effectively unlimited in a falling market.
Loss: Limited to the initial premium paid.
Break-even: Reached when the underlying falls below the strike price A by the same amount as the premium paid to establish the position.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	- - -	- -	-
gamma	++	+++	++
theta	-	- -	-
vega	+	++	+

Delta: Decreases towards -1 as the underlying falls and the option moves in-the-money.
Gamma: Highest around the at-the-money level, particularly when the option is approaching expiry.
Theta: Value of position will decrease as option loses time value.
Vega: Value of position will tend to increase if expected volatility increases. Vega will be highest the closer the underlying is to the strike, and the longer the time to maturity.

4. Short Put



The trade: Sell a put (A).
Market expectation: Market bullish/volatility bearish. Holder expects a gradual rise in the market with lower volatility. The optimal strike to be sold will be dependent on time decay and the vega level, although in general, the more bullish the view, the greater the sold option should be in-the-money (higher strike) in order to maximise premium income. Profit is limited to the premium received and thus if the market view is more than moderately bullish, a long call may yield higher profits.

Profit & loss characteristics at expiry:

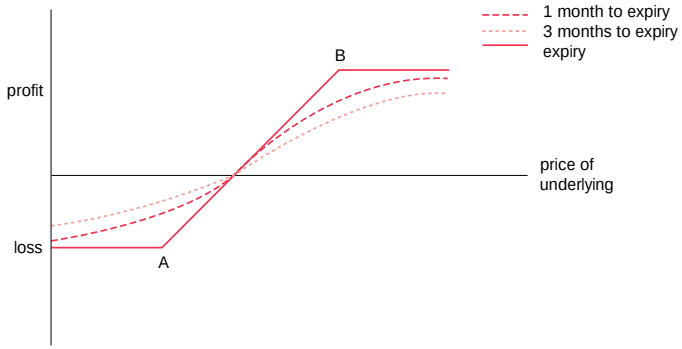
Profit: Limited to the premium received from selling the put.
Loss: Unlimited in a falling market.
Break-even: Reached when the underlying falls below the strike price A by the same amount as the premium received from selling the put.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	+++	++	+
gamma	- -	- - -	- -
theta	+	++	+
vega	-	- -	-

Delta: Increases towards +1 as the underlying falls and the sold option moves in-the-money.
Gamma: Highest around at-the-money and approaching expiry.
Theta: Value of position will increase as sold option loses time value.
Vega: Value of position will decrease as expected volatility increases. Vega will be highest the closer the underlying is to the strike, and the longer the time to maturity.

5. Long Call Spread



LIFFE CONNECT™ Strategy code: D.
The trade: Buy a call (A), sell call at higher strike (B).
Market expectation: Market bullish/volatility neutral. The spread has the advantage of being cheaper to establish than the purchase of a single call, as the premium received from the sold call reduces the overall cost. The spread offers a limited profit potential if the underlying rises and a limited loss if the underlying falls.

Profit and loss characteristics at expiry:

Profit: Limited to the difference between the two strikes minus net premium cost. Maximum profit occurs where the underlying rises to the level of the higher strike B or above.
Loss: Limited to any initial premium paid in establishing the position. Maximum loss occurs where the underlying falls to the level of the lower strike A or below.
Break-even: Reached when the underlying is above strike A by the same amount as the net cost of establishing the position.

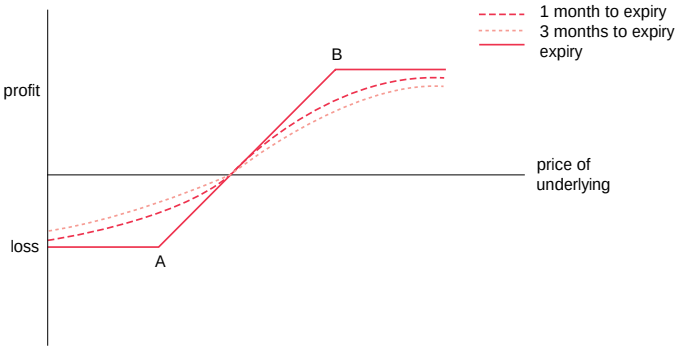
Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	+	++	+
gamma	+	0	-
theta	-	0	+
vega	+	0	-

Delta: The highest level will be between the strikes A-B. Below strike A or above strike B, the delta will tend to fall towards zero.
Gamma: Positive if underlying closer to strike A, negative if underlying closer to strike B, neutral if around midpoint A-B.
Theta: Negative if underlying closer to strike A, positive if underlying closer to strike B, neutral if around midpoint A-B.
Vega: Positive if underlying closer to strike A, negative if underlying closer to strike B, neutral if around midpoint of A-B.

NB The long call spread and the short put spread create near identical positions.

6. Short Put Spread



LIFFE CONNECT™ Strategy code: D.
The trade: Sell a put (B), buy put at a lower strike (A).
Market expectation: Market bullish/volatility neutral. The Short Put at B aims to take advantage of a bullish market and the premium gained affords some downside protection with a Long Put at A. The spread offers a limited profit potential if the underlying rises and a limited loss if the underlying falls.

Profit and loss characteristics at expiry:

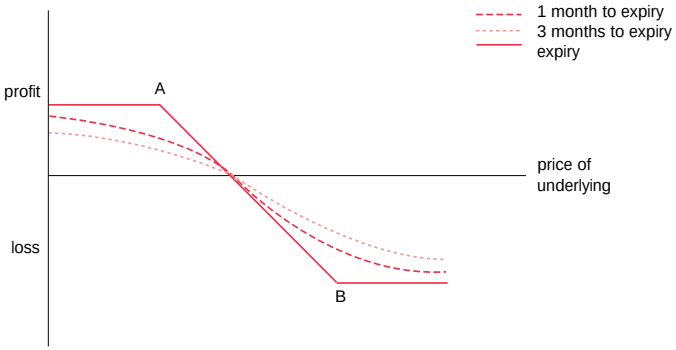
Profit: Limited to the net premium credit. Maximum profit occurs where underlying rises to the level of the higher strike B or above.
Loss: Maximum loss occurs where the underlying falls to the level of the lower strike A or below.
Break-even: Reached when the underlying is below strike B by the same amount as the net credit of establishing the position.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	+	++	+
gamma	+	0	-
theta	-	0	+
vega	+	0	-

Delta: The highest level will be between the strikes A-B. Below strike A or above strike B, the delta will tend to fall towards zero.
Gamma: Positive if underlying closer to strike A, negative if underlying closer to strike B, neutral if around midpoint of A-B.
Theta: Negative if underlying closer to strike A, positive if underlying closer to strike B, neutral if around midpoint of A-B.
Vega: Positive if underlying closer to strike A, negative if underlying closer to strike B, neutral if around midpoint of A-B.

7. Short Call Spread



LIFFE CONNECT™ Strategy code: D.
The trade: Sell a call (A), buy call at higher strike (B).
Market expectation: Market bearish/volatility neutral. The Short Call at A aims to take advantage of a bearish market and the premium gained affords some upside protection with a Long Call at B. The spread offers a limited profit if the underlying falls and a limited loss exposure if the underlying rises.

Profit & loss characteristics at expiry:

Profit: Limited to the net premium credit. Maximum profit occurs where underlying falls to the level of the lower strike A or below.
Loss: Limited to the difference between the two strikes minus the net credit received in establishing the position. Maximum loss occurs where the underlying rises to the level of the higher strike B or above.
Break-even: Reached when the underlying is above strike price A by the same amount as the net credit of establishing the position.

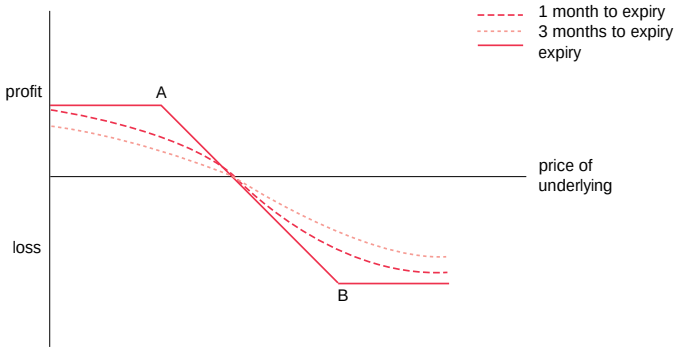
Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	-	- -	-
gamma	-	0	+
theta	+	0	-
vega	-	0	+

Delta: The highest level will be between the strikes A-B. Below strike A or above strike B, the delta will tend to fall towards zero.
Gamma: Negative if underlying closer to strike A, positive if underlying closer to strike B, neutral if around midpoint of A-B.
Theta: Positive if underlying closer to strike A, negative if underlying closer to strike B, neutral if around midpoint of A-B.
Vega: Negative if underlying closer to strike A, positive if underlying closer to strike B, neutral if around midpoint of A-B.

NB: The Short call spread and the long put spread create near identical positions.

8. Long Put Spread



LIFFE CONNECT™ Strategy code: D.

The trade: Buy a put (B), sell put at lower strike (A).

Market expectation: Market bearish/volatility neutral. The spread has the advantage of being cheaper to establish than the purchase of a single put, as the premium received from the sold put reduces the overall cost. The spread offers a limited loss exposure if the underlying rises, and a limited profit if the underlying falls.

Profit & loss characteristics at expiry:

Profit: Limited to the difference between the two strikes minus net premium cost. Maximum profit occurs where underlying falls to the level of the lower strike A or below.

Loss: Limited to the initial premium paid in establishing the position. Maximum loss occurs where the underlying rises to the level of the higher strike B or above.

Break-even: Reached when the underlying is below strike price B by the same amount as the net cost of establishing the position.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	-	- -	-
gamma	-	0	+
theta	+	0	-
vega	-	0	+

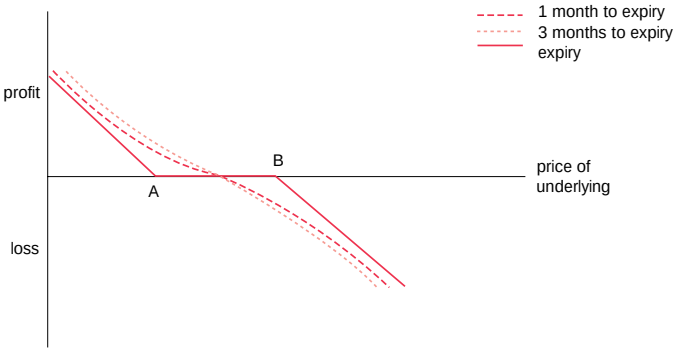
Delta: The highest level will be between the strikes A-B. Below strike A or above strike B, the delta will tend to fall towards zero.

Gamma: Negative if underlying closer to strike A, positive if underlying closer to strike B, neutral if around midpoint of A-B.

Theta: Positive if underlying closer to strike A, negative if underlying closer to strike B, neutral if around midpoint of A-B.

Vega: Negative if underlying closer to strike A, positive if underlying closer to strike B, neutral if around midpoint of A-B.

9. Long Combo



LIFFE CONNECT™ Strategy code: J.

The trade: Sell a call (B), buy put at lower strike (A).
Has same profile as synthetic split strike short future.

Market expectation: Market bearish/volatility neutral. The risk/reward profile is similar to that of a short future except that there is a plateau (A-B) over which there will be no change in profit/loss. The plateau makes this a more suitable trade than a short future if volatility expectations are uncertain.

Profit & loss characteristics at expiry:

Profit: Unlimited in a falling market.

Loss: Unlimited in a rising market.

Break-even: Depending on the strikes chosen, the position may yield a small premium cost or credit. If the position is established at a net cost, break-even will occur where the market falls below point A by the same amount. If the position is established at a credit, break-even will occur where the market rises above point B by the same amount.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	-	-	-
gamma	+	0	-
theta	-	0	+
vega	+	0	-

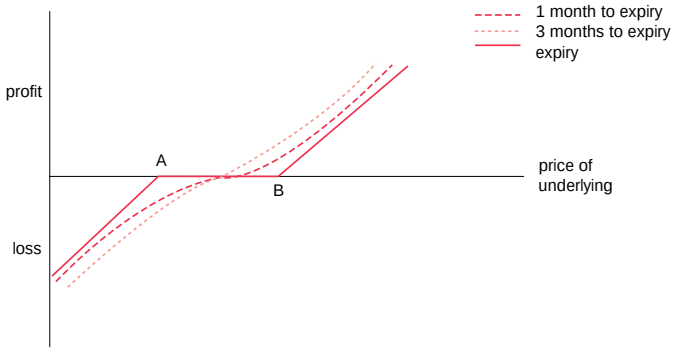
Delta: The further the position from A or B, the nearer the delta will be towards -1.

Gamma: Positive at A, negative at B, neutral around midpoint of A-B.

Theta: Slightly negative at A, slightly positive at B, neutral around midpoint of A-B.

Vega: Slightly positive at A, slightly negative at B, neutral around midpoint of A-B.

10. Short Combo



LIFFE CONNECT™ Strategy code: J.
The trade: Buy a call (B), sell put at lower strike (A).
Same profile as synthetic split strike long future.
Market expectation: Market bullish/volatility neutral. The risk/reward profile is similar to that of a long future except that there is a plateau (A-B) in which there is no change in profit/loss. The plateau makes this a more suitable trade than a long future if volatility expectations are uncertain.

Profit & loss characteristics at expiry:

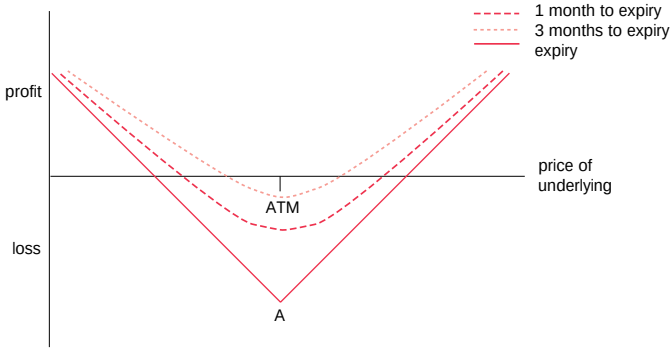
Profit: Unlimited in a rising market.
Loss: Unlimited in a falling market.
Break-even: Depending on the strikes chosen, establishing the position may yield a small premium cost or credit. If the position is created at a cost, break-even will occur where the market rises above point B by this amount. If the position is established at a credit, the break-even point will occur if the market falls below point A by the same amount.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	+	+	+
gamma	-	0	+
theta	+	0	-
vega	-	0	+

Delta: The further the position is from A or B, the nearer the delta will move towards +1.
Gamma: Negative at A, positive at B, neutral around midpoint of A-B.
Theta: Slightly positive at A, slightly negative at B, neutral around the mid point A-B.
Vega: Slightly negative at A, slightly positive at B, neutral around midpoint of A-B.

11. Long Straddle



LIFFE CONNECT™ Strategy code: S.
The trade: Buy a put (A), buy call at same strike.
Market expectation: Market neutral/volatility bullish. With the underlying at A and an unknown directional move or increase in volatility is anticipated.

Profit & loss characteristics at expiry:

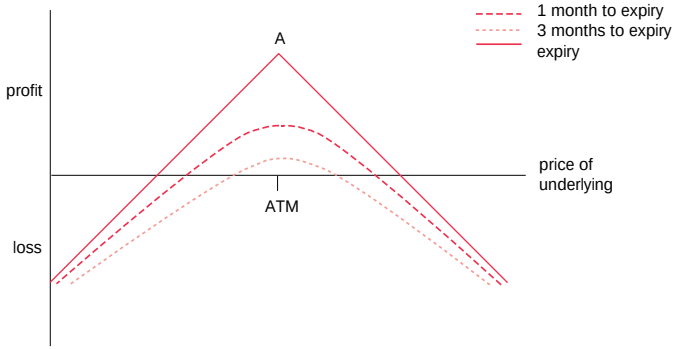
Profit: Unlimited for an increase or decrease in the underlying.
Loss: Limited to the premium paid in establishing the position. Will be greatest if the underlying is at strike A, at expiry.
Break-even: Reached if the underlying rises or falls from strike A by the same amount as the premium cost of establishing the position.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	- -	0	++
gamma	++	+++	++
theta	-	- - -	-
vega	+	++	+

Delta: Neutral (assumed at-the-money position), becomes highly positive (negative) for large increases (decreases) in underlying. As a volatility trade, the position would be kept delta neutral with dynamic hedging until it is closed out or is altered to take account of a clear change of market direction.
Gamma: Highest when at-the-money and approaching expiry.
Theta: Value of position will decrease as the options lose time value. Theta may be positive if the position is far in-the-money and/or close to expiry.
Vega: Value of position will increase as expected volatility increases.

12. Short Straddle



LIFFE CONNECT™ Strategy code: S.
The trade: Sell a put (A), sell call at same strike.
Market expectation: Market neutral/volatility bearish. With the underlying at A and a period of low or decreasing volatility is anticipated, and the underlying is not expected to move dramatically.

Profit & loss characteristics at expiry:

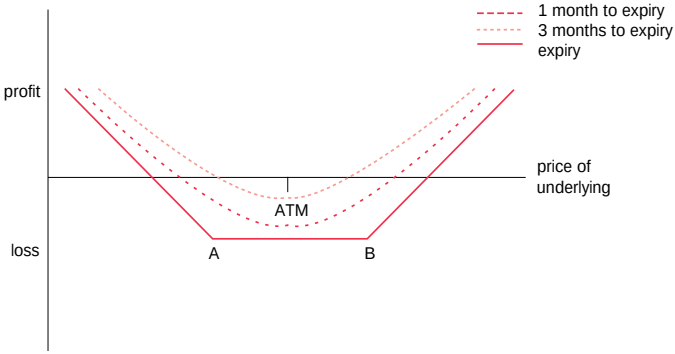
Profit: Limited to the credit received from establishing the position. Highest if the market settles at A.
Loss: Unlimited for both an increase or decrease in the underlying.
Break-even: Reached if the underlying rises or falls from strike A by the same amount as the premium received from establishing the position.

Market sensitivity at 30 days to expiry:

underlying	down	at-the-money	up
delta	++	0	- -
gamma	- -	- - -	- -
theta	+	+++	+
vega	-	- -	-

Delta: Neutral (presumed at-the-money position), becomes highly negative (positive) for large increases (decreases) in the underlying. As a volatility trade, the position would be kept delta neutral with dynamic hedging until it is closed out or is altered to take account of a clear change of market direction.
Gamma: Highest when at-the-money and approaching expiry.
Theta: Value of position will increase as the options lose time value. Theta may be negative if the position is far out-of-the-money and/or close to expiry.
Vega: Value of position will decrease as expected volatility increases.

13. Long Strangle



LIFFE CONNECT™ Strategy code: K.
The trade: Buy a put (A), buy a call at higher strike (B).
Market expectation: Market neutral/volatility bullish. The holder expects a major movement in the market but is unsure as to its direction. A larger directional move is needed than a straddle in order to yield a profit but if the market stagnates, losses will be less.

Profit & loss characteristics at expiry:

Profit: The profit potential is unlimited although a substantial directional movement is necessary to yield a profit for both a rise or fall in the underlying.
Loss: Occurs if the market is static; limited to the premium paid in establishing the position.
Break-even: Occurs if the market rises above the higher strike price at B by an amount equal to the cost of establishing the position, or if the market falls below the lower strike price at A by the amount equal to the cost of establishing the position.

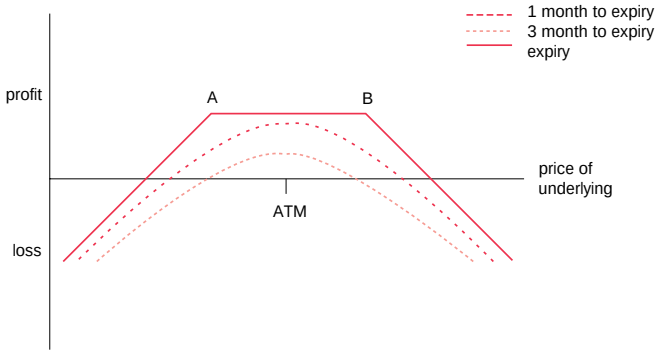
Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	- -	0	++
gamma	++	+++	++
theta	-	- -	-
vega	+	++	+

Delta: Neutral; (presumed at-the-money position), becomes highly positive (negative) for large increases (decreases) in underlying.
Gamma: Will be highest at strikes A and B but will tend to decrease as the underlying falls or rises significantly.
Theta: Time decay will act against the holder of the position.
Vega: The position will increase in value as volatility rises.

NB: Whilst the expiry profile is similar to that of the Long Guts, the difference relates to premium outlay. With the Long Strangle strategy you are buying two out of-the-money options (with a Long Guts both options are in the-money).

14. Short Strangle



LIFFE CONNECT™ Strategy code: K.
The trade: Sell a put (A), sell call at higher strike (B).
Market expectation: Direction neutral/volatility bearish. The holder expects low volatility and no major directional move. More cautious than a straddle as profit potential spans a larger range although maximum potential profits will be lower.

Profit & loss characteristics at expiry:

Profit: Limited to the premium received. Will be highest if the underlying remains within the market level A-B.
Loss: Unlimited for a sharp move in the underlying in either direction.
Break-even: reached if the underlying falls below strike A or rises above strike B by the same amount as the premium received in establishing the position.

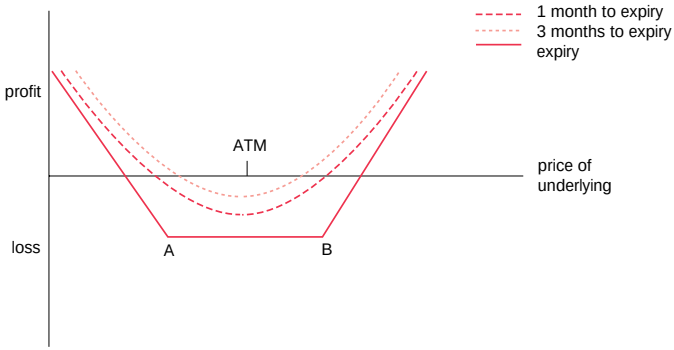
Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	++	0	- -
gamma	- -	- - -	- -
theta	+	++	+
vega	-	- -	-

Delta: Neutral (presumed at-the-money position), becomes highly negative (positive) for large increases (decreases) in the underlying.
Gamma: Highest at strikes A and B but will tend to decrease as the underlying falls or rises significantly.
Theta: Increase in value as options decay.
Vega: Value of position will decrease as volatility increases.

NB: Whilst the expiry profile is similar to that of the Long Guts, the difference relates to premium outlay. With the Long Strangle strategy you are selling two out of-the-money options (with a Long Guts both options are in the-money).

15. Long Guts



LIFFE CONNECT™ Strategy code: G.
The trade: Buy a call (A), buy put at higher strike (B).
Market expectation: Market neutral/volatility bullish. The market is at, or about the A-B range and a large directional move in the underlying is anticipated. Position has characteristics comparable to an in-the-money strangle.

Profit & loss characteristics at expiry:

Profit: Unlimited in a rising or falling market. A substantial directional movement is required however.
Loss: Limited to the initial premium paid less the difference between A and B; occurs if the underlying remains within the range A-B.
Break-even: Reached if the underlying rises above the higher strike price B by the amount equal to the cost of establishing the position less A-B, or if the underlying falls below the lower strike price A by the amount equal to the cost of establishing the position less A-B.

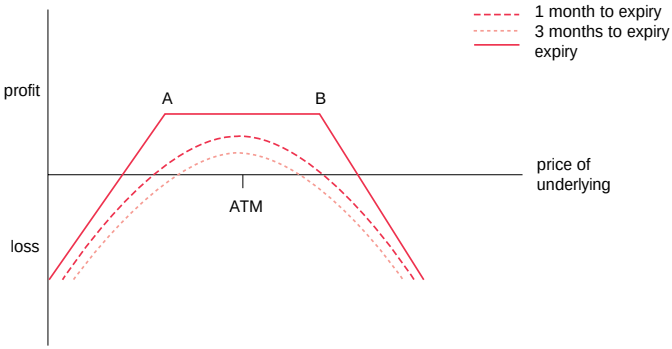
Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	- -	0	++
gamma	++	+++	++
theta	-	- -	-
vega	+	++	+

Delta: Neutral; (presumed at-the-money position). Becomes highly positive (negative) for large increases (decreases) in the underlying.
Gamma: Will be highest between strikes A and B and approaching expiry.
Theta: Value of position will decrease as options lose time value.
Vega: Value of position will increase as implied volatility increases.

NB: Whilst the expiry profile is similar to that of the Long Strangle, the difference relates to premium outlay. With the Long Guts strategy you are buying two in-the-money options (with a Long Strangle both options are out-of-the-money).

16. Short Guts



LIFFE CONNECT™ Strategy code: G.
The trade: Sell a call (A), sell a put at higher strike (B).
Market expectation: Direction neutral/volatility bearish. In this case the underlying is at, or about the A-B range and is expected to remain within this band.

Profit & loss characteristics at expiry:

Profit: Limited to the net premium received less the difference between A and B; occurs if the underlying remains within the range A-B.
Loss: Unlimited in a rising or falling market. A substantial directional movement is required however.
Break-even: Reached if the underlying falls below the lower strike price A by the amount equal to the premium received from establishing the position less A-B, or if the underlying rises above strike price B by the amount equal to the premium received from establishing the position less A-B.

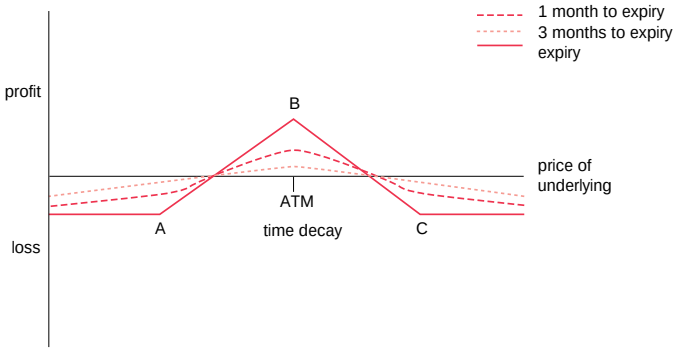
Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	++	0	- -
gamma	- -	- - -	- -
theta	+	++	+
vega	-	- -	-

Delta: Neutral (presumed at-the-money position). Becomes highly negative (positive) for large increases (decreases) in the underlying.
Gamma: Will be highest between strikes A and B and approaching expiry.
Theta: Value of position will increase as options lose time value.
Vega: Value of position will decrease as implied volatility increases.

NB: Whilst the expiry profile is similar to that of the Short Strangle, the difference relates to premium outlay. With the Short Guts strategy you are selling two in-the-money options (with a Short Strangle both options are out-of-the-money).

17. Long Butterfly



LIFFE CONNECT™ Strategy code: B.

The trade: Buy put (or call) A, sell two puts (or calls) at higher strike B, buy put (or call) at an even higher strike C.

Market expectation: Direction neutral/volatility bearish. In this case, the holder expects the underlying to remain around strike B, or it is felt that there will be a fall in implied volatility. Position is less risky than selling straddles or strangles as there is a limited downside exposure.

Profit & loss characteristics at expiry:

Profit: Maximum profit limited to the difference in strikes between A and B minus the net cost of establishing the position. Maximised at mid strike B (assuming A-B and B-C are equal).

Loss: Maximum loss limited to the net cost of the position for either a rise or a fall in the underlying.

Break-even: Reached when the underlying is higher than A or lower than C by the cost of establishing the position.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	+	0	-
gamma	-	- -	-
theta	+/-	+	+/-
vega	-/+	- -	-/+

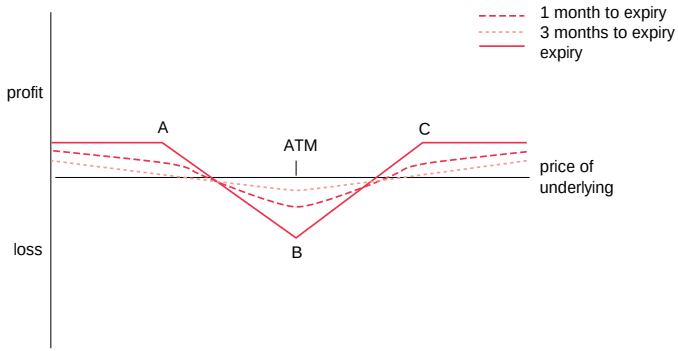
Delta: Neutral (assuming an at-the-money position). Delta becomes more positive as underlying moves to A, negative as the underlying moves to C.

Gamma: Highest at or about strike B. Below strike A, or above strike C, the gamma will tend to decline. May become positive at greater distances from B.

Theta: Time decay will be negligible until the final month of the contract. Decay will benefit the holder between underlying levels A and C, being greatest at B. If the underlying moves outside this area, decay will act against holder.

Vega: Increased volatility will reduce the value of the position. Volatility may have a positive impact if the underlying is below A or above C by a sufficient margin.

18. Short Butterfly



LIFFE CONNECT™ Strategy code: B.
The trade: Sell put (or call) A, buy two puts (or calls) B, sell put (or call) C.
Market expectation: Market neutral/volatility bullish. In this case the holder expects a directional move in the underlying, or a rise in implied volatility.

Profit & loss characteristics at expiry:

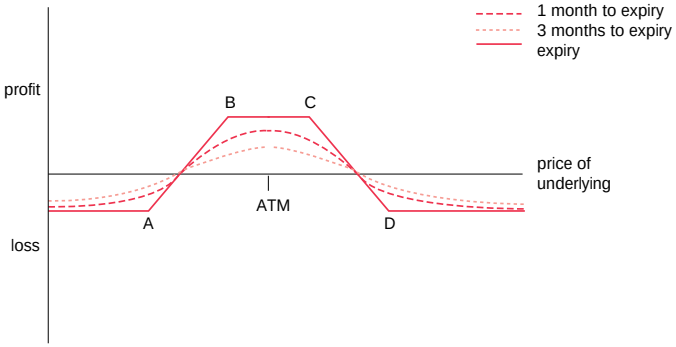
Profit: Maximum profit is the net credit received in establishing the position and will occur if there is a sufficient directional move of the underlying, in either direction.
Loss: Limited to the difference in strikes between A and B, minus the net credit in establishing the position.
Break-even: Reached when the underlying is higher than A or lower than C by the credit received from establishing the position.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	-	0	+
gamma	+	++	+
theta	+/-	-	+/-
vega	-/+	++	-/+

Delta: Neutral (assumed at-the-money spread). Delta becomes more positive as underlying moves to C, negative as the underlying moves to A.
Gamma: Highest at or about strike B and will tend to decline as the market moves in either direction from this point. May become negative at greater distances from B.
Theta: Time decay will be negligible until the final month of the contract. Decay will act against the holder between underlying levels A and C, being greatest at B. If the underlying moves outside this area, decay will benefit the holder.
Vega: Increased volatility will increase the theoretical value of the position. Volatility may have a negative impact if the underlying is below A or above C by a sufficient margin.

19. Long Condor



LIFFE CONNECT™ Strategy code: W.

The trade: Buy put (call) at A; sell put (call) at two higher strikes B, C; buy put (call) at yet higher strike D.

Market expectation: Direction neutral/volatility bearish. A Long Condor allows for a greater degree of volatility and hence a wider band of profit potential than a Long Butterfly.

Profit and loss characteristics at expiry:

Profit: Maximised where the underlying settles between the two strike prices B and C, but will decline as the market rises, or falls beyond these strikes.

Loss: Occurs if the underlying rises towards strike D or falls towards strike A. Will be limited to the cost of establishing the position for either a rise or a fall in the underlying.

Break-even: Lower break-even point reached when underlying reaches the lower strike price A plus the cost of establishing the spread, and the higher break-even when the underlying reaches the level of the higher strike D minus the cost of establishing the spread.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	++	0	- -
gamma	-	- -	-
theta	+/-	+	+/-
vega	-/+	- -	-/+

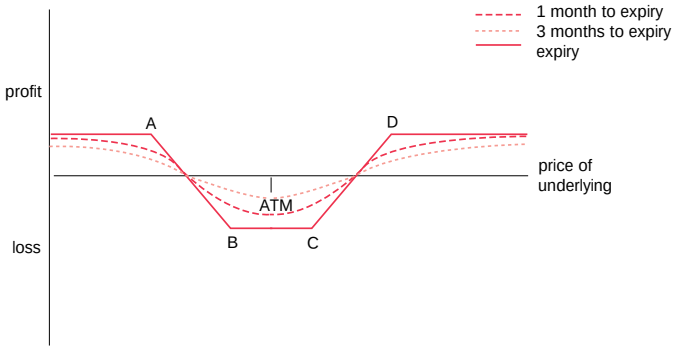
Delta: Neutral (assumed at-the-money position). Delta becomes more positive as underlying moves to A, negative as the underlying moves to D.

Gamma: Highest at or about strikes B and C. Below A, or above D, gamma will begin to decline. May become positive as the underlying moves further away from the ATM position.

Theta: Time decay will be negligible until the final month of the contract. Decay will benefit the holder between underlying levels A and D, being greatest between B and C. If the underlying moves outside this area, decay will act against holder.

Vega: Increased volatility will act against the holder. Volatility may have a positive impact if the underlying is below A or above D by a sufficient margin.

20. Short Condor



LIFFE CONNECT™ Strategy code: W.

The trade: Sell put (call) at A; buy put (call) at two higher strikes B, C; sell put (call) at yet higher strike D.

Market Expectation: Direction neutral/volatility bullish. Holder expects the market to move significantly, or volatility to rise, but the direction is uncertain. A Short Condor will require a larger directional move than a butterfly in order to yield a profit.

Profit & loss characteristics at expiry:

Profit: Limited and will occur if the market moves above the highest strike (D) or below the lower strike at A.

Loss: Maximum losses are limited and will occur if the market remains between the exercise prices B and C.

Break-even: Lower break even reached when underlying reaches the lower strike price A plus the net credit received from establishing the position, and the higher breakeven when the underlying reaches the level of the higher strike price D minus the credit received from establishing the position.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	- -	0	++
gamma	+	++	+
theta	+/-	-	+/-
vega	-/+	++	-/+

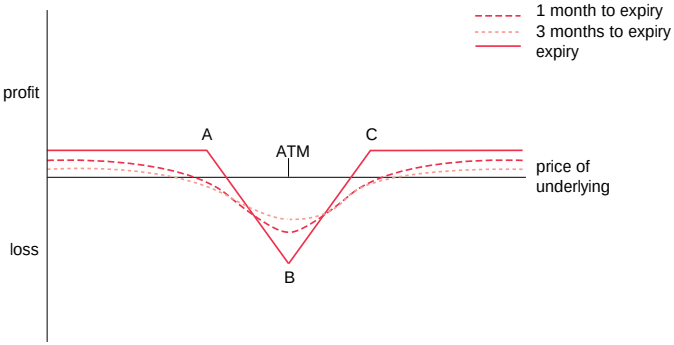
Delta: Neutral (assumed at-the-money spread). Delta becomes more positive as underlying moves to D, negative as the underlying moves to A.

Gamma: Highest between strikes B and C and will tend to decline as the market moves in either direction from this point. May become negative as the underlying moves further away from the ATM position.

Theta: Time decay will be negligible until the final month of the contract. Decay will act against the holder between underlying levels B and C. If the underlying moves outside this area, decay will benefit the holder.

Vega: Increased volatility will increase the theoretical value of the position. Volatility may have a negative impact if the underlying is below A or above D by a sufficient margin.

21. Long Iron Butterfly



LIFFE CONNECT™ Strategy code: I.
The trade: Buy Straddle, sell Strangle with strike prices above and below the strike price of the Straddle, i.e. Sell a put (A), buy a put and a call at higher strike (B), sell a call at an even higher strike (C).
Market expectation: Direction neutral/volatility bullish. Holder expects a market move in either direction. The position will also benefit from an increase in volatility.

Profit & loss characteristics at expiry:

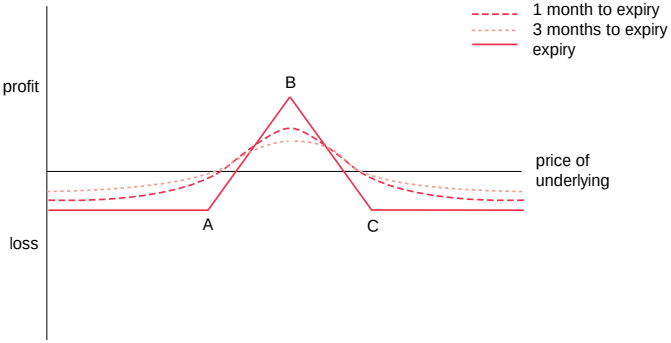
Profit: Limited; maximised where the underlying rises to strike C or falls to strike A.
Loss: Limited to the net debit in establishing the position, greatest if underlying is at B.
Break-even: Reached when underlying is above or below strike price B by the same amount as the initial debit.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	- -	0	++
gamma	+	++	+
theta	+/-	-	+/-
vega	-/+	++	-/+

Delta: Neutral (assumed at-the-money). Becomes highly positive (negative) for large decreases (increases) in the underlying.
Gamma: Highest at or about strike B, and will tend to decline as the market moves in either direction from this point. May become negative at greater distances from B.
Theta: Time decay will be negligible until the final month of the contract. Decay will act against the holder between underlying levels A and C, being greatest at B. If the underlying moves outside this area, decay will benefit the holder.
Vega: Value of position will increase as expected volatility increases.

22. Short Iron Butterfly



LIFFE CONNECT™ Strategy code: I.

The Trade: Sell Straddle, buy Strangle with strike prices above and below the strike price of the Straddle, i.e. Buy put (A), sell put and call at higher strike (B), buy call at equally higher strike (C).

Market expectation: Direction neutral/volatility bearish. If the underlying is at, or about strike B and is expected to remain at this level, or it is felt that volatility will fall.

Profit & loss characteristics at expiry:

Profit: Limited to the net credit in establishing the position. Maximised when the underlying is at B.

Loss: Limited loss occurs if there is a directional move in the market. Maximised at the lower strike A, and the higher strike C.

Break-even: Reached when underlying is above or below strike price B by the same amount as the net credit in establishing the position.

Market sensitivities at 30 days to expiry:

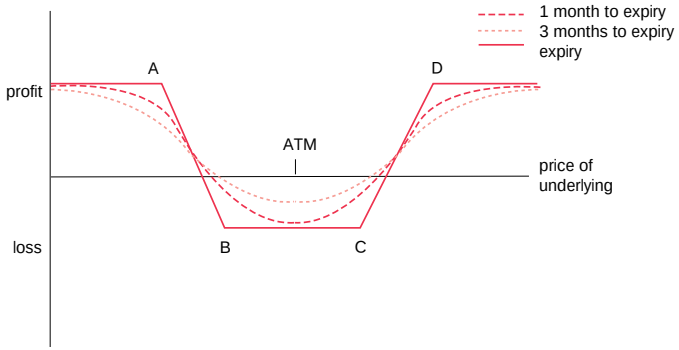
underlying	down	at-the-money	up
delta	++	0	- -
gamma	-	- -	-
theta	+/-	+	+/-
vega	-/+	- -	-/+

Delta: Neutral (assumed at-the-money position).

Gamma: Gamma will be highest at market level B and lowest if the market falls below A or rises above market level C. May become positive at greater distances from B.

Theta: The position will accrue time value most rapidly at B. If the market moves outside of the A-C band, time decay will move against the holder.

23. Long Iron Condor



LIFFE CONNECT™ Strategy code: 5.

The Trade: Buy strangle, sell strangle with strike prices outside those of the bought strangle, i.e. sell a put (A), buy a put at higher strike (B), buy a call at even higher strike (C), sell a call at even higher strike (D). This trade is only valid for FTSE 100 Index option contracts.

Market expectation: Direction neutral/volatility bullish. Holder expects the market to move significantly, or volatility to rise, but the direction is uncertain. A Long Iron Condor will require a larger directional movement than an Iron Butterfly in order to yield a profit.

Profit & loss characteristics at expiry:

Profit: Limited and will occur if the market moves to or above the highest strike (D) or to or below the lowest strike (A).

Loss: Maximum losses are limited and will occur if the market remains at or between the strikes B and C.

Break-even: Lower break-even reached when underlying falls below strike price B by the amount of the premium paid. Upper break-even reached when underlying rises above strike price C by the amount of premium paid.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	- -	0	+ +
gamma	+	+ +	+
theta	+/-	-	+/-
vega	-/+	++	-/+

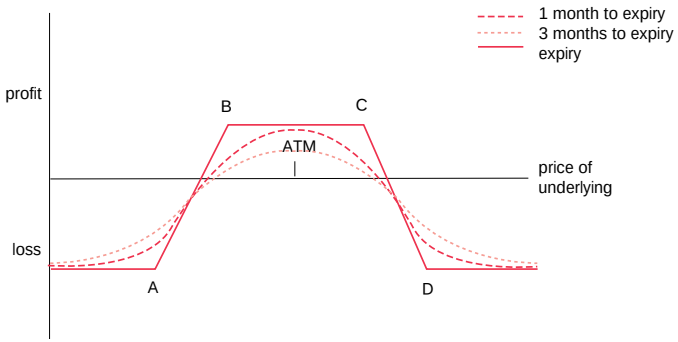
Delta: Neutral (assumed at-the-money position). Delta becomes more positive as underlying moves to D, negative as the underlying moves to A.

Gamma: Highest between strikes B and C and will tend to decline as the market moves in either direction from this point. May become negative as the underlying moves further away from the ATM position.

Theta: Time decay will be negligible until the final month of the contract. Decay will act against the holder between B and C. If the underlying moves outside this area, decay will benefit the holder.

Vega: Increased volatility will increase the theoretical value of the position. Volatility may have a negative impact if the underlying is below A or above D by a sufficient margin.

24. Short Iron Condor



LIFFE CONNECT™ Strategy code: 5

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The trade: Sell strangle, buy strangle with strike prices outside those of the sold strangle, i.e. buy a put (A), sell a put at higher strike (B), sell a call at even higher strike (C), buy a call a even higher strike (D). This trade is only valid for FTSE 100 Index option contracts.

Market expectation: Direction neutral/volatility bearish. A Short Iron Condor allows for a greater degree of volatility and hence a wider band of profit potential than a Short Iron Butterfly.

Profit & loss characteristics at expiry:

Profit: Maximised where the underlying remains at or within the exercise prices B and C, but will decline as the market rises or falls beyond these strikes. Will be limited to the net premium received for the trade.

Loss: Losses are limited, and will occur if the underlying rises to or above strike D or falls to or below strike A.

Break-even: Lower break-even reached when underlying falls below strike price B by the amount of the premium received. Upper break-even reached when underlying rises above strike price C by the amount of premium received.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	+ +	0	- -
gamma	-	- -	-
theta	+/-	+	+/-
vega	-/+	- -	-/+

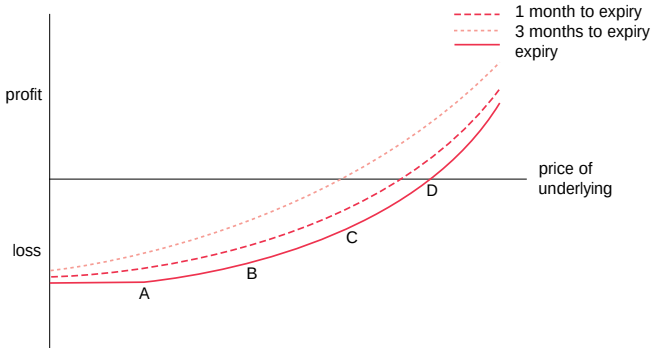
Delta: Neutral (assumed at-the-money position). Delta becomes more positive as underlying moves to A, negative as the underlying moves to D.

Gamma: Highest between strikes B and C and will tend to decline as the market moves in either direction from this point. May become positive as the underlying moves further away from the ATM position.

Theta: Time decay will be negligible until the final month of the contract. Decay will benefit the holder between B and C. If the underlying moves outside this area, decay will act against the holder.

Vega: Increased volatility will act against the holder. Volatility may have a positive impact if the underlying is below A or above D by a sufficient margin.

25. Long Call Strip



LIFFE CONNECT™ Strategy code: M.

The trade: Buy call at strike A, buy calls at higher strike prices. Between 3 and 8 strikes may be used in total, with one call option purchased at each. In the graph above, a 4-option strip is shown. All call options must be for the same expiry month. This strategy is not available for individual equity options or commodity options.

Market expectation: Direction bullish/volatility bullish. A long call strip gives the holder an increased exposure to a positive movement in the underlying price.

Profit & loss characteristics at expiry:

Profit: Unlimited in a rising market.

Loss: Limited to the initial premium.

Break-even: There will be a single break-even position, but the position in relation to the strikes will depend on the strike prices involved and the premium paid.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	+	++	+++
gamma	++	+++	++
theta	- -	- - -	- -
vega	++	+++	++

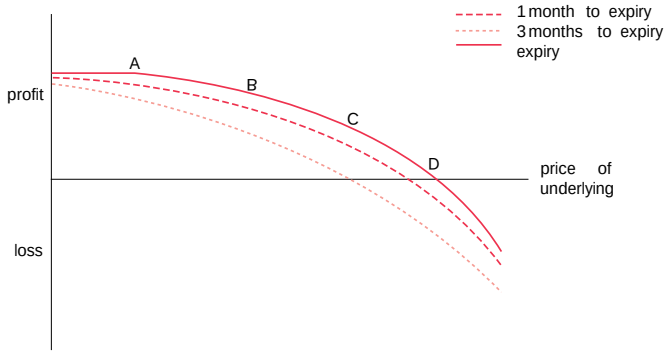
Delta: Increases as the underlying rises. The maximum level of delta depends on the number of calls in the strip, e.g. with 4 calls, the combined delta will tend to +4 as the underlying increases.

Gamma: Highest between the highest and lowest strike prices. High gamma will be focussed on the area around each strike price as the strategy approaches expiry.

Theta: Time decay will act against the holder of a long call strip.

Vega: The value of the position will increase as expected volatility increases.

26. Short Call Strip



LIFFE CONNECT™ Strategy code: M.

The trade: Sell call at strike A, sell calls at higher strike prices. Between 3 and 8 strikes may be used in total, with one call option sold at each. In the graph above, a 4-option strip is shown. All call options must be for the same expiry month. This strategy is not available for individual equity options or commodity options.

Market expectation: Direction neutral or bearish/volatility bearish.

Profit & loss characteristics at expiry:

Profit: Limited to the initial premium received.

Loss: Unlimited in a rising market.

Break-even: There will be a single break-even position, but the position in relation to the strikes will depend on the strike prices involved and the premium paid.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	-	- -	- - -
gamma	- -	- - -	- -
theta	++	+++	++
vega	- -	- - -	- -

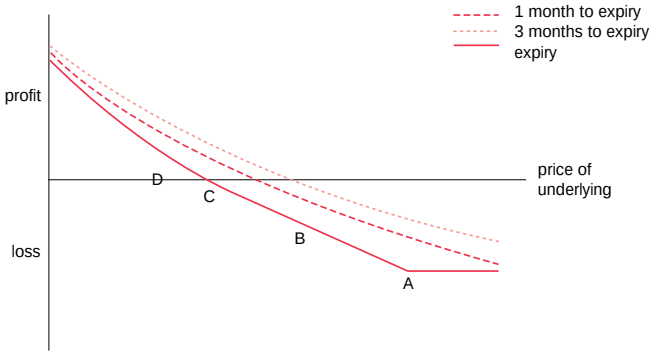
Delta: Decreases as the underlying rises. The minimum level of delta depends on the number of calls in the strip, i.e. with 4 calls, the combined delta will tend to -4 as the underlying increases.

Gamma: Highest between the highest and lowest strike prices. High gamma will be focussed on the area around each strike price as the strategy approaches expiry.

Theta: Time decay will benefit the holder of a short call strip.

Vega: The value of the position will decrease as expected volatility increases.

27. Long Put Strip



LIFFE CONNECT™ Strategy code: M.

The trade: Buy put at strike A, buy puts at lower strike prices. Between 3 and 8 strikes may be used in total, with one put option purchased at each. In the graph above, a 4-option strip is shown. All put options must be for the same expiry month. This strategy is not available for individual equity options or commodity options.

Market expectation: Direction bearish/volatility bullish. A long put strip gives the holder an increased exposure to a decline in the underlying price.

Profit & loss characteristics at expiry:

Profit: Unlimited in a falling market.

Loss: Limited to the initial premium.

Break-even: There will be a single break-even position, but the position in relation to the strikes will depend on the strike prices involved and the premium paid.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	- - -	- -	-
gamma	++	+++	++
theta	- -	- - -	- -
vega	++	+++	++

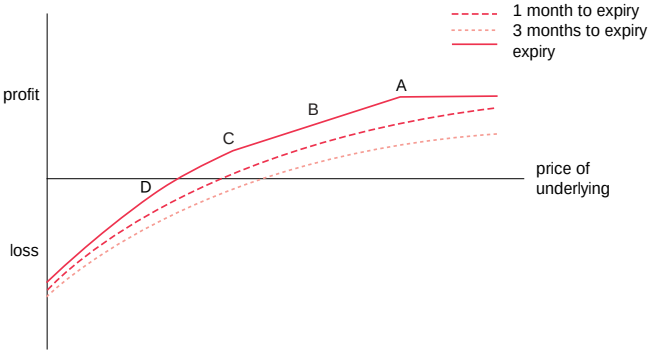
Delta: Decreases as the underlying rises. The maximum level of delta depends on the number of puts in the strip - e.g. with 4 puts, the delta will tend to -4 as the underlying decreases.

Gamma: Highest between the highest and lowest strike prices. High gamma will be focussed on the area around each strike price as the strategy approaches expiry.

Theta: Time decay will act against the holder of a long put strip.

Vega: The value of the position will increase as expected volatility increases.

28. Short Put Strip



LIFFE CONNECT™ Strategy code: M.

The trade: Sell put at strike A, sell puts at lower strike prices. Between 3 and 8 strikes may be used in total, with one put option sold at each. In the graph above, a 4-option strip is shown. All put options must be for the same expiry month. This strategy is not available for individual equity options or commodity options.

Market expectation: Direction neutral or bullish/volatility bearish.

Profit & loss characteristics at expiry:

Profit: Limited to the initial premium received.

Loss: Unlimited in a falling market.

Break-even: There will be a single break-even position, but the position in relation to the strikes will depend on the strike prices involved and the premium paid.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	+++	++	+
gamma	- -	- - -	- -
theta	++	+++	++
vega	- -	- - -	- -

Delta: Increases as the underlying rises. The minimum level of delta depends on the number of puts in the strip, e.g. with 4 puts, the combined delta will tend to +4 as the underlying decreases.

Gamma: Highest between the highest and lowest strike prices. High gamma will be focussed on the area around each strike price as the strategy approaches expiry.

Theta: Time decay will benefit the holder of a short put strip.

Vega: The value of the position will decrease as expected volatility increases.

29. Long Calendar Spread

This is a time value trade (involving the sale and purchase of options with different expiry months) and as such cannot be adequately plotted in terms of its risk/reward profile.

LIFFE CONNECT™ Strategy code: E.
The trade: Sell near put (call), buy far put (call) at same strike.
Market expectation: Direction neutral/volatility bullish. The near term option decays faster than the longer dated option, therefore the trade benefits from an increase in volatility.

Profit and loss characteristics at expiry (of near term option):

The potential profit in a time value trade is derived from the time decay characteristics of options (see the description of Theta in the introduction). The near, written put (call) will decay at a rate faster than that of the far, purchased put (call) as it approaches expiry and it is this differential in the rate of time decay which may yield a profit. Assuming the options are at-the-money and the market remains at this level, the sold option will expire worthless and the purchased option, although not possessing intrinsic value, will hold time value. As the initial position is established at a loss (because the far option will command a higher premium), to yield a profit, the time value of the long option after the expiry of the short dated option must be such that its value is greater than the initial cost of establishing the position.

30. Long Diagonal Calendar Spread

This is a time value trade (involving the sale and purchase of options with different expiry months) and as such cannot be adequately plotted in terms of its risk/reward profile.

LIFFE CONNECT™ Strategy code: F.
The trade: Sell near put (call), buy far put (call) at a different strike.
Market expectation: Expected to profit from time-decay differential and an increase in volatility. In addition, the position is suitable for a directional view on the underlying, e.g. sell Sep 99.00 call and buy Dec 101.00 call, giving a reduced cost calendar spread trade.

Profit & loss characteristics at expiry (of near option):

The profitability of the trade depends upon the differing time decay characteristics of the near, sold put (call) and the far, purchased put (call). The difference between this trade and that of a Calendar spread is that a diagonal spread involves options with different strike prices. As with a Calendar spread, the maximum loss will occur if the near, sold call (put) moves in-the-money and is exercised, followed by a fall (rise) in the market rendering the purchased call (put) worthless on expiry.

31. Long Straddle Calendar Spread

This is a time value trade (involving the simultaneous sale and purchase of straddles with different expiry months but same strikes), and as such cannot be adequately plotted in terms of its risk/reward profile.

LIFFE CONNECT™ Strategy code: N.
The Trade: Sell Straddle in near month, buy Straddle in far month at same strike.
Market expectation: The near Straddle decays faster than the longer dated Straddle. The trade benefits from an increase in volatility.

Profit & loss characteristics at expiry (of near straddle):

The potential profit in this trade arises as a result of the differing rates of time decay between the two straddles. Maximum profit will be realised if the sold straddle expires worthless and after this expiry, increased volatility or a directional move increases the value of the purchased straddle. Maximum loss will occur if the sold straddle is exercised and reduced volatility subsequently occurs, driving the purchased straddle into loss.

32. Long Diagonal Straddle Calendar Spread

This is a time value trade (involving the sale and purchase of straddles with different expiry months), but with different strikes and as such cannot be adequately plotted in terms of its risk/reward profile.

LIFFE CONNECT™ Strategy code: P.
The Trade: Sell Straddle in near month, buy Straddle in far month at different strike.
Market expectation: Profit from time decay differential, benefit from an increase in volatility, and/or benefit from a directional movement in the underlying (as the position involves straddles of different strikes, it is suitable for a directional view).

Profit & loss characteristics at expiry (of near straddle):

The potential profit in this trade arises as a result of the differing rates of time decay between the two straddles. Maximum profit will be realised if the sold straddle expires worthless, and after this expiry, increased volatility drives the purchased straddle in-the-money. Alternatively, the purchased straddle can be sold for its time value before the expiry date. Maximum loss will occur if the sold call is exercised and the market subsequently moves unfavourably, driving the purchased position out-of-the-money such that it expires worthless or can be sold for its time value only.

33. Long Jelly Roll

This is a time value trade (involving the sale and purchase of options with different expiry months) and as such cannot be adequately plotted in terms of its risk/reward profile.

LIFFE CONNECT™ Strategy code: A.
The trade: Buy put, sell call at same strike price in near expiry month, sell put, buy call at same strike in far expiry month (the strike price in the far expiry need not be equal to the strike price in the near expiry). This trade is only valid for FTSE 100 Index option contracts.
Market expectation: Direction neutral/volatility neutral. This trade consists of a short synthetic underlying in the near month and a long synthetic underlying in the far month. The holder will benefit if the differential between the futures prices of the two expiries (or the cost of carry differential in the case of premium up front options) widens.

Profit & loss characteristics at expiry (of near synthetic):

The potential profit of this trade is restricted as it arises from a widening of the futures price differential of the expiry months in question. After the expiry of the near term options, the holder is left with a long synthetic underlying position. The holder will therefore benefit from a rising market after the first expiry, and will be adversely affected by a falling market after the first expiry.

34. Long Straddle Strip

This is a time value trade (involving the purchase of options with different expiry months) and as such cannot be adequately plotted in terms of its risk reward profile.

LIFFE CONNECT™ Strategy code: M.
The trade: Buy between two and four straddles. Each straddle must be in a separate expiry month. This strategy is not available for individual equity options or commodity options.
Market expectation: A long straddle strip gives the holder an increased exposure to an increase in volatility.

Profit & loss characteristics at expiry (of near straddle):

The potential profit from this trade arises from either a significant directional movement in the underlying, or an increase in the expected volatility of the underlying across the range of expiry months. Loss will occur if the value of the underlying remains stable and/or the expected future volatility of the underlying falls.

35. Long Box

LIFFE CONNECT™ Strategy code: X.

The trade: Buy a call and sell a put, buy a put and sell a call and at a higher strike. All four options should have the same expiry date.

Market expectation: Direction neutral/volatility neutral. This is a 'locked trade', and hence its value is wholly independent of the price of the underlying. Where the synthetic long underlying price at one strike is trading at a lower price than the synthetic short underlying at the higher strike, such that the differential may be exploited.

Profit and loss characteristics at expiry:

If the pricing differential can be exploited, a profit will occur, the extent of the mis-pricing translating into the level of profit realised. The Box is regularly used by traders to close out positions near expiry. Generally traded at par (zero) for options on futures, and at the net cost of carry for index and equity options. Can be problematic if all positions are not closed out at exactly the same time.

Market sensitivities at 30 days to expiry:

As this is a form of arbitrage and profit is therefore independent of changes in the underlying, the value of the position will be independent of the market, hence:

underlying	down	at-the-money	up
delta	0	0	0
gamma	0	0	0
theta	0	0	0
vega	0	0	0

Delta: Neutral

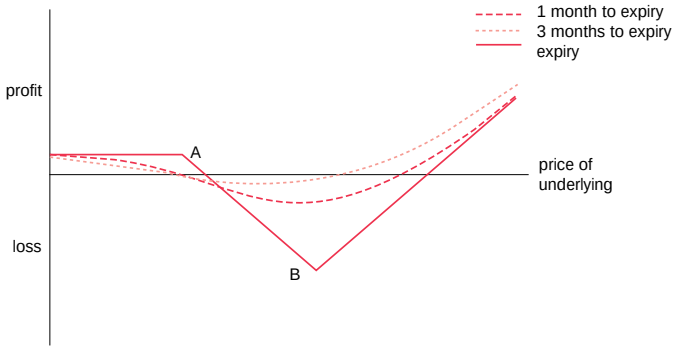
Gamma: Neutral

Theta: Neutral

Vega: Neutral; put/call parity ensures that implied volatility will be exactly the same for both a call and a put with the same strike and expiry.

NB: A Box is simply a conversion at one exercise price and a reversal at a different exercise price.

36. Long Two by One Ratio Call Spread



LIFFE CONNECT™ Strategy code: H.

The trade: Sell a call (A), buy 2 calls at higher strike (B).

Market expectation: Market bullish/volatility bullish. Holder expects the market to settle above B. The position is usually established by selling an at-the-money or close to at-the-money call (A), and buying two out-of-the-money calls (B), such that it can be established at a small net credit. Depending on the strikes chosen, the position could also be established at break-even or at a small premium cost.

Profit & loss characteristics at expiry:

Profit: Unlimited if underlying rallies. At A or below, profit limited to net credit.

Loss: Greatest loss occurs at higher strike B, and is the difference between strikes B-A, minus (plus) net credit (debit).

Break-even: Lower break-even point is reached when the underlying exceeds the lower strike option A by the same amount as the net credit received (if initial position established at a net cost, there is no lower break-even point). Higher break-even point reached when intrinsic value of option A, is equal to the combined intrinsic value of the two higher strike options B, plus (minus) the net credit (debit).

Market sensitivities at 30 days to expiry:

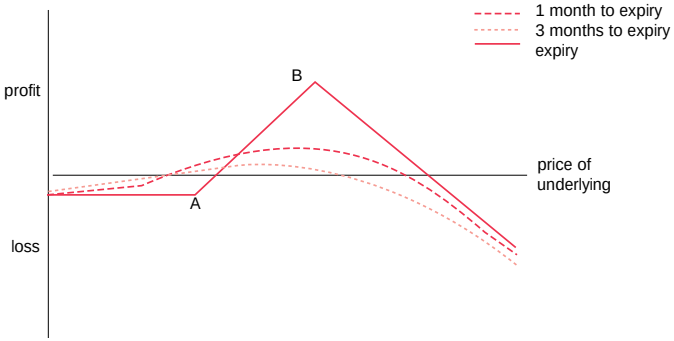
Delta: Increases towards +1 as underlying rises. If, approaching expiry, the underlying is around strike A, the delta may become negative.

Gamma: Highest at B and declines as the underlying rises above B. If, approaching expiry, the underlying is around strike A, the gamma may become negative.

Theta: Value of position will decrease as the bought options are affected by time decay. However, if the underlying remains below, or around strike A, the theta may become positive.

Vega: Value of position will increase as implied volatility increases. However, If approaching expiry, the underlying is around strike A, the vega may become negative.

37. Short Two by One Ratio Call Spread



LIFFE CONNECT™ Strategy code: H.

The trade: Buy a call (A), sell 2 calls at higher strike (B).

Market expectation: Market neutral/volatility bearish. Holder expects that the market will not rally but will settle around point B. Position usually established by buying an at or close to-the-money call, and selling two out-of-the-money calls such that although it is a net short position, it may be established at a small cost (as in the above example). Depending on the strikes chosen, the position could also be established at break-even or at a small credit.

Profit & loss characteristics at expiry:

Profit: Greatest profit occurs at higher strike B which is the difference between strikes B-A plus (minus) net credit (debit).

Loss: Unlimited if underlying rallies. At A or below, loss limited to net cost.

Break-even: Lower break-even reached when the underlying exceeds the lower strike option A, by the same amount as the net cost of the position (if initial position established at a net credit, there is no lower break-even point). Higher break-even point reached when intrinsic value of option A, plus (minus) the net credit (debit) from establishing the position, is equal to the combined intrinsic value of the two higher strike options B.

Market sensitivities at 30 days to expiry:

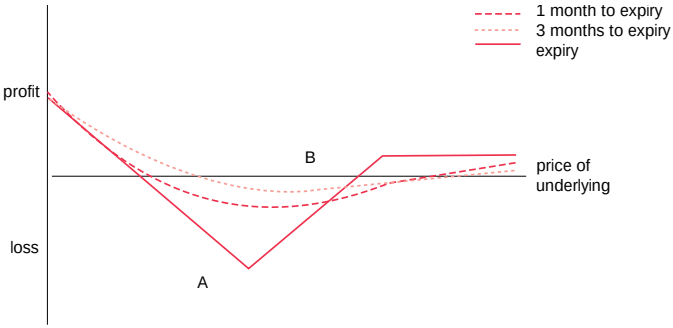
Delta: Approaches -1 as the underlying rises. If, approaching expiry, the underlying is around strike A, the delta may become positive.

Gamma: Highest at point B and declines as the underlying rises above B. If, approaching expiry, underlying is around strike A, it may become positive.

Theta: Value of position will increase as the short options are affected by time decay. If the underlying remains below, or around strike A, the theta may become positive.

Vega: Value of position will decrease as implied volatility increases. If, approaching expiry, the underlying is around strike A and the vega may become positive.

38. Long Two by One Ratio Put Spread



LIFFE CONNECT™ Strategy code: H.

The trade: Sell a put (B), buy two puts at lower strike (A).

Market expectation: Market bearish/volatility bullish. Holder expects market to fall below A. Position usually established by selling an at or close to the money put (B), and buying two out-of-the-money puts (A), such that although it is a net long position, it can be established at a small credit as in the above example. Depending on the strikes chosen, the position could also be established at break-even or at a small premium cost.

Profit & loss characteristics at expiry:

Profit: Unlimited in a falling market. At B or above, profit limited to net credit.

Loss: Greatest loss which occurs at lower strike A, is the difference between strikes B-A minus (plus) net credit (debit)

Break-even: Lower break-even reached when the combined intrinsic value of the two purchased puts at A, plus (minus) the initial credit (debit) from establishing the position, are equal to the value of the written put B. Higher break-even point reached when intrinsic value of option B is equal to initial credit. If initial position established at a net cost, there is no higher break-even point.

Market sensitivities at 30 days to expiry:

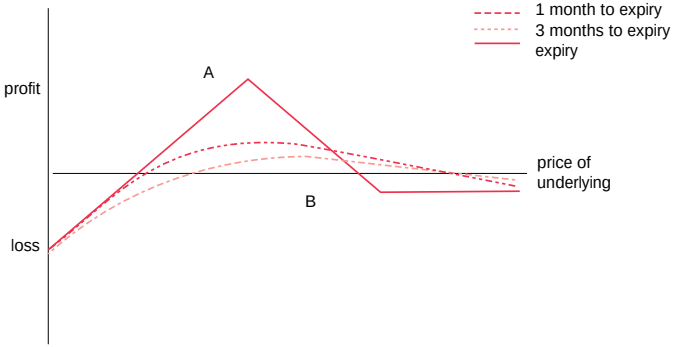
Delta: Approaches -1 as underlying falls. If approaching expiry, the underlying is around strike A and the delta may become positive.

Gamma: Highest at A and declines as the underlying falls below this point. If approaching expiry, the underlying is at B, the gamma may become negative.

Theta: Value of position will decrease as the long options are affected by time decay. If the underlying remains above, or around strike B, the theta may become positive.

Vega: Value of position will increase as implied volatility increases. If, approaching expiry, the underlying is around strike B and the vega may become negative.

39. Short Two by One Ratio Put Spread



LIFFE CONNECT™ Strategy code: H.

The trade: Buy a put (B), sell two puts at lower strike (A).

Market expectation: Market neutral/volatility bearish. Holder expects market to settle around strike A, and feels that the market will not fall below A. Usually established by buying an at -the-money or close-to at-the-money put (B) and selling two out-of-the-money puts (A) such that it is established at a small cost. Depending on the strikes chosen, the position could also be established at break-even or at a small premium credit.

Profit & loss characteristics at expiry:

Profit: Greatest at A, it is the difference between strikes A-B plus (minus) net credit (debit).

Loss: Unlimited in a falling market. At B or above, loss limited to net cost.

Break-even: Lower break-even point is reached when the combined intrinsic value of the options at A equals the intrinsic value of option B, plus (minus) the net credit (debit) from establishing the position. Higher break-even point reached when intrinsic value of option B, is equal to the debit from establishing the position.

Market sensitivities at 30 days to expiry:

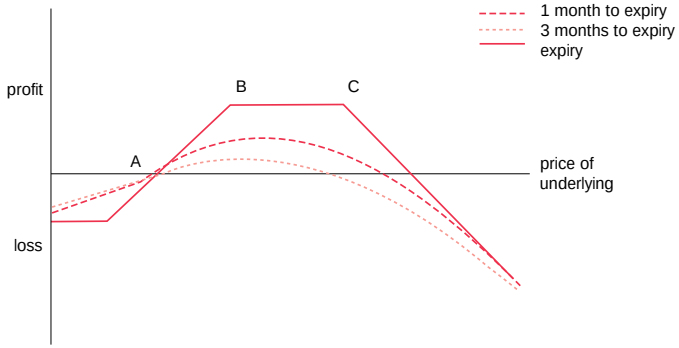
Delta: Increases towards +1 as market falls. If however, approaching expiry, the underlying is around strike A and the delta may become negative.

Gamma: Highest at point A and declines as underlying falls below A. If approaching expiry, the underlying is at B and the gamma may become positive.

Theta: Value of position will increase as short options are affected by time decay. If however, the underlying remains above or around strike B, the theta may become negative.

Vega: Value of position will decrease as implied volatility increases. If, however, approaching expiry, the underlying is at B and the vega may become positive.

40. Long Call Ladder



LIFFE CONNECT™ Strategy code: L.

The trade: Buy a call (A), sell call at higher strike (B), sell call at an even higher strike (C).

Market expectation: Direction bearish/volatility bearish. In this case the holder expects the market to settle between B and C but feels that volatility will not rise.

Profit & loss characteristics at expiry:

Profit: Limited to the difference between strikes A and B plus (minus) net credit (debit). Greatest profit occurs between strikes B and C.

Loss: Unlimited if underlying rallies. At A or below, loss limited to net cost.

Break-even: Lower break-even reached when the underlying exceeds the lower strike option A, by the same amount as the net cost of the position. Higher break-even point reached when the intrinsic value of option A, plus (minus) the net credit (debit) from establishing the position, is equal to the intrinsic value of the two higher strike options at B and C.

Market sensitivities at 30 days to expiry:

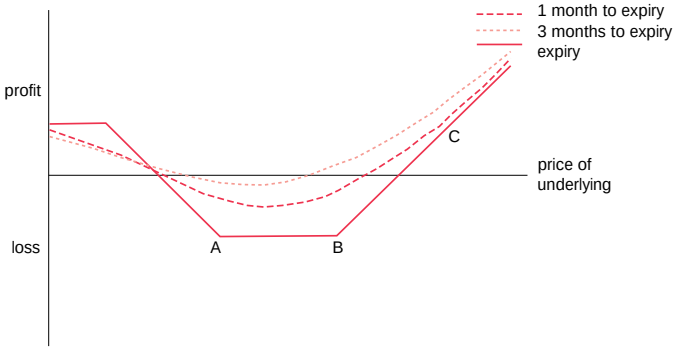
Delta: Approaches -1 as underlying rises. If, approaching expiry, the underlying is around strike A, the delta becomes positive.

Gamma: Usually negative. Highest between B and C. If, approaching expiry, the underlying is around strike A and the gamma becomes positive.

Theta: Value of position will increase as the short options are affected by time decay. If the underlying remains below or around strike A, theta becomes slightly negative.

Vega: Value of position will decrease as implied volatility increases. If, approaching expiry, the underlying is around strike A and the vega may become positive.

41. Short Call Ladder



LIFFE CONNECT™ Strategy code: L.
The trade: Sell a call (A), buy call at higher strike (B), buy call at an even higher strike (C).
Market expectation: Direction bullish/volatility bullish. Holder expects a substantial rise in the underlying market.

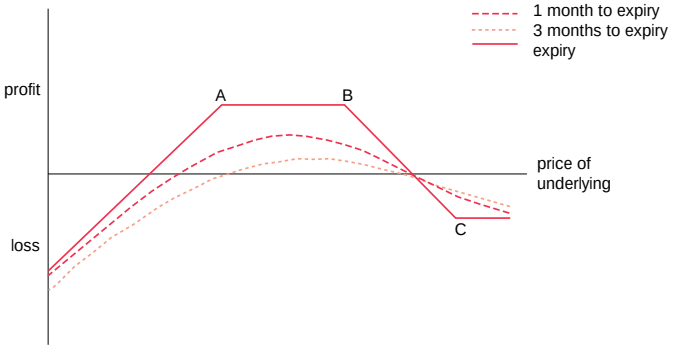
Profit & loss characteristics at expiry:

Profit: Unlimited if underlying rallies. At A or below, profit limited to net credit.
Loss: Limited to the difference between strikes A and B minus (plus) net credit (cost).
Break-even: Lower break-even reached when the underlying exceeds the lower strike option A by the same amount as the net credit received, (if initial position established at a net cost, there is no lower break-even point). Higher break-even point reached when intrinsic value of option A, is equal to the intrinsic value of the two higher strike options at B and C, plus (minus) the net credit (debit) in establishing the position.

Market sensitivities at 30 days to expiry:

Delta: Increases towards +1 as underlying rises. If, approaching expiry, the underlying is around strike A, the delta becomes negative.
Gamma: Highest between strikes B and C. If, approaching expiry, the underlying is around strike A, the gamma becomes negative.
Theta: Value of position will decrease as the long options decay. If the underlying remains below, or around strike A, theta becomes slightly positive.
Vega: Value of position will increase as implied volatility increases. If, approaching expiry, the underlying is around strike A, the vega may become slightly negative.

42. Long Put Ladder



LIFFE CONNECT™ Strategy code: L.
The trade: Sell put (A), sell put at higher strike (B), buy put at an even higher strike (C).
Market expectation: Direction bullish/volatility bearish. Holder expects underlying to (continue to) be between strikes A and B and firmly believes that the market will not fall.

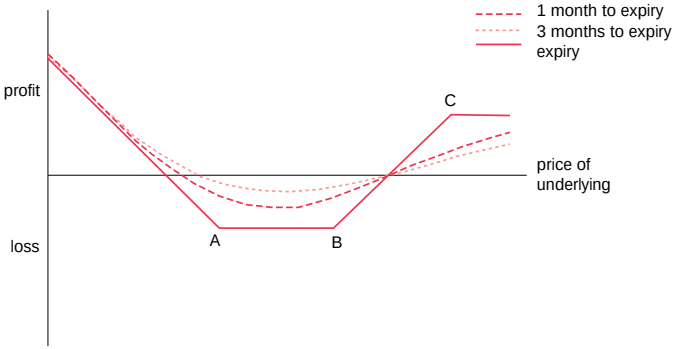
Profit & loss characteristics at expiry:

Profit: Limited to the difference B-C, plus (minus) net credit (debit). Maximised between strikes A and B.
Loss: Unlimited if underlying falls. At C or above, loss limited to net cost of position.
Break-even: Lower break-even reached when the intrinsic value of the purchased put C plus (minus) net credit (cost) is equal to the intrinsic value of the sold options A and B. Higher break-even reached when underlying falls below strike C by the same as the net cost of the position.

Market sensitivities at 30 days to expiry:

Delta: Positive. However, becomes negative if the underlying is around strike C approaching expiry.
Gamma: Highest between A and B. If however, approaching expiry, the underlying is at C, the gamma becomes positive.
Theta: Positive; value of position will increase as short options decay. If however, approaching expiry, the underlying is above or around C, theta may become slightly negative.
Vega: Negative; value of position will decrease as implied volatility increases. If however, approaching expiry, the underlying is at C, the vega may become slightly positive.

43. Short Put Ladder



LIFFE CONNECT™ Strategy code: L.
The trade: Buy put (A), buy put at higher strike (B), sell put at equally higher strike (C).
Market expectation: Direction bearish/volatility bullish. Buyer expects a volatile market and additional profits can be made in a bearish market.

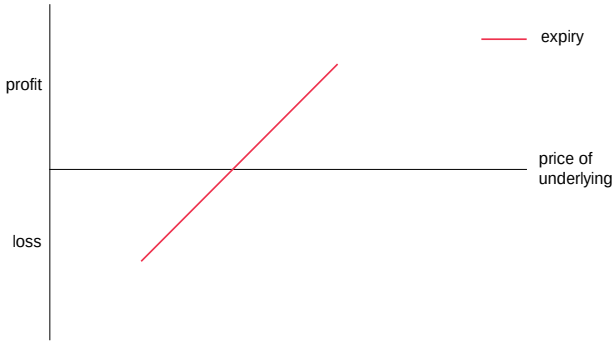
Profit & loss characteristics at expiry:

Profit: Unlimited if underlying falls. At C or above, profit limited to the net credit.
Loss: Limited to the difference between B and C minus (plus) net credit (debit).
Break-even: Higher break-even reached when the market falls below C by the value of the net credit. Lower break-even reached when the intrinsic value of options A and B plus (minus) the net credit (debit) is equal to the intrinsic value of C.

Market sensitivities at 30 days to expiry:

Delta: Approaches -1 as underlying falls. If however, approaching expiry, the underlying is around strike B or C, the delta may become positive.
Gamma: Maximum between points A and B. However if approaching expiry, the underlying is at C, the gamma may become negative.
Theta: Value of position will decrease as long options are affected by time decay. If however, the underlying is above, or about C, the theta may become positive.
Vega: Value of position will increase as implied volatility increases. If however, approaching expiry, the underlying is around C, the vega may become negative.

44. Synthetic Long Underlying



LIFFE CONNECT™ Strategy code: r.
The Trade: Buy call, sell put at same strike (generally the at-the-money strike). This strategy is effectively a Reversal without the sale of the underlying.
Market Expectation: Market bullish/volatility neutral.

Profit and loss characteristics at expiry:

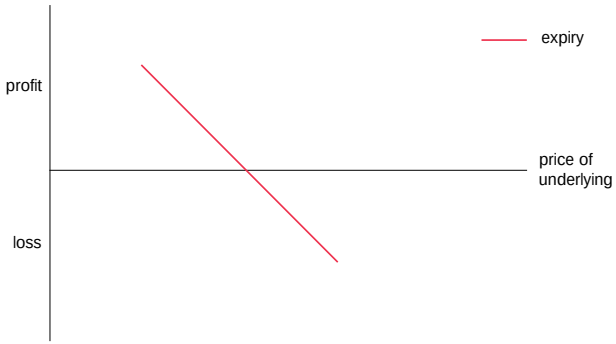
Profit: Unlimited in a rising market.
Loss: Unlimited in a falling market.
Break-even: If the position is opened at a net debit, break-even is reached when the underlying rises above the strike price of the strategy by the net amount of premium paid. If the position is created at a net credit, break-even occurs when the underlying falls below the strike price by the net premium received.

Market sensitivities at 30 days to expiry:

Underlying	down	at-the-money	up
Delta	+ + +	+ + +	+ + +
Gamma	0	0	0
Theta	0	0	0
Vega	0	0	0

Delta: + 1 since the strategy synthetically replicates a long underlying.
Gamma: Zero. Delta of position is not subject to change.
Theta: Zero. Positive theta of short put nets out against negative theta of long call.
Vega: Zero. Positive vega of long call nets out against negative vega of short put.

45. Synthetic Short Underlying



LIFFE CONNECT™ Strategy code: r.
The Trade: Buy put, sell call at the same strike (generally the at-the-money strike). This strategy is effectively a Conversion without the purchase of the underlying.
Market Expectation: Market bearish/volatility neutral.

Profit and loss characteristics at expiry:

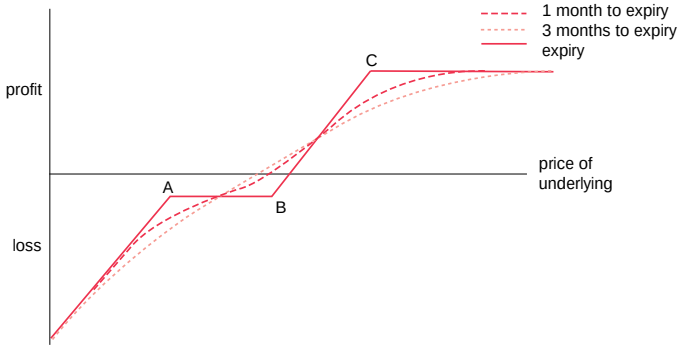
Profit: Unlimited in a falling market
Loss: Unlimited in a rising market
Break-even: If the position is opened at a net debit, break-even is reached when the underlying falls below the strike price of the strategy by the net amount of premium paid. If the position is created at a net credit, break-even occurs when the underlying rises above the strike price by the net premium received.

Market sensitivities at 30 days to expiry:

Underlying	down	at-the-money	up
Delta	- - -	- - -	- - -
Gamma	0	0	0
Theta	0	0	0
Vega	0	0	0

Delta: – 1 since the strategy synthetically replicates a short underlying.
Gamma: Zero. Delta of position is not subject to change.
Theta: Zero. Positive theta of short call nets out against negative theta of long put.
Vega: Zero. Positive vega of long put nets out against negative vega of short call.

46. Long Call Spread versus Put



LIFFE CONNECT™ Strategy code: x.

The Trade: Buy call (B), sell call at higher strike (C), sell put at any strike – the short put will generally be at a strike lower than both calls (A). This spread has a similar profile to the long call spread, but the short put reduces the cost of the strategy due to the intake of premium.

Market Expectation: Market bullish/volatility bearish.

Profit and loss characteristics at expiry:

Profit: Limited in a rising market.

Loss: Unlimited in falling market.

Break-even: If the position is opened at a net debit, break-even occurs when the underlying rises above strike B by the net amount of premium paid. If the position is created at a net credit, break-even is reached when the underlying falls below strike A by the same amount as the premium received.

Market sensitivities at 30 days to expiry:

Underlying	down	at-the-money	up
Delta	+ + +	+ +	+
Gamma	-	- -	-
Theta	+	+ +	+
Vega	-	- -	-

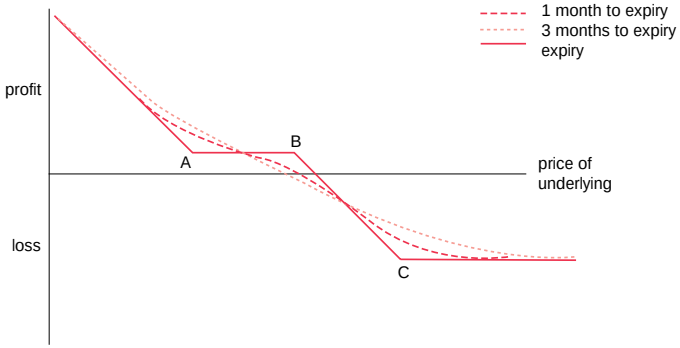
Delta: Positive. Moves towards + 1 as future nears strike A. Become less positive as underlying rises.

Gamma: Negative. Highest when underlying is around strike B. Positive at B near expiry.

Theta: Positive at A and C. Negative at B near expiry.

Vega: Negative at A and C. Positive at B near expiry.

47. Short Call Spread versus Put



LIFFE CONNECT™ Strategy code: x.

The Trade: Sell call (B), buy call at higher strike (C), buy put at any strike – the long put will generally be at a strike lower than both calls (A). This spread has a similar profile to the short call spread, but the long put provides unlimited profit potential in a falling market.

Market Expectation: Market bearish/volatility bullish.

Profit and loss characteristics at expiry:

Profit: Unlimited in a falling market

Loss: Limited in a rising market

Break-even: If the position is created at a net debit, break-even is reached when the underlying falls below strike A by the net amount of premium paid. If the position is opened at a net credit, break-even occurs when the underlying rises above strike B by the net premium received.

Market sensitivities at 30 days to expiry:

Underlying	down	at-the-money	up
Delta	- - -	- -	-
Gamma	+	+ +	+
Theta	-	- -	-
Vega	+	+ +	+

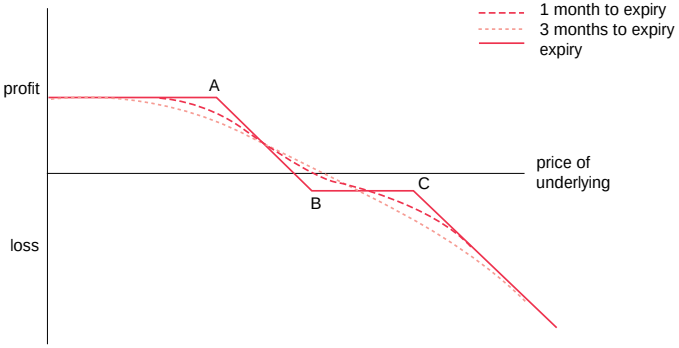
Delta: Negative. Moves towards – 1 as future nears strike A. Become less negative as underlying rises.

Gamma: Positive. Highest when underlying is around strike B. Negative at B near expiry.

Theta: Negative at A and C. Positive at B near expiry.

Vega: Positive at A and C. Negative at B near expiry.

48. Long Put Spread versus Call



LIFFE CONNECT™ Strategy code: y.
The Trade: Buy put (B), sell put at lower strike (A), sell call at any strike – the short call will generally be at a higher strike than both puts (C). The profile is similar to that of a long put spread, but with greater intake of premium due to the short call.
Market Expectation: Market bearish/volatility bearish.

Profit and loss characteristics at expiry:

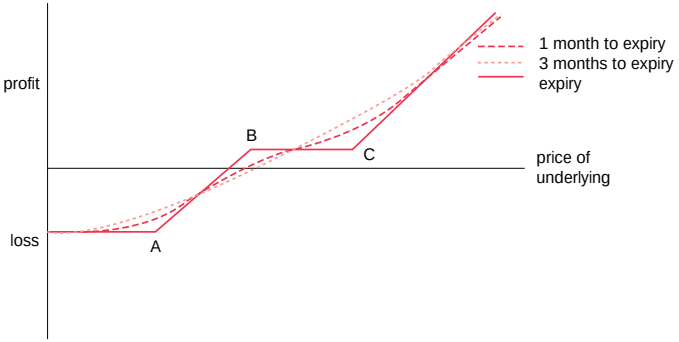
Profit: Limited in a falling market.
Loss: Unlimited in a rising market.
Break-even: If the position is created at a net debit, break-even is reached when the underlying falls below strike B by the net amount of premium paid. If the position is opened at a net credit, break-even occurs when the underlying rises above strike C by the premium received.

Market sensitivities at 30 days to expiry:

Underlying	down	at-the-money	up
Delta	-	- -	- - -
Gamma	-	- -	-
Theta	+	+ +	+
Vega	-	- -	-

Delta: Negative. Moves towards – 1 as underlying rises towards strike C.
Gamma: Negative. Highest when underlying is around strike B. Positive at B near expiry.
Theta: Positive at A and C. Negative at B near expiry.
Vega: Negative at A and C. Positive at B near expiry.

49. Short Put Spread versus Call



LIFFE CONNECT™ Strategy code: y.

The Trade: Sell put (B), buy put at lower strike (A), buy call at any strike – the long call will generally be at a higher strike than both puts (C). The profile is similar to that of a short put spread, but the long call provides unlimited profit potential should the underlying rise above C.

Market Expectation: Market bullish/volatility bullish.

Profit and loss characteristics at expiry:

Profit: Unlimited in a rising market.

Loss: Limited in a falling market.

Break-even: If the position is opened at a net credit, break-even occurs when the underlying falls below strike B by the premium received. If the position is opened at a net debit, break-even is reached when the underlying rises above strike C by the amount of premium paid.

Market sensitivities at 30 days to expiry:

Underlying	down	at-the-money	up
Delta	+	+ +	+ + +
Gamma	+	+ +	+
Theta	-	- -	-
Vega	+	+ +	+

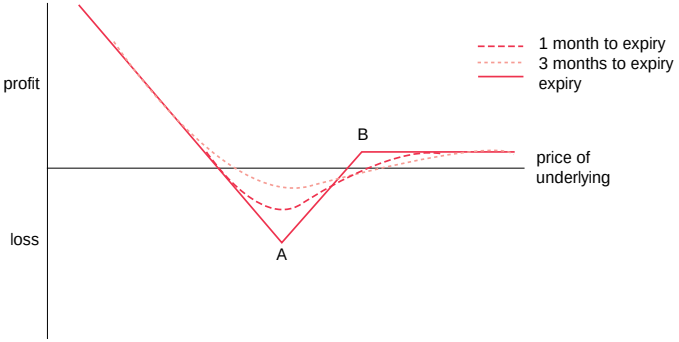
Delta: Positive. Moves towards + 1 as underlying rises towards strike C.

Gamma: Positive. Highest when underlying is around strike B. Negative at B near expiry.

Theta: Negative at A and C. Positive at B near expiry.

Vega: Positive at A and C. Negative at B near expiry.

50. Long Straddle versus Call



LIFFE CONNECT™ Strategy code: z.
The Trade: Buy call (A), buy put at same strike, sell call at any strike (B) – the short call will generally be at a strike higher than the straddle. This spread provides similar exposure to the long straddle, but with cheaper initial outlay due to the premium received from the short call.
Market Expectation: Market neutral to bearish/volatility bullish.

Profit and loss characteristics at expiry:

Profit: Unlimited in falling market. Limited in rising market.

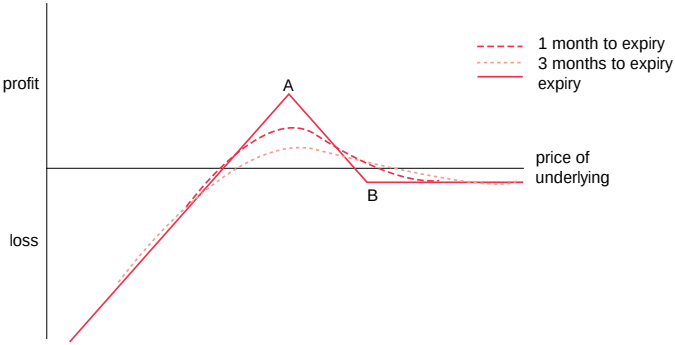
Loss: *Limited in a static market.*
Break-even: Reached when underlying moves in either direction from A by the net amount of premium paid.

Market sensitivities at 30 days to expiry:

Underlying	down	at-the-money	up
Delta	- - -	-	+
Gamma	+	+ +	+/-
Theta	-	- -	-/+
Vega	+	+ +	+/-

Delta: Negative. Moves towards – 1 as underlying falls below strike of straddle.
Gamma: Positive. Change in delta will have greatest effect around strike A.
Theta: Time decay will have a negative effect on the value of the position. As the underlying rises, this effect becomes negligible.
Vega: Positive. An increase in expected volatility will have a positive effect on the spread. This effect lessens as the underlying moves away from the strike of the straddle, particularly as it rises.

51. Short Straddle versus Call



LIFFE CONNECT™ Strategy code: z.

The Trade: Sell call (A), sell put at same strike (A), buy call at any strike (B)– the long call will generally be at a higher strike than the straddle. The profile is similar to that of a short straddle, but loss in a rising market is limited by the long call.

Market Expectation: Market neutral/volatility bearish.

Profit and loss characteristics at expiry:

Profit: Limited in a static market.

Loss: Limited in a rising market. Unlimited in a falling market.

Break-even: Reached when underlying moves in either direction from A by the amount of premium received.

Market sensitivities at 30 days to expiry:

Underlying	down	at-the-money	up
Delta	+ + +	+	-
Gamma	-	- -	+/-
Theta	+	+ +	+/-
Vega	-	- -	-/+

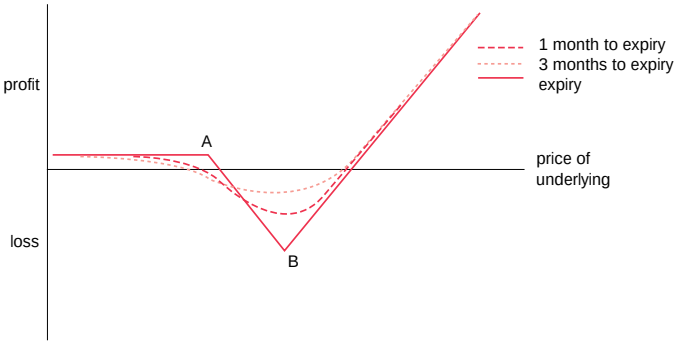
Delta: Positive. Moves towards + 1 as underlying falls below strike of straddle.

Gamma: Negative. Change in delta will have greatest effect around strike A.

Theta: Time decay will have a positive effect on the value of the position. As the underlying rises, this effect becomes negligible.

Vega: Negative. A decrease in expected volatility will have a positive effect on the spread. This effect lessens as the underlying moves away from the strike of the straddle, particularly as it rises.

52. Long Straddle versus Put



LIFFE CONNECT™ Strategy code: z.
The Trade: Buy call (B), buy put at same strike (B), sell put at any strike (A)– generally the short put will be at a strike lower than the straddle. This spread offers similar exposure to the long straddle, but at a cheaper cost because of the premium taken in from the short put.
Market Expectation: Market neutral to bullish/volatility bullish.

Profit and loss characteristics at expiry:

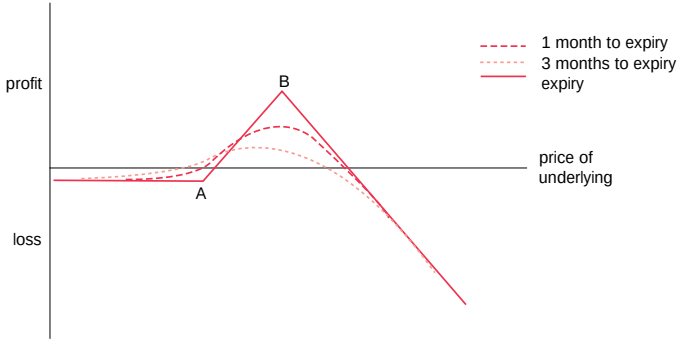
Profit: Unlimited in a rising market. Limited in a falling market.
Loss: Limited in a static market.
Break-even: Reached when the underlying moves in either direction from B by the amount of premium paid.

Market sensitivities at 30 days to expiry:

Underlying	down	at-the-money	up
Delta	-	+	+ + +
Gamma	+/-	+ +	+
Theta	-/+	- -	-
Vega	+/-	+ +	+

Delta: Positive. Moves towards +1 as the underlying rises above the strike of the straddle.
Gamma: Positive. Change in delta will have the greatest effect around strike B.
Theta: Negative. Time decay will decrease the value of the spread, but as the underlying moves away from the strike of the straddle the effect of time decay lessens. In particular, as the underlying falls, the effect of time decay becomes negligible.
Vega: Positive. Vega will be highest when the underlying is trading close to the strike of the straddle.

53. Short Straddle versus Put



LIFFE CONNECT™ Strategy code: z.

The Trade: Sell call (B), sell put at same strike, buy put at any strike (A) – generally the long put will be at a strike lower than the straddle (A). This spread offers similar exposure to the short straddle, but the long put limits risk in a falling market.

Market Expectation: Market neutral/volatility bearish.

Profit and loss characteristics at expiry:

Profit: Limited in a static market.

Loss: Limited in a falling market. Unlimited in a rising market.

Break-even: Reached when the underlying moves in either direction from B by the amount of premium received.

Market sensitivities at 30 days to expiry:

Underlying	down	at-the-money	up
Delta	+	-	- - -
Gamma	+/-	- -	-
Theta	+/-	+ +	+
Vega	-/+	- -	-

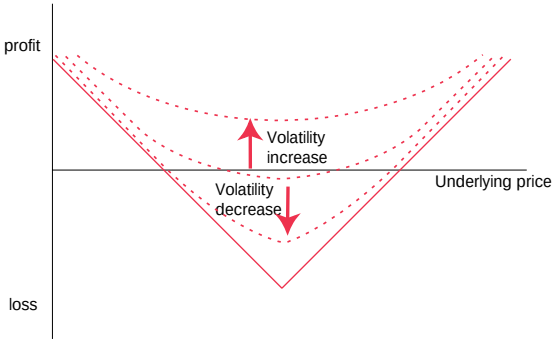
Delta: Negative. Moves towards –1 as underlying rises above the strike of the straddle.

Gamma: Negative. Change in delta will have the greatest effect around strike B.

Theta: Positive. Time decay will increase the value of the spread, but as the underlying moves away from the strike of the straddle, the effect of time decay lessens. In particular, as the underlying falls, the effect of time decay becomes negligible.

Vega: Negative. Vega will be highest when the underlying is trading close to the strike of the straddle.

54. Long Volatility Trade



LIFFE CONNECT™ Strategy code: V.

The trade: Buy puts and buy underlying or buy calls and sell underlying to give zero net delta. The position is dynamic in that as the underlying moves and the delta changes, additional futures must be bought or sold to maintain delta neutrality. For stock contingent trades, the "underlying" leg will comprise the underlying shares rather than the futures contract.

Market expectation: Market neutral/volatility bullish. This position is a pure trade on volatility such that an increase in implied volatility will benefit the holder.

Profit & loss characteristics at expiry:

Profit: Dependent on an increase in implied volatility as well as any profits from the future hedge and hedge rebalancing.

Loss: Limited to the costs of establishing the position plus any loss in rebalancing the hedge.

Break-even:

(i) For a long put, long futures position, if the price of the underlying increases, break-even is obtained where the gain in the value of the futures position (less the initial premium and less the rebalancing cost) is equal to zero. If price falls, break-even is obtained where the loss on the futures position (less the intrinsic value of the put, plus/minus the rebalancing cost) is equal to zero.

(ii) For a long call, short futures position, if the underlying price increases, break-even is obtained where the gain in the call (less the loss in the future, plus/minus the rebalancing cost) is equal to zero. If price falls, break-even is obtained where the gain on the futures (minus the loss on the call, plus/minus the re-balancing cost) is equal to zero.

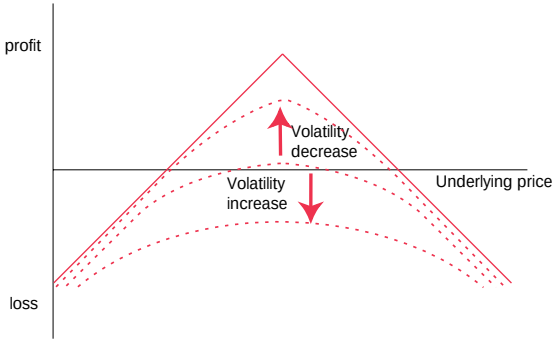
Delta: Neutral.

Gamma: Positive, the delta neutral position is highly sensitive to movement in the underlying, consequently the position requires dynamic hedging.

Theta: Value of position will decrease as options decay.

Vega: Value of position will increase as expected volatility increases.

55. Short Volatility Trade



LIFFE CONNECT™ Strategy code: V.

The trade: Sell puts and sell underlying or sell calls and buy underlying to give zero net delta. The position is dynamic in that as the underlying moves and the delta changes, additional futures must be bought or sold to maintain delta neutrality. For stock contingent trades, the "underlying" leg will comprise the underlying shares rather than the futures contract.

Market expectation: Market neutral/volatility bearish. The position is a trade on volatility such that a decrease in implied volatility will benefit the holder.

Profit & loss characteristics at expiry:

Profit: Limited to the credit received from the sold options and any profit on rebalancing the hedge.

Loss: The more implied volatility rises, the greater will be the potential losses.

Break-even:.

(i) For a short put, short futures position, if the underlying price increases, break-even is obtained where the initial premium on the put, minus the loss on the futures, plus/minus the rebalancing cost, is equal to zero. If price falls, the gain on the futures position, minus the loss on the put, plus/minus the rebalancing cost is equal to zero.

(ii) For a short call, long futures position, if the underlying price rises, break-even is obtained where the gain on the futures, minus the loss on the call, plus/minus the rebalancing cost, is equal to zero. If price falls, break-even is obtained where the call premium, minus the loss on the futures, plus/minus the rebalancing cost, is equal to zero.

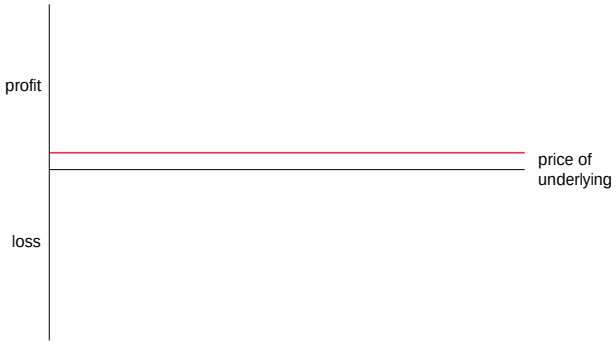
Delta: Neutral.

Gamma: Negative, the delta neutral position is highly sensitive to movements in the underlying, consequently the position requires dynamic hedging.

Theta: Value of position will increase as the options decay.

Vega: Value of position will decrease as expected volatility increases.

56. Conversion/Reversal



LIFFE CONNECT™ Strategy code: R.
The trade: Conversion: Sell call, buy put at same strike, buy underlying. Reversal: Buy call, sell put at same strike, sell underlying.
Market expectation: Direction neutral/volatility neutral. A Conversion or Reversal is a 'locked trade' and hence its value is wholly independent of the price of the underlying. The options position in a Conversion will create a synthetic short underlying and potential profit/loss will result from any pricing differential between this and the long underlying position. The options position within a Reversal will create a synthetic long underlying and so profit/loss realised will be fixed to the difference between the price of the short underlying and the long synthetic underlying.

Profit and loss characteristics at expiry:

If the pricing differential can be exploited, a profit will occur. The extent of the mis-pricing between the underlying and synthetic underlying positions will translate into the level of profit realised.

Market sensitivities at 30 days to expiry:

underlying	down	at-the-money	up
delta	0	0	0
gamma	0	0	0
theta	0	0	0
vega	**0**	**0**	**0**

As this is a form of arbitrage and profit is therefore independent of changes in the underlying, the positions value will be independent of the market, hence:
Delta: Neutral
Gamma: Neutral
Theta: Neutral
Vega: Neutral; put/call parity ensures that implied volatility must be the same for both a call and a put with the same strike and expiry.

Delta Neutral Strategies

The remaining delta neutral strategy trades made available by LIFFE, as listed on page 6 are not described in detail here. As with the Volatility Trade on pages 64 and 65, and the Conversion/Reversal on page 66, these strategies consist of an options strategy superimposed with a position in the underlying instrument.

This has the effect of creating a position which is delta neutral under the prevailing market conditions. In order to maintain delta neutrality, the underlying position may need to be adjusted should the underlying, the volatility or the time to expiry change.

Positions in the underlying asset have no gamma, theta or vega. Therefore, whilst the delta of the options strategy will be affected by the addition of the underlying position, the remaining greeks will be unaffected.

LIFFE Options a guide to trading strategies

LIFFE Administration and Management
(a wholly owned subsidiary of LIFFE (Holdings) plc)
Cannon Bridge House . 1 Cousin Lane . London EC4R 3XX .
United Kingdom
Telephone: +44 (0) 20 7623 0444 Fax: +44 (0) 20 7588 3624
http://www.liffe.com/
Registered in England no 1591809

2948/0202/2000/US