Introduction to Options

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FOREWORD

Have you ever thought of trading options? For many investors, options may seem complicated or confusing. This 'Introduction to Options' brochure is to help you find your way around the basics of options trading.

An option is a contract that gives you the right to buy or sell a financial instrument at a pre-set price, until a specific point in time. This instrument is known as the underlying asset, and may be a share, an index, or another asset type.

Options can serve as a protection for your investment in shares. In addition, several option strategies allow the investor to generate income when the market rises or when prices fall.

In this brochure we explain the basics of an option: the strike price, the underlying asset (also called the underlying value), the contract size, and the point in time at which you can make use of your right to buy or sell the underlying asset (maturity).

Once these initial basics are in place, we go into more detailed topics, such as what options can be used for and the impact of buying and selling options.

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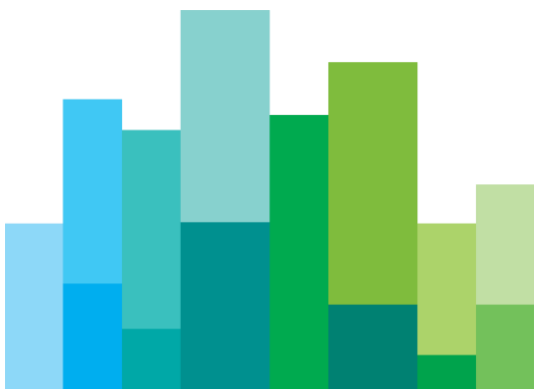
1. What are options?

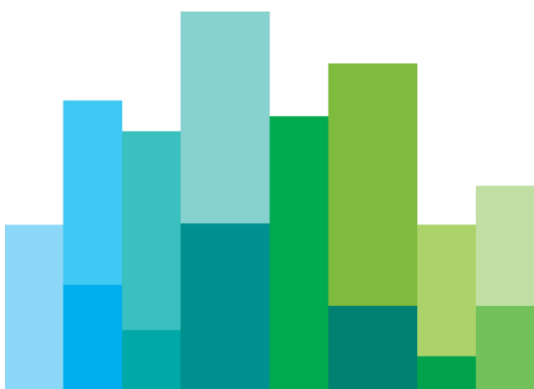


1.1 What is an option?

An option gives the buyer the right, during a fixed period, to buy (call option) or sell (put option) a specified amount of the underlying asset at a fixed price. At Euronext's derivatives market, options are traded on various underlying assets such as shares, indices, and commodities. The underlying asset of an option contract is also known as the "Underlying Value".

There are different types of options (the style) that determine when, or until when, the option may be exercised. Also, settlement of an exercised option may result in the delivery of the underlying asset (physical delivery) or in a cash payment (cash settlement), depending of the option type.

2. Description of options



2.1 How does an option work?

An investor who buys an option concludes what is known as an opening buy transaction and is called the buyer. An opening buy transaction creates a **long position** in call or put options. Each option gives the holder the right to buy (call option) or sell (put option) a specified amount of the underlying value at a fixed price. The investor can liquidate this position by means of a closing sell transaction.

An investor who sells an option is called a writer. The writer concludes an opening sell transaction which creates a **short position** in call or put options. The writer of an option has the obligation, if assigned, to sell (call option) or buy (put option) a specified amount of the underlying value at a fixed price. However, exercising some types of options does not result in physical delivery of the underlying value but in cash settlement.

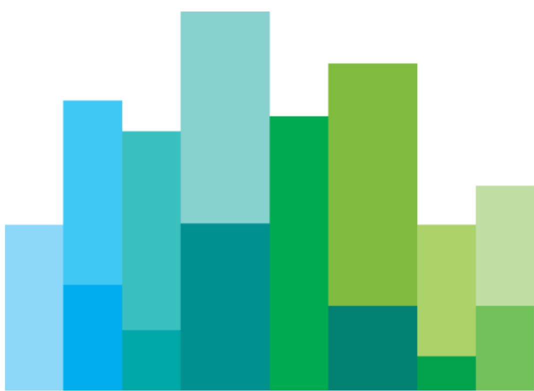
An investor who has previously sold (written) an option, but wants to be released from the resulting obligation to buy or sell the underlying value, can do so by means of a closing buy transaction. Writers can do this until they have been assigned, i.e. called upon to meet their obligations. When investors write call options on an underlying value that they own (and have therefore agreed to sell at a fixed price if assigned to do so), the options are regarded as **covered options**.

Investors can also write call options without actually owning the underlying value. If the option is then exercised, the writer has to buy the underlying value before delivering it to the buyer. In this case, the option is called a naked option. Written put options are always naked options. Investors are only allowed to write **naked options** if they deposit sufficient collateral (margin).

There is no direct relationship between the buyer and the writer of an option. The options clearing ensures that the rights and obligations of investors remain in balance. Because the options clearing acts as the counterparty to both the buyer and the seller of the option, it takes over the rights and obligations resulting from the options from its clearing members. Clearing members are members of Euronext which are responsible for, among other things, the financial and administrative settlement of transactions in options. Clearing members must, in turn, meet their obligations towards the broker that executes the order on behalf of the investor.

There are risks involved in buying and selling options. Investors should not buy options unless they can afford to lose the premium they have to pay. Nor should they write naked options if they are not in a position to sustain a substantial financial loss.

3. Contract specifications



3.1 Standardisation

The options that are traded on the Euronext derivatives market meet certain standard conditions. The contract size, lifetime, expiration date and exercise price (or strike price) are standardised. The option premium is the only variable element. Option premiums are quoted as the amount payable for each unit of the underlying value.

The **contract size** is the quantity of the underlying value that corresponds to one option contract. The contract size is based on the trading unit and the pricing unit (is often 1).

The **lifetime** of an option is the maximum period during which the option represents a right. At the end of this period the right no longer exists and the option has no value. The lifetime of options traded on Euronext's derivatives market varies from one month to five years.

The **last day of trading** in an option is the last day on which it is possible to trade in an expiring option series. Weekly options and even Daily options exist on the Euronext derivative markets. However, for most classes the last day of trading is the third Friday of the expiration month. If the markets are closed on the third Friday of the month, the last day of trading in the option series is the last day of trading before the third Friday. After trading has stopped in an expiring series, the right to buy or sell the underlying value can still be exercised until the cut-off time. Your broker may observe different cut-off times. Each broker is free to set a different, earlier cut-off time for submitting exercise instructions or orders for transactions in expiring series. The broker will pass on to the options clearing the exercise instructions received from its clients.

The **exercise price**, also known as "strike" or "strike price", is the price at which the holder (i.e. buyer) of the option can buy or sell the underlying value when the option is exercised. The exercise price is stated as an amount payable for each unit of the underlying value. When Euronext announces the introduction of options with a new expiration month, it sets a number of different exercise prices which are close to the market price of the underlying value at that time. Euronext sets the interval between the exercise prices for each option class individually. In normal circumstances, once an option series has been listed by Euronext it will continue to be traded until the expiration date.

3.2 Types of options

There are two types of options: American style and European style. An American-style option can be exercised at any time during the option's lifetime. A European-style option

can only be exercised on the expiration date, although open positions in these options can be closed before expiration.

3.3 Settlement type upon exercise

After being exercised, options can be settled in two ways: by means of either physical delivery or cash settlement. In most cases, exercising an option results in the physical delivery of the underlying value. However, a number of Euronext options are settled in cash on the basis of the difference between the exercise price and the settlement price. The form of settlement used for each option class and, where applicable, the method used to calculate the settlement price is detailed in the contract specifications. Contract specifications for each option class are available on the Euronext website.

3.4 Underlying values

The financial instruments on which options are traded – the underlying values – are selected by Euronext. When selecting new option classes, Euronext gives preference to underlying values that are widely held and actively traded, particularly on official exchanges. Other criteria are also taken into account, such as availability of the underlying value, trading volumes and price volatility. Euronext notifies issuers of shares on which options will be introduced of the fact that they have been selected for this. In exceptional circumstances, Euronext may decide to remove an option class from listing.

3.5 Currency

When Euronext selects a new option class, its first task is to establish which market is the main market for trading in the relevant underlying value. This is generally, though not necessarily, the home market, i.e. the market in the underlying value's country of origin. The currency of the country of origin is usually the currency that is used at Euronext for quoting premiums for options on a particular underlying value.

3.6 Option premium

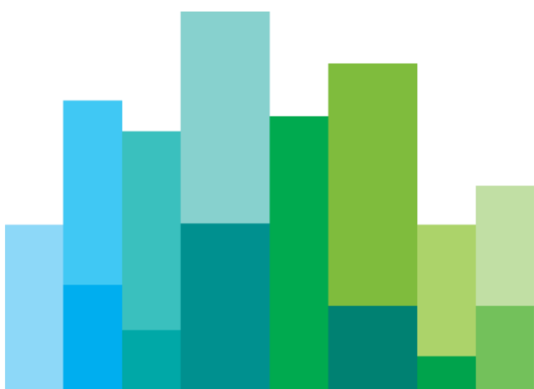
The option premium (price) is based on the price of the underlying value and the movement thereof, but also on factors such as the remaining lifetime of the option and supply and demand in that particular option series.

3.7 Adjustment

In the event of a capital restructuring, share split, rights issue or bonus issue involving the underlying value on which options are listed, the underlying value, trading unit, contract size and exercise prices of the affected option series may be adjusted by Euronext. Other events, such as a takeover bid for a listed company, a merger or a liquidation, may also result in the adjustment of the option contract. **As a rule, no adjustment is made to options when ordinary/regular dividends are distributed on the underlying value.**

Any option adjustments are always made in compliance with the Euronext Derivatives Corporate Actions Policy, which is available on the Euronext website.

4. What can options be used for?



4.1 Making a profit

Buyers of options often expect a change in the price of the underlying value. The buyer of a call option generally expects a rise in the price, while the buyer of a put option may expect a fall. In both cases, the investor can make a relatively larger profit with options than by investing a similar amount in the underlying value itself, because only the option premium needs to be invested to benefit from price movements in the underlying value. This is known as **leverage**. If the price of the underlying value rises, the price of call options will usually rise as well. Similarly, if the price of the underlying value falls, the price of put options will usually increase. This makes it possible for investors to make a profit on their options.

4.2 Earning extra income

An investor can also decide to write options in order to receive the option premium. Investors who actually own the underlying value can obtain an additional return on their portfolios in this way (for example: sell a call option when you own 100 shares). However, if they are assigned to deliver the underlying value, they must sell the underlying value to the holder of the call option. When holders of put options exercise their rights, the writers have to buy the underlying value. The underlying value is bought and sold through the options clearing. With both call and put options, the writer’s loss, though reduced by the option premium received, can be very substantial if there is a major change in the market price of the underlying value.

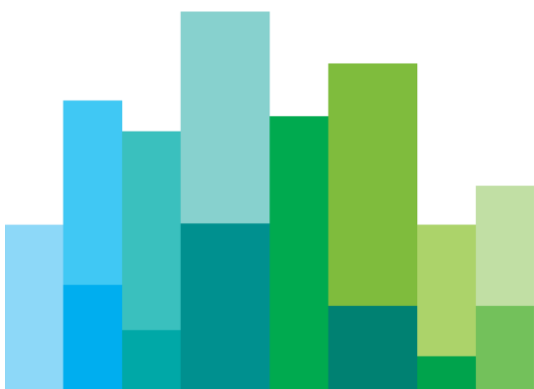
4.3 Protection against falls in value

Options also allow investors to protect themselves against falls in the price of the underlying value. Maximum protection is obtained by buying put options. Writing call options gives investors partial protection against decreases in the price of the underlying value, but in this case protection is limited to the amount of premium received.

4.4 Fixing the purchase or selling price of the underlying value

Options also make it possible to fix in advance the price at which the underlying value may be traded at a future date. For example, an investor who wants to set a maximum purchase price will be interested in buying call options. An investor who wants to set a minimum selling price will be interested in buying put options.

5. Buying options



5.1 Buying call options

Buyers of call options can benefit from increases in the price of the underlying value during the lifetime of their options because they have the right to buy the underlying value at a fixed price.

5.1.1 Possibilities

If the price of the underlying value rises, the option holder must take steps to realise the profit on the option. There are two possibilities:

- Investors can sell their options on the derivatives market. In this case, the holder is more interested in the increase in the option premium than in acquiring the underlying value. In general, the price of a call option increases in line with the price of the underlying value. The profit in this case consists of the proceeds from the sale less the original option premium and transaction costs paid. Because of leverage, a small rise in the price of the underlying value can generate a high profit (in percentage terms) on the original investment.
- Investors can exercise an American-style option at any time during the lifetime of the option. A European-style option can only be exercised on the expiration date. Depending on the specifications of the option, the underlying value is delivered when the option is exercised, or settlement takes place in the form of cash.

5.1.2 Risk – Maximum loss

If there is no increase in the price of the underlying value, call option holders can lose their entire investment, i.e. the option premium plus the transaction costs. This is the maximum possible loss that buyers of call options can incur.

5.2 Buying put options

Buyers of put options can benefit from a price drop of the underlying value which may occur during the lifetime of their options.

5.2.1 Possibilities

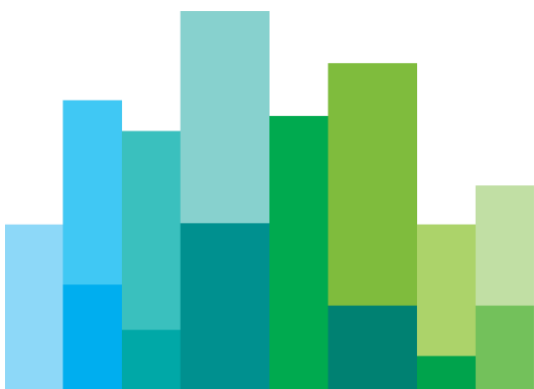
If the price of the underlying value falls, put option holders who wish to profit from this price movement can choose between the following alternatives:

- They can sell their options on the derivatives market. In this case, the profit consists of the increase in the option premium. In general, the price of a put option increases as the price of the underlying value falls. The profit consists of the proceeds from the sale less the original option premium and transaction costs paid. Because of leverage, a small fall in the price of the underlying value can generate a high profit (in percentage terms) on the original investment.
- An American-style option can be exercised at any time during the lifetime of the option. A European-style option can only be exercised on the expiration date. Depending on the option specifications, the underlying value is delivered when the option is exercised, or settlement takes place in the form of cash.

5.2.2 Risk – Maximum loss

If there is no fall in the price of the underlying value, or even an increase, put option holders can lose their entire investment (i.e. the option premium plus the transaction costs). This is the maximum possible loss that buyers of put options can incur.

6. Selling options



6.1 Selling call options

Sellers of call options take on the obligation to sell the underlying value at the exercise price, if assigned to do so. In return, they receive the option premium.

6.1.1 Possibilities

6.1.1.1 SELLING COVERED CALL OPTIONS

The main objective for investors who sell call options on an underlying value which they own (covered call options) is to obtain an extra return on their investment portfolio by receiving the option premium. A consequence of this is that the investor must accept the risk of having to sell the underlying value at the strike price. If the price of the underlying value falls below the strike price, the option may expire without being exercised and the option seller will retain the premium. The seller can also liquidate a position through a closing buy transaction on the derivatives market. If the price of the underlying value rises above the exercise price, there is a good chance that the call option will be exercised. The seller will then be required to deliver the underlying value. In addition to earning premium income, investors may decide to sell call options as a means of fixing a selling price for the underlying value. The selling price is then equal to the strike price plus the premium received, less costs. If the option is not exercised, the investor doesn't have to sell the underlying value.

6.1.1.2 SELLING NAKED CALL OPTIONS

Investors who sell call options on underlying values which they do not own (naked call options) should be aware that they run a potentially unlimited risk. If the price of the underlying value rises above the exercise price, there is a good chance that the call option will be exercised. Option sellers will then be required to sell the underlying value at the exercise price. Because sellers of naked call options do not own the underlying value, they will have to buy it first at the market price, which will be higher than the exercise price. The increase in the price of the underlying value can, in theory, be unlimited, which means that the seller of a naked call option runs an unlimited risk. Sellers of naked call options must therefore have the financial means to purchase and deliver the underlying value if the option is exercised. To guarantee this, they have to provide an amount of margin.

6.1.2 Risk – Only suitable for experienced investors

The extent of the seller's risk depends largely on whether the options are covered or naked. Sellers must therefore provide collateral. If the options are covered, the underlying value is held as collateral. If the options are naked, margin must be

deposited. Sellers of call options (covered or naked) who expect to be required to deliver the underlying value because of a rise in its price, may be able to avoid delivery by concluding a closing buy transaction on the derivatives market before being assigned to make the delivery.

Because of the large losses which may be incurred, selling naked call options is only suitable for experienced investors that have the financial means to sustain such losses.

6.2 Selling put options

Sellers of put options take on the obligation to buy the underlying value at the exercise price, if assigned to do so. In return, they receive the option premium.

6.2.1 Possibilities

The main objective of investors who sell put options is to receive the option premium. A consequence of this is that the investor has to accept the risk of having to buy the underlying value at the strike price. If the price of underlying value rises above the strike price, the option may expire without being exercised and the seller will retain the premium. As long as the option has not been exercised, the seller can liquidate the option position by a closing buy transaction on the derivatives market. If the market price of the underlying value drops below the strike price, the put option may be exercised. The seller will then be required to buy the underlying value at a price that is higher than the current market price. In addition to making a profit on option premiums, the investor may also consider selling put options as a means of fixing a purchase price for the underlying value. The purchase price is then equal to the strike price less the option premium, plus costs. If the option is not exercised, the underlying value will not be delivered and the investor will keep the profit earned on the option.

6.2.2 Risk

The seller of a put option accepts the risk of having to buy the underlying value at a price that is substantially higher than the current market price. An open sell transaction in put options is always naked. The investor must therefore have the financial means to pay for the underlying value in the event that the option is exercised, and hence has to provide the margin. Sellers of put options who expect to have to take delivery of the underlying value because of a fall in its price, can avoid doing so by concluding a closing buy transaction on the derivatives market before being assigned.

Retail investors who wish to trade on the regulated markets operated by Euronext and require any information or advice in this regard should consult their financial intermediary.

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