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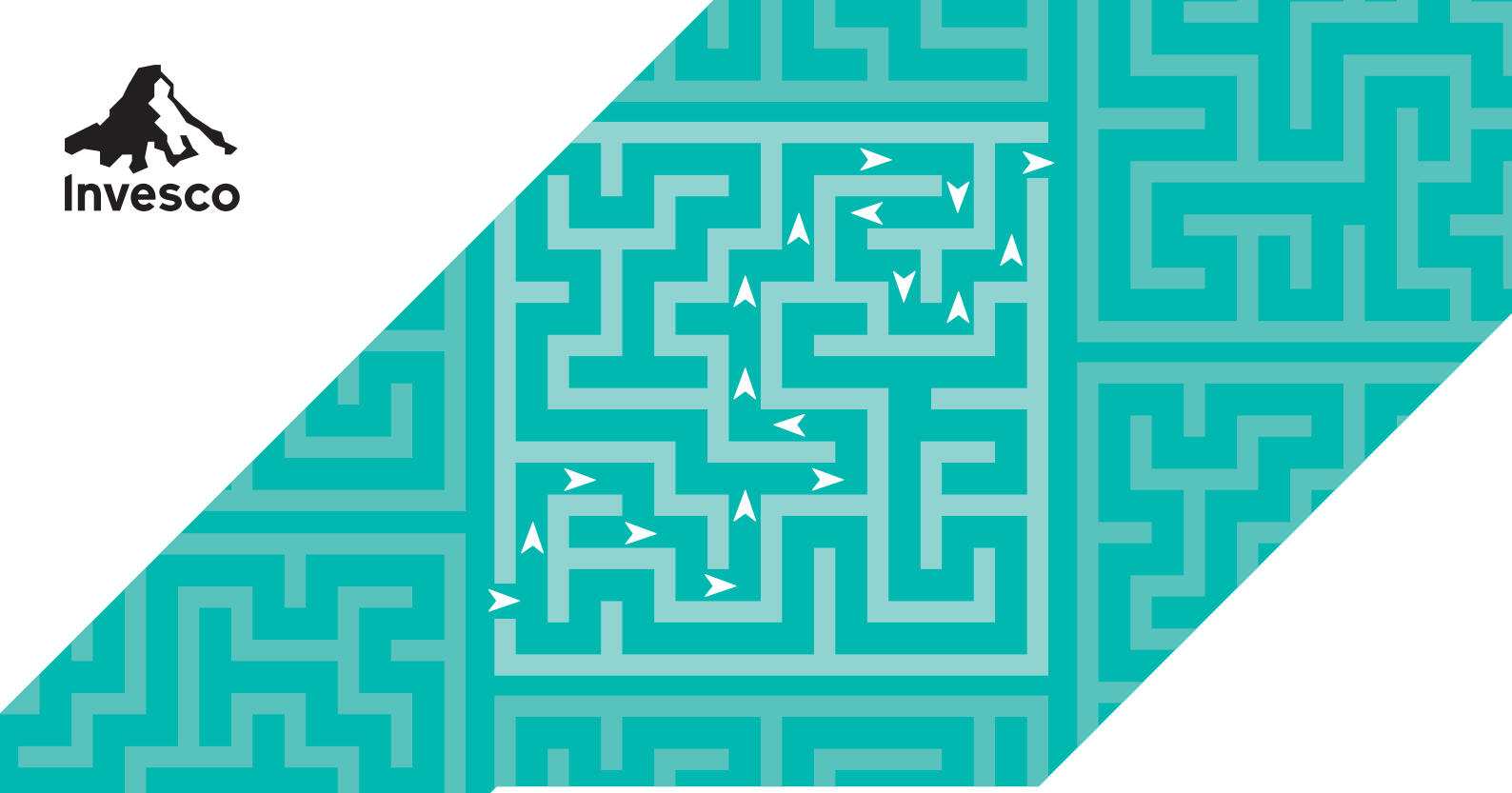


investmentcampus

Derivatives 1:
Derivatives explained

- An **option** is the securitised right (not the obligation) to buy ("call") or sell ("put") an underlying asset at a specific price and at a specific time in the future.
- In **futures contracts,** buyers and sellers commit themselves to buy or sell a specific amount of an underlying asset at a set price when it falls due.
- **Clearing houses** intervene between buyer and seller upon conclusion of the contract and provide both parties with a guarantee that the transaction will be executed.
- The **spot price** is the price of a financial asset for immediate delivery, while the **futures price** is the expected price at a specific time in the future.
- **Contango and backwardation** describe pricing situations in the commodities market. If the market is in contango, then the futures price is higher than the spot price. Backwardation is the word used when the futures price is lower than the spot price of an asset.

A wide range of objectives can be pursued with derivatives – from hedging risk to implementing investment ideas. Derivatives are "derived" securities (in Latin: derivare = derive). Their valuation arises from the performance of an underlying asset, such as equities, bonds, commodities, currencies or interest rates. In contrast to "direct" investments, such as stocks, derivatives are "indirect" investments. The most important derivatives include options, futures and swaps. Investors who want to use derivatives are not the only ones who should understand the hidden meaning of terms such as options, futures, clearing house, spot and futures price, as well as contango and backwardation. It also makes sense for fund investors, since many funds work with these derivative instruments when implementing their investment strategy.

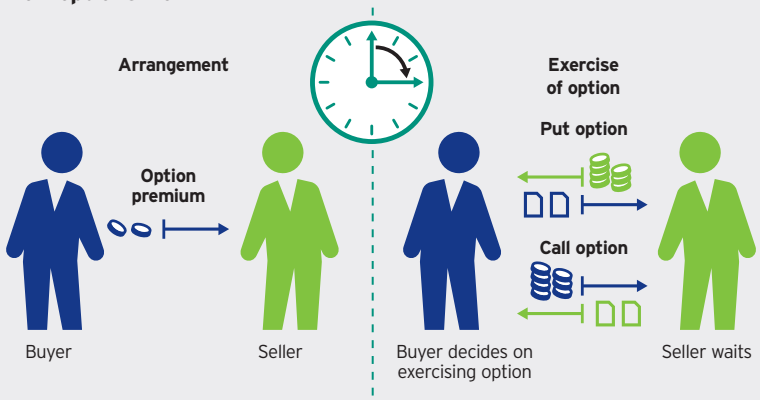
In many cases derivatives are used with the aim to reduce risks. Derivatives are also nothing new. Historically, the derivatives trade can be traced to the second millennium before Christ. Even back then, people tried to hedge against price fluctuations when trading agricultural products, for example.

Originally, hedging was the primary purpose for derivatives. It is still important today and a common reason for using them. However, derivatives are now also frequently used to implement investment ideas, for example, when an investor is convinced that the US dollar will strengthen against the euro or that oil prices will fall. The advantage of derivatives? The underlying asset itself must no longer be bought and sold, so capital investment is reduced.

Options: Agreements on optional buying and selling in the future

With futures transactions, or deals related to the future, the basic distinction is made between the conditional and the unconditional – meaning those that represent only a possibility and those that represent an obligation. Conditional futures transactions include options. These differ from futures and forwards, which involve an obligation to buy and sell, as well as pay, and are therefore "unconditional."

Figure 1: How options work



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Basic knowledge

Options

With options, the investor concludes a contract to be able to buy (call) or sell (put) an underlying asset at a price agreed in advance (exercise price, also known as the strike price). The seller of the option must comply with this right upon the buyer's request. In return, he receives an option premium from the buyer. Underlying assets (also known as "underlyings") include equities, bonds, currencies or commodities. The right to buy or sell is only valid for a specific time period. If the option is not exercised within that period, it expires. A distinction is made between European options, which can be exercised only on the expiry date, and US options, which can be exercised on any trading day before expiry. Options are usually traded on futures and option exchanges and are defined in relation to contract size, exercise or strike price, and duration.

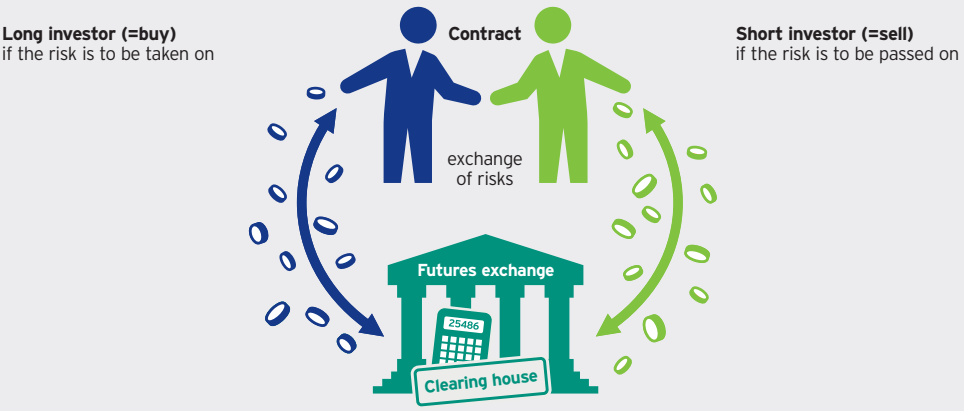
Options have advantages and disadvantages. One advantage is that the required capital investment does not have to be produced in the first place, unlike an immediate direct investment in the underlying asset. There is also a leverage effect in relation to the underlying asset: Its gain results in the option's disproportionate price increase. Last but not least, it is possible to speculate on rising and falling markets with options. However, there are also disadvantages: If the underlying asset does not perform in the desired (expected) direction, then heavy losses are possible, including a complete loss of the premium.

Futures: The obligation to buy or sell

Futures contracts, on the other hand, involve the obligation – not just the possibility (option) – to buy or sell an underlying asset at a specific time in the future. For this reason, they fall into the category of "unconditional" futures transactions. They can hedge against risk, but they can also be used to take a view on specific price developments that may be expected.

As with options, the essential advantage of futures is also that the required capital investment does not have to be produced in the first place, unlike an immediate direct investment in the underlying asset. Likewise, the fact that you can take a view on falling and rising prices. However, one disadvantage is the contract sizes, which in practice are often very large, making an investment more difficult for private individuals. And there is the possibility of high losses, when prices of the underlying asset develop in a different direction than that expected.

Figure 2: Futures contracts



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Basic knowledge

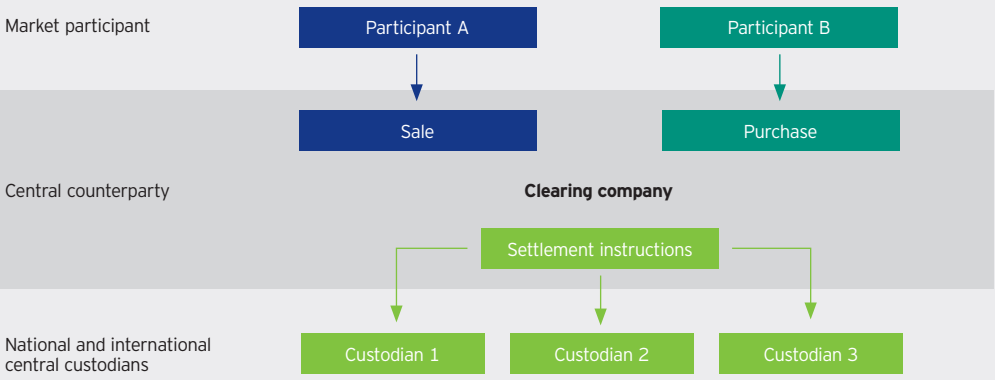
Futures

Futures are standardised, exchange-traded contracts. A contracting party has the obligation to deliver ("short position") a specific amount of an underlying asset – equities, for example – at a set price and at a specific time. The other contracting party is obligated to take delivery ("long position"). In contrast to options, the purchase and sale are therefore binding, hence the term "unconditional" futures transactions. A distinction is made between commodity futures – meaning futures contracts for goods – and financial futures, which are futures contracts related to equities, bonds, indices or currencies. The futures business emerged to hedge prices for agricultural products and commodities. Today, futures are used for hedging, efficient portfolio management as well as speculative or arbitrage purposes. They are traded on futures markets.

Clearing house

The term "clearing house" often appears in connection with transactions in securities and derivative instruments. This refers to a settlement agent for the processing and settlement of securities transactions. Processing through a clearing house has many advantages. For example, clearing companies can pool various orders, thereby reducing transaction costs. Clearing houses also carry out the risk controlling for the contracting partners.

Figure 3: How does a clearing house work?



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Basic knowledge

Clearing house

The task of a clearing house, also known as clearing company, is to assess the mutual claims and obligations, the delivery commitments as well as the settlement (meaning mutual compliance in spot and futures transactions) for dealings in securities and futures contracts. Upon completion of a contract, clearing houses intervene between the buyer and seller, guaranteeing compliance for both parties to the transaction – they therefore act as a central counterparty. They are also responsible for the settlement of transactions effected, administer margin deposits and calculate the netting values. In the so-called settlement, the traded security is then exchanged for its equivalent value in cash, thereby completing the transaction. The users, or members, of a clearing system must comply with specific requirements and provide collateral to receive authorisation. Clearing houses are normally business units of exchange operators.

Spot and futures prices

Using derivatives to hedge or to implement investment ideas and strategies necessarily involves an understanding of prices and price formation in markets, also within a particular time frame. Current prices in spot markets and futures prices in the corresponding futures markets can differ significantly for a particular underlying asset. Therefore, futures relating to an underlying asset – for example, a commodity such as crude oil – and depending on the relevant term, have another price, which differs from the current spot price under normal circumstances. The prices are determined by the specific supply-and-demand conditions at the time, but also by expectations relating to future price developments.

Figure 4: Spot and futures prices for gold – an example

On 15 August 2016, the spot price for an ounce of gold on the New York Commodities Exchange (Comex) was $1,348.99. That means, the ounce could be purchased on that day at that price. The futures price for the ounce for delivery in December 2018 was $1,354.80.

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Basic knowledge

Spot and futures prices

Spot price (also cash price) is understood as the current price of a financial investment – a security, commodity or currency, for example – for immediate delivery. By contrast, futures price describes the expected price at a specific time in the future. Spot prices not only provide important information in their own right, but also serve as a basis to calculate futures, forwards and options. The terms spot price and futures price are used most often for commodities contracts, for oil or gold, for example. Normally, the futures price is higher than the spot price because of costs relating to storage, insurance and prevailing interest rates. However, there could also be the reverse market situation, for example, when an oversupply is expected for the future.

Contango and backwardation: Price conditions in the commodities market

One thing is noticeable when considering prices, whether they are current or expected for the future: The futures price is usually higher than the current spot price – that is the norm. The so-called futures curve, which mirrors prices for all traded futures contracts of different durations, usually points upwards as a result. However, it is sometimes the other way around – and there can indeed be reasons for this.

Figure 5a: Contango - the gold price

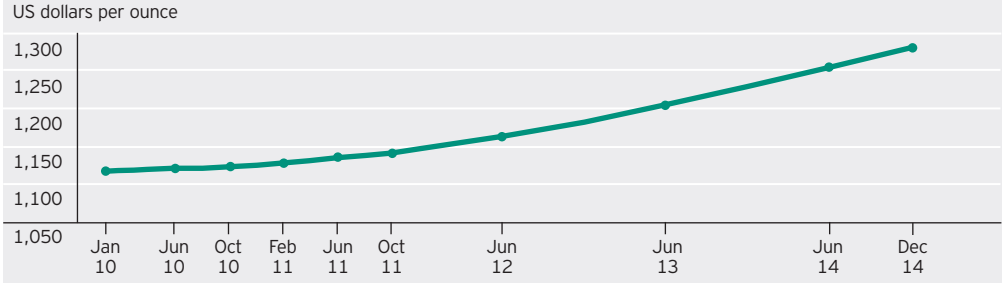

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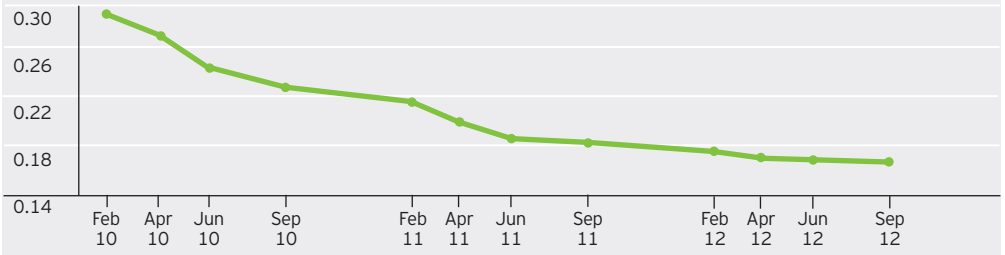
Figure 5b: Backwardation - the sugar price



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Basic knowledge

Contango and backwardation

The terms contango and backwardation describe price conditions in the commodities market. If the market is in contango, then the futures price – meaning the price for delivery in the future – is higher than the current price (spot price) for that commodity. A commodity to be delivered in the distant future would therefore be more expensive than if it were purchased and delivered immediately or in the near future. This applies as the norm because of costs relating to storage, insurance and prevailing interest rates. Backwardation describes the reverse situation: It is the term used when the futures price is lower than the spot price. A commodity to be delivered in the distant future would therefore be cheaper than if it were purchased and delivered immediately or in the near future. It can occur when market participants expect prices to fall or when there is an acute shortage of a particular commodity.

Contango and backwardation are mostly relevant in connection with so-called rollover losses or gains. The reason: The underlying asset should actually be delivered upon expiry of a futures contract, but this is generally not required. Through a rollover, commodities investors can then go from an expiring contract into a futures contract with a longer duration. The old one is sold and a new one is purchased. In this way, losses or gains can occur, depending on whether the next futures contract is more expensive or cheaper than the one that is about to expire. This is referred to as a "rollover loss" or "rollover gain." This topic is also relevant to fund investors because funds also have to cope with rollover losses.

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