

Options information brochure

Introduction

This brochure provides a summary of how options work and considers some of the potential risks associated with options investment.

1. What are options?

1.1 General definition

An option grants the buyer the right to buy (call option) or sell (put option) a certain quantity of an underlying instrument at a predetermined price for a predetermined period (the term).

The underlying instrument refers to a fixed number of shares, an index or a currency.

1.2 Option types

Call option = right to buy

The buyer of a call option acquires the right to buy an underlying at a predetermined price for a predetermined period (strike).

Put option = right to sell

The buyer of a put option acquires the right to sell an underlying at a predetermined price for a predetermined period (strike).

The buyer pays a premium in exchange for the right.

1.3 Option styles

There are two types of listed options: American-style options or European-style options. With American-style options, the option can be exercised throughout the life of the option. With European-style options, the option can only be exercised on the expiration date itself. However, both types of options can be traded during the full term of the option.

Stock options are generally American style while index options and currency options are European style. Thus, the difference between the two styles concerns only the moment when the buyer can exercise the right.

Note that at maturity of the option, only the principle of "auto-exercise" exists. This means that for European-style options, automatic exercise at maturity date exists only if it ends "in-the-money." For American-style options, one can choose to exercise the right up to and including the penultimate day, at expiration date there is only automatic exercise for an "in-the-money" position.

If one does not wish automatic exercise, the holder of the option can choose to either close the position on the exchange or can explicitly waive his right by filing an "abandon" request at expiration of the option

2. Major features of options

An investor buying an option does so through an "open buy" and is known as the buyer of the option. The amount paid for this is the option premium. The maximal amount a buyer can lose is the paid option premium, while this loss can exceed the received option premium in the case of written options.

The buyer has the right, for each option, to buy (call option) or sell (put option) the contractually agreed quantity of the underlying value at a predetermined price (strike or exercise price) during the term (American-style option) or on the expiration date (European-style option).

The counterpart of the buyer, who has acquired a right, is the seller, who is referred to as the option writer (or issuer). The writer makes an undertaking and receives the option premium in return for this. The writer has what is known as a short position. This transaction is also known as an "open sell".

Upon allocation, the allocated writer has the obligation to deliver (with a call option) or buy (with a put option) the underlying at the predetermined price.

The following diagram is a summary of the above.

	CALL	PUT
BUY	- RIGHT to buy UND* - expects UND to increase in value - pays premium - long position - Open buy/ close sell	- RIGHT to sell UND - expects UND to decrease in value - pays premium - long position - Open buy/ close sell
SELL or WRITE	- OBLIGATION to deliver UND - expects UND to decrease in value or maintain its value - receives premium - must provide safeguard - short position - Open sell/ close buy	- OBLIGATION to buy UND - expects UND to increase in value or maintain its value - receives premium - must provide safeguard - short position - Open sell/ close buy

* UND: underlying instrument

2.1 Standardisation

The options that you can trade via the various exchanges (Euronext, US options markets, Eurex) at KBC Securities Services are standardised. This means that the exchanges specify in advance a number of details that must be included in the contract specifications:

- the underlying instrument to which the option relates (e.g. share or index)
- the contract size: the quantity of the underlying to which an option relates
- the multiplier: the factor by which the price of the option, which is expressed per underlying security, should be multiplied for the total cost of the contract and the total notional value. Typically, the multiplier is the same as the contract size.
- the strike price: the price at which the underlying can be bought or sold
- the term: the validity period of the option.

However, these contract specifications may be affected at any time by a corporate event, such as a stock split (e.g. 1 existing share becomes 10 new shares) or a public offering (the number of underlying shares increases). In that case, these specifications are usually adjusted in accordance with the market rules¹

2.2 Underlying instrument and contract size

As already mentioned, there are options on shares, indices and currencies. All options relate to an underlying of this kind. Most options relate to 100 units of the underlying (the contract size/multiplier), e.g. the purchase of a UCB call option grants the right to buy 100 UCB shares.

In general stock options traded on the Brussels, Amsterdam, German and American options exchanges always have an underlying of 100 shares. The Paris options exchange offers options with both 10 and 100 shares as the underlying, and the London exchange also trades options with an underlying of 1 000 shares.

The contract size of an option can also be affected by certain corporate events. Corporate actions such as special dividends, rights issues, spin-offs, capital reductions, (reverse) stock splits and others have an impact on the underlying value of the existing options. Option exchanges will change the terms of these options so that the total notional value of the contract remains unchanged. This implies that the strike, multiplier, underlying value and/or number may change. Options with a modified underlying are given a new option ticker, in most cases the standard option ticker followed by a number. Once a particular option no longer has open contracts (open interest) outstanding or the options have expired, the non-standardized option disappears. To be clear, no new option series are issued with a non-standardized underlying.

The possibility exists that in the option tables of a share you may find two seemingly identical options with a significantly different price. In that case, always consult the website of the relevant option exchange for an explanation of the option contract in question. When in doubt, you can also contact KBC Securities Services for clarification.

¹ Every stock exchange has its own market rules. The most recent market rules are available on the relevant stock exchange's website.

2.3 Strike price

The strike price is the predetermined price at which the buyer of the option can buy or sell the underlying on exercise and at which the writer must deliver or buy the underlying on assignment

The price is always quoted per unit of the underlying.

2.4 Expiration

An option has a predetermined term. The end of this term is called the expiration date.

During the term of the option, the buyer has the right to exercise his option, at least for American-style options. The instruction to do so must be given well in advance. European style options can only be exercised on expiration date. Please note that on the expiration date itself, the principle of automatic exercise only exists for options ending "in-the-money" (see also 1.3).

When the option expires, it is no longer valid and the right lapses.

For more information about these options, you can always contact the Order Desk of KBC Securities Services. The staff can tell you exactly when your option expires and until what time you can trade or exercise your option.

2.5 Premium

In addition to the taxes and brokerage fees charged by the broker, the buyer of an option pays the writer a premium (= the option price) to acquire the right involved.

In the case of stock options, the premium is expressed per share. This is the unit of trading. With stock options with a contract size of 100 shares, you would therefore have to pay 100 times the option premium, e.g. an option trades at 1.40 EUR. The premium for one option is therefore $100 \times 1.40 \text{ EUR} = 140 \text{ EUR}$.

The premium for an option is made up of the sum of

- the intrinsic value
- the time value.

Intrinsic value

The intrinsic value of a call option corresponds to the price of the underlying less the strike price. With a put option, it is the strike price less the price of the underlying.

The following example clarifies this.

In the case of a call and put option with a strike price of 50 EUR, the intrinsic value with a change in the price of the underlying is as follows:

CALL	SHARE PRICE	PUT
2	52	0
0	50	0
0	48	2

Time value

The time value is determined by the interest rate, residual term, volatility of the underlying and any expected dividend payments. The longer the residual term, the higher this value will be. It decreases over the term. This effect becomes more pronounced as the expiration date approaches. Upon expiration, the option premium is equal to the intrinsic value.

Example: A call option with a strike price of 50 EUR is quoted at 2.65 EUR. At that time, the price of the underlying is 52 EUR. The intrinsic value is therefore 2 EUR, and the time value 0.65 EUR.

2.6 Leverage effect

The buyer of a call option expects the price of the underlying to increase. Conversely, the buyer of a put option expects the price of the underlying to decrease. In both cases, the investor in options can obtain a proportionally higher profit than by trading the same amount in the underlying itself. That is because the investor can benefit from fluctuations in the price of the underlying for a much smaller outlay (the premium). This is called the leverage effect. If the price of the underlying rises, the price of the call option will generally experience a greater increase. If the price of the underlying falls, the price of the put option will see a greater rise. The investor must be aware that the leverage effect can also be negative if the price moves in the opposite direction of his position, which means that the loss on his outlay (paid premium) will be proportionally higher than by investing the same amount in the underlying.

3. A closer look at options trading

3.1 A call option purchased

Expectation: Price increase

Investment: Call option premium

Risk: Minor, limited to the premium paid

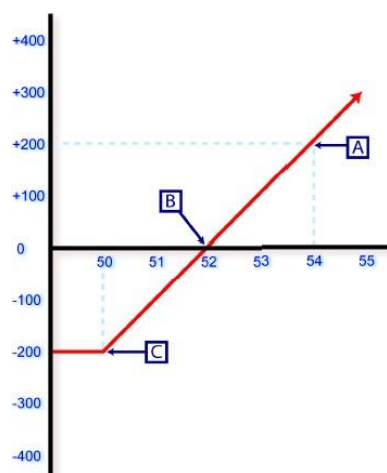
Return: Unlimited in the event of a further increase in the price of the underlying

Margin: No margin required

For example:

The buyer pays a premium of 200 EUR for a call option with a strike price of 50 EUR (point C). From the time when the share trades at 52 EUR, the buyer has neither a profit nor a loss (point B). The difference between 52 EUR and 50 EUR multiplied by the contract size (option relates to 100 units) is 200 EUR, or the initial investment – the premium paid.

If the share price rises to 54 EUR, the buyer has a profit of 200 EUR (point A). That is because the option will then be worth 400 EUR ($54 - 50 = 4 \times 100$). However, the buyer has already paid a premium of 200 EUR, so the buyer's profit is the difference between the two.



3.2 A put option purchased

Expectation: Price decrease

Investment: Put option premium

Risk: Minor, limited to the premium paid

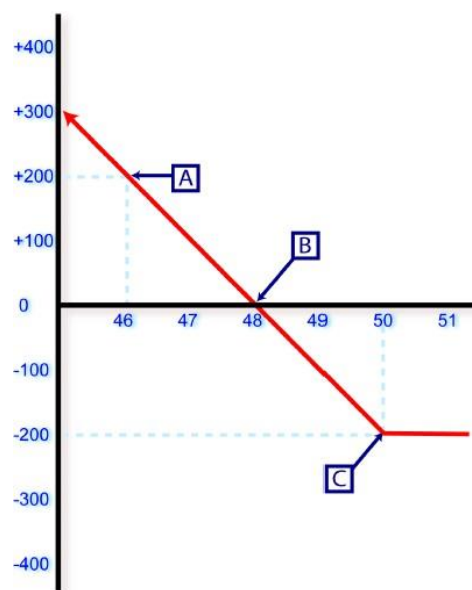
Return: Strike price – market price of the underlying (maximum of the strike price if the underlying falls to 0).

Margin: No margin required

For example:

The buyer pays a premium of 200 EUR for a put option with a strike price of 50 EUR (point C). From the time when the share trades at 48 EUR, the buyer has neither a profit nor a loss (point B). The difference between 50 EUR and 48 EUR multiplied by the contract size (option relates to 100 units) is 200 EUR, or the initial investment – the premium paid.

However, if the share price falls to 46 EUR, the buyer has a profit of 200 EUR (point A). That is because the option is then worth 400 EUR ($50 - 46 = 4 \times 100$). However, the buyer has already paid a premium of 200 EUR, so his profit is the difference between the two.



3.3 Writing or selling a call option

Expectation: Price remaining stable or falling

Investment: None. The writer receives a premium.

Risk: Unlimited in the event of a price increase if the writer does not hold the underlying.

Return: A maximum of the premium received.

Margin: See section on "Margin".

For example:

The seller receives a premium of 200 EUR for a call option with a strike price of 50 EUR. If the share is trading at more than 50 EUR at expiration, the seller will have to deliver the shares at a price of 50 EUR. If the share price is less than 50 EUR, the obligation will expire and the entire premium is kept.

If the share price is between € 50 and € 52 at expiration or assignment, the seller will realize a limited profit on his written option. Suppose the share price on the stock exchange is € 51, then the writer of the option must sell the shares at the lower strike price of € 50. However, the seller of the option received a premium of € 200 so he still realizes € 100 profit. So in this example, that becomes: 200 EUR – 100 EUR (51 EUR – 50 EUR = 1 EUR x 100 units) = 100 EUR.

If the share price has increased and is the share trading at 55 EUR at expiration or assignment, the seller will have to take a loss on the option written. The premium received will not cover the fact the seller has to sell below market value. The seller will only receive 50 EUR (= strike price of the option), but the share is actually trading 55 EUR on the market. The difference between the premium received and the extra price paid (share price – option strike price) results into a loss. In this example, that is 200 EUR – 500 EUR (55 EUR – 50 EUR = 5 EUR x 100 units) = -300 EUR.

The maximum return for the seller is therefore limited to the premium received.

3.4 Writing or selling a put option

Expectation: Price remaining stable or rising

Investment: None. The writer receives a premium.

Risk: A maximum of the strike price less the premium received if the underlying falls to 0.

Return: A maximum of the premium received.

Margin: See section on "Margin".

For example:

The seller receives a premium of 200 EUR for a put option with a strike price of 50 EUR. If the share is trading at less than 50 EUR on expiration, the seller will have to buy the shares at a price of

50 EUR. If the share price is more than 50 EUR, the obligation will lapse and the entire premium is kept.

If the share is trading at between 50 EUR and 48 EUR at expiration or assignment, the seller will make a limited profit on the option written. Let's assume that the share price at that time is 49 EUR. In that case, the writer must buy the shares at 50 EUR, although they are trading at a lower price on the stock exchange. The writer's profit comes from the difference between the premium received and that price difference (option strike price – share price). In this example, that is $200 \text{ EUR} - (50 \text{ EUR} - 49 \text{ EUR}) = 1 \text{ EUR} \times 100 \text{ units} = 100 \text{ EUR}$.

But if the share price drops and the share is trading at only 45 EUR at expiration or assignment, the seller will have to take a loss on the option written. The seller must buy the shares at 50 EUR, although there are trading at a lower price on the stock exchange. The premium received will not cover the price difference (option strike price – share price). In this example, the loss amounts to $200 \text{ EUR} - (50 \text{ EUR} - 45 \text{ EUR}) = 5 \text{ EUR} \times 100 \text{ units} = 500 \text{ EUR}$.

The maximum return for the seller is therefore limited to the premium received.

3.5 Possible scenarios for buyers and sellers of options and allocation procedure

The buyer of an option can

- exercise it, i.e. use his/her right to buy or sell the underlying
- let it expire on the expiration date
- sell it back before the expiration date.

The seller of an option can

- let it expire (until the expiration date the seller/writer of an option may have to deliver or purchase the underlying upon **assignment**)
- buy back the option and so surrender the obligation to deliver or purchase the underlying.

If options are exercised, a procedure applies whereby a writer is allocated, at random, who must deliver the underlying (in the event of a call option with delivery) or must buy the underlying (in the event of a put option with delivery) or must settle in cash (in the event of cash settlement).

4. Margin

4.1 General

In standardised options trading, the exchange authority guarantees, via the clearing institution², the execution and the rights and obligations stemming from options trading. The exchange authority obliges the financial intermediary to request a minimum of margin and to block it as long as the obligation isn't settled, closed or expired.

The writer of the option is requested to provide security (the so-called margin) to cover his/her obligations. This is because, when writing an option, the writer assumes an obligation to deliver or purchase the underlying in the future.

KBC Securities Services can apply more stringent margin requirements and has the right to adapt them by changing the formula explained below temporarily or for a longer period. The margin requirement may vary depending on the various factors that determine the value of an option. If the margin provided by a customer who has written options is no longer adequate, KBC Securities Services will request the customer concerned to provide additional margin (margin call). The margin call may be made verbally, by phone. If margin is not provided (in due time), KBC Securities Services is entitled to take all possible steps to limit the outstanding exposure.

KBC Securities Services has stringent margin requirements, which may be more rigorous than those imposed by the market or clearing institution. In addition, KBC Securities Services reserves the right to increase the margin requirements for sellers of options at any time and at its sole discretion if it believes the market conditions so require.

As far as the required margin is concerned, a distinction is drawn between call and put options on the one hand and American-style and European-style options on the other.

4.2 Margin when writing call options

4.2.1 Call options on shares

Full margin will always be required for the writing of call options on shares. This can be provided by:

- [The existence of the underlying](#)

This entails the blocking by KBC Securities Services of the number of shares for delivery upon exercise. The exact number of the underlying can be obtained at KBC Securities Services Orderdesk at any time.

- [Full margin by means of a bought call option](#)

A written call option may be fully covered by a bought call option on the same underlying. This is however on condition that the strike price of the bought option is lower than (or the same as) that of the written option.

For American-style options the term of the bought option must moreover be longer or equal to the term of the written option. In the case of European-style options, the term must be the same.

² Settlement institution that undertakes clearing (i.e. settlement). It is the central counterparty between buyer and seller.

KBC Bank NV – Havenlaan 2 – 1080 Brussels – Belgium – VAT BE 0462.920.226 – RLP Brussels –
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For example:

Combination of a bought call ABN Dec26 25 EUR with sold (written) call ABN Dec26 28 EUR. The purchased call option can be used as full coverage.

- Partial margin by means of bought call options

If the strike price of the bought option is not lower than that of the written option, the bought option position may serve as a component of the full margin, provided the difference in value between the strike prices is blocked as an additional guarantee. The same conditions as above apply with regard to the terms.

For example:

An investor has taken the following option positions:

Sold: 4 call PHI Jun26 20 EUR

Bought: 4 call PHI Dec26 25 EUR, both American-style.

In this case, the bought option position will count as a component of full margin, provided that an amount of 4 (options) x 100 (underlying number) x 5 EUR (difference between strike prices) = 2 000 EUR is also blocked.

4.2.2 Call options on indices – European-style

Written European-style call options on indices are only permitted if they are covered by bought European-style call options with the same term.

Most options with an index (AEX, BEL 20) as the underlying are European-style options.

If the strike price of the bought option is higher than that of the written option, the bought option position may still be accepted as a component of the full margin, provided the difference in value between the strike prices is blocked as an additional guarantee.

4.2.3 Provision of margin in the form of option combinations

In terms of margin requirements, combinations of which written calls are a component (short straddle or strangle) are not accepted unless the written call options are covered in accordance with the above-mentioned conditions.

4.3 Margin when writing put options

A written put option must always be fully covered.

The margin required for full cover is calculated by multiplying the strike price of the option by the contract size and the number of written options.

The required margin may only be reduced by combinations with other long put options.

An exception is made for index options quoted on Euronext. For these options the margin calculation is made using the formula mentioned below.

4.3.1 Put options on shares

The writing of put options requires the availability of a 100% margin. The margin requirement is

calculated by multiplying the strike price by the contract size and the number of written options. This may be in the form of cash only, cash plus a pledge on securities in the portfolio or simply the cover available by means of these securities.

For example:

Writing 2 puts CSCO JUN26 60 USD requires $2 \times 100 \times 60 \text{ USD} = 12,000 \text{ USD}$ deposit: cash supplemented by the remainder in deposit on securities or only deposit on the securities present in the portfolio.

4.3.2 Put options on indices

For options on Euronext indices the margin requirement is calculated on the basis of the following formula:

$$[(2X - S \times \frac{CS}{M}) \times Mr \times F + P] \times N \times M$$

where:

X = strike or exercise price

S = spot or closing price of the underlying on D-1

CS = contract size

M = multiplier (usually 100) or contract size

MR = margin parameter

F = factor (1,5 for retail investors)

P = option premium

N = number of contracts

In the case of non-Euronext indices a 100% margin must be available, as in the case with stock options.

Strict guarantee rules are imposed for deep out-of-the-money options. You can always request the most recent formulas from KBC Securities Services by e-mail at customersupport@kbc.be.

4.3.3 Provision of margin by means of bought options

A written put option may be fully covered by a bought put option on the same underlying. This is however on condition that the strike price of the bought option is higher than that of the written option.

For example:

Combination of a bought put ABN DEC26 25 EUR with sold (written) put ABN JUN26 22 EUR, American-style. The bought put option may be used as full margin.

In the case of American-style options, the term of the purchased option must also be equal to or greater than the term of the written option. In the case of European-style options, the term must be the same.

If the strike price of the bought option is not higher than the price of the written option, the bought option position can still be accepted as a component of full cover, provided that the difference in value between the strike prices is blocked as margin.

For example:

An investor has taken the following option positions:

Sold: 4 put PHI Jun26 25 EUR

Bought: 4 put PHI Dec26 20 EUR, both American-style

In this case, the bought option position will count as a component of full margin, provided that an amount of 4 (options) x 100 (underlying number) x 5 EUR (difference between strike prices) = 2 000 EUR is also blocked.

5. Form in which margin may be provided

5.1 Cash on account

If the margin may be provided in cash or cash equivalent, cash on account qualifies as full margin.

Where necessary, foreign currency is converted to the currency in which the margin requirement is denominated.

5.2 Securities on account – weighted portfolio

Securities on account may serve as margin for written options for which the margin may be provided in the form of cash or cash equivalent. The value ascribed to the securities for this purpose varies according to the type of securities concerned. The securities are weighted and qualify as margin for a fixed percentage³ of their present value (so-called haircut):

- shares: for 60% of their value
- investment funds: 50%
- corporate bonds: 60%
- government bonds and bonds of supranational institutions: 90%
- bank savings certificates: 90%
- warrants, options, rights and other financial instruments have no margin value

For shares on which (deep in the money) calls have been written the margin value may be lower than 60% of the latest price, in which case the strike price is the basis for calculating the margin value.

For example:

100 ING shares, latest price 10 EUR.

If a call is written on these shares with a strike price that is lower (e.g. 5 EUR) than 6 EUR (60% of the latest price), the margin value of these shares will be equal to the strike price of the option. In this case, the margin value of the shares is 500 EUR instead of 600 EUR.

Outstanding buy orders

The calculation of the available margin also takes account of the outstanding buy orders. The shares to be received, on which the haircut is applied, are taken into consideration rather than the cash not yet settled.

5.2.1 Addition of margin

If someone wishes to write an option a margin calculation will be made. The amount of margin required

³ The weighted percentage (so-called haircut) may be adjusted at any time according to the market conditions. The weight of specific individual securities might differ in certain circumstances from the predefined haircut.

for this new order will be calculated and compared with the margin currently available. This margin must be available before the order is accepted.

For written call options covered by shares, the underlying instruments are separated out in the margin calculation. If the written call options are partially covered by long calls, the required margin, comprised of cash or the number of securities required to provide the cash equivalent after the haircut has been applied, is also separated out in the margin calculation. The same also applies to currency call options for which the margin is calculated using the margin formula mentioned above.

For written puts, the required margin is also separated out in the margin calculation in the form of cash or the number of securities required to provide the cash equivalent after the haircut has been applied.

The Risk Department of KBC Securities Services may, at its discretion, designate the securities to be considered for their cash equivalent and segregated as collateral. Initially, blocking securities for their monetary equivalent is preferred to cash segregation⁴.

Any change in the portfolio composition results in a new margin calculation and possible increase in the margin. These changes could, for instance, result from:

- executing sell orders
- certain corporate actions
- booking of transaction statements
- other transactions on the account.

5.2.2 Deletion of margin

Cash and securities surpluses are immediately deleted from the margin file. In this way, the cash is always at the customer's disposal, but of course only after settlement of any debit balances in the same currency.

⁴ At the customer's request, this order of blocking can be adjusted so that cash is taken in deposit first. Please send an email to customersupport@kbc.be.

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