

## Fixed income futures, forwards and options

This fact sheet contains information on fixed income futures, forwards and options and how to use them. It will also give you examples of investment strategies.

### What are fixed income futures?

Fixed income futures and forwards are binding agreements between two parties to buy or sell a bond or the return on a bond index at a fixed price (strike price) at a specified future date (due date).

The strike price is determined by the parties at the date of the transaction.

Fixed income futures are standardised instruments admitted to trading on a regulated market. The price, expiry dates and amounts are fixed by the regulated market on which the instrument is listed, and specific procedures may be in place for the settlement of gains and losses.

Fixed income futures and forwards are settled in cash or on delivery of the underlying asset.

Fixed income futures are subject to daily cash settlement of gains/losses.

### Fixed income forwards

Fixed income forwards are OTC transactions which are concluded with Danske Bank as the counterparty and which may be adjusted to suit individual needs. OTC transactions also include transactions derived from fixed income futures, but these cannot be adjusted to suit individual needs. Instead, such transactions are standardised in the same way as a fixed income future.

Fixed income forwards are cash settled only on expiry. This also applies to transactions derived from fixed income futures.

### Using fixed income futures and forwards

Fixed income futures and forwards may be used to hedge a price risk on a bond or a bond portfolio during periods of strong volatility.

They may also be used as investment instruments for the purpose of generating a profit on expected price developments.

### Term

The term of fixed income futures and forwards may range from a single day to several years, depending on the terms and conditions applying to the financial instrument.

### Pricing

Price fluctuations on fixed income futures and forwards are driven by changes in the underlying asset. Changes to the price of the underlying asset would therefore be fully reflected in the value of the contracts entered into.

The following factors influence pricing:

- The price of the underlying asset, including expected price impact at interest payment dates and drawing.
- The money market rate. Fixed income futures and forwards may be an alternative to buying the underlying asset. A high money market rate would result in a high premium on these contracts, while a low money market rate would lead to a lower premium.

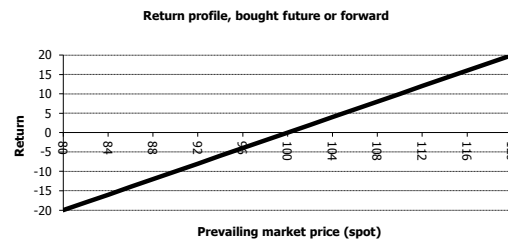
**Practical use of fixed income futures and forwards**

This section provides two examples of return profiles that show whether or not a transaction is favourable.

*Buying fixed income futures or forwards*

A buyer of a fixed income future or forward gets a right and an obligation to buy the underlying asset at an agreed price at a specified future date.

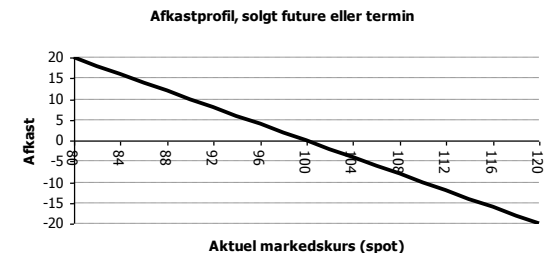
Any increase in the prevailing market price will increase the value of the acquired fixed income future or forward contract. Any fall in the prevailing market price will lead to a fall in the market value of the acquired future or forward contract.



*Selling fixed income futures or forwards*

A seller of a fixed income future or forward contract gets a right and an obligation to sell the underlying asset at an agreed price at a specified future date.

Any fall in the prevailing market price will increase the value of the sold fixed income future or forward contract. Any increase in the prevailing market price will lead to a fall in the market value of the sold future or forward contract.



**Risk factors**

You should be aware that this type of transactions involves substantial risk.

Under the executive order on risk-labelling of investment products, this product type is in the “RED” category.

The “Red” category consists of: “Investment products involving a risk of losing more than the amount invested, or product types which are difficult to understand”.

The risk-labelling categories defined by the Danish Financial Supervisory Authority (“DFSA”) can be found at [www.danskebank.dk/risikomaerkning](http://www.danskebank.dk/risikomaerkning).

The risk-labelling system should not form the exclusive decision-making basis of an investment. It is only intended as a supplement to the information you should obtain before making an investment or to the advice you receive from the bank after defining your investment profile.

Trading in fixed income futures and forwards involves a risk that the strike price is

unfavourable relative to the market price the contract is settled against at the settlement date.

The transaction will result in a loss if you have bought the underlying asset in a forward transaction that is to be settled at a price higher than the market price. The loss will equal the difference between the strike price and the market price. Similarly, the transaction will yield a gain if the strike price is lower than the market price.

If you sell the underlying asset in a forward transaction that is to be settled at a price lower than the market rate, the transaction will result in a loss, which may be unlimited and will correspond to the difference between the market price and the strike price. Similarly, the transaction will yield a gain if the strike price is higher than the market price.

If fixed income futures and forwards are settled early, a change in the interest rate differential will trigger a change in the premium or discount in excess of the change triggered

by the shorter term to maturity. This could cause you to incur a loss.

The risk of a loss is increased by the instrument’s leverage component. The leverage component is the relationship between the instrument’s underlying value and the amount invested or received.

**Collateral**

When you enter into transactions with Danske Bank as the counterparty, we may require that you provide collateral.

When you enter into contracts with Stockholmbörsen AB as the counterparty, the stock exchange will require, with respect to futures trading, that you provide collateral through Danske Bank. See the rules of the stock exchange on derivatives trading at [www.omxgroup.com](http://www.omxgroup.com).

**Special market conditions**

Under special market conditions, it may be difficult or impossible to close a position; for example if, during periods of frequent price fluctuations, prices rise or fall to such an extent that we are unable to fix a price or the

stock exchange suspends or restricts trading in contracts.

### Tax

Due to the complex nature of this area, we recommend that you consult an accountant or other professional adviser to clarify the tax and accounting consequences to you of engaging in such trading.

### Fixed income options

Trading in fixed income options gives you either a right or an obligation to buy or sell an underlying asset at a fixed rate at a specified future date. The fixed price is also called the strike price or the exercise price.

The buyer of the fixed income option pays a premium to the seller of the option when entering into the contract.

### Option types

When you buy fixed income options, you get a right, but not an obligation, to buy (call option) or sell (put option) the underlying asset at the strike price at a specified future date.

When you sell fixed income options, you will have an obligation, to buy (put option) or sell (call option) the underlying asset at the strike price at a specified future date if the buyer exercises his right.

- Buyers of European fixed income options can only exercise their buy or sell option on expiry.
- Buyers of American options may exercise their right at any time until expiry

There is also a distinction between options with cash settlement and options settled by delivery of the underlying assets.

### Concepts describing the value of an option

Generally, the value of an option is expressed using one of three concepts:

- “Out-of-the-money” indicates that the strike price of a call option is higher than the current price of the underlying asset, while the opposite applies for a put option.

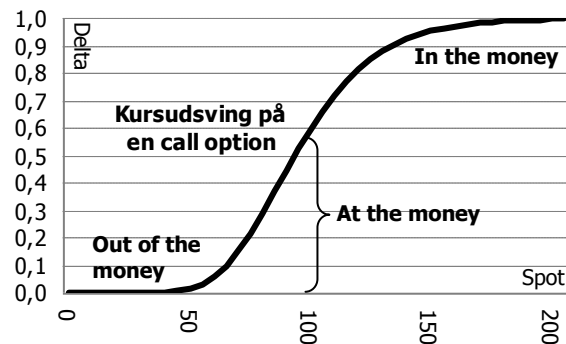
- “At-the-money” indicates for both call options and put options that the strike price of the option is equal to the current price of the underlying asset.
- “In-the-money” indicates that the strike price of a call option is lower than the current price of the underlying asset, while the opposite applies for a put option. Generally, options that are in-the-money are exercised on expiry, while options that are at- or out-of-the-money are not exercised.

Price fluctuations on an option are driven by changes in the underlying asset. Option sensitivity, in other words the price fluctuations, depends on the difference between an option’s strike price and the price of the underlying asset.

Let’s say that you hold a call option with a strike price of 100. If the price of the underlying asset is less than 100, the option is out-of-the-money. See chart below.

An increase in the price of the underlying asset from 10 to 20 would have very little effect on the value of the option, as there will still be very little probability of the option price rising to above the strike price of 100.

Similarly, an increase in the price of the underlying asset from, say, 190 to 200 would trigger a corresponding increase in the value of the option, because the option will almost certainly end up being in-the-money.



### When to use fixed income options

Fixed income options may be used to hedge a price risk of a bond or a bond portfolio during periods of strong volatility.

They may also be suitable as investment instruments for the purpose of generating a profit on expected price developments.

### Term

The term of fixed income options varies from a single day to several years depending on the terms and conditions of the underlying option contracts.

### Pricing fixed income options

The following factors influence the price of an option:

- The strike price of the option  
The lower the strike price relative to the price of the underlying asset, the higher the value of a call option. Conversely, the higher the strike price relative to the underlying asset, the higher the value of a put option.

- The price of the underlying asset  
The price of the underlying asset is impacted by expected interest payments and drawings during the life of the contract. The higher the price of the underlying asset relative to the strike price, the higher the value of a call option. The lower the price of the underlying asset relative to the strike price, the higher the value of a put option.
- Volatility  
Volatility expresses expected fluctuations in the price of an underlying asset. High volatility implies a high premium, because large price fluctuations increase the probability of the option ending in-the-money.
- Maturity  
The longer the maturity, the greater the probability the option ending in-the-money.
- The money market rate  
Buying a call option can be considered an alternative to buying the underlying asset and the extra liquidity can then be placed in the

money market. This aspect is priced into the call option and results in a higher price of the option. Conversely, a high interest rate reduces the price of a put option.

**Using fixed income options**

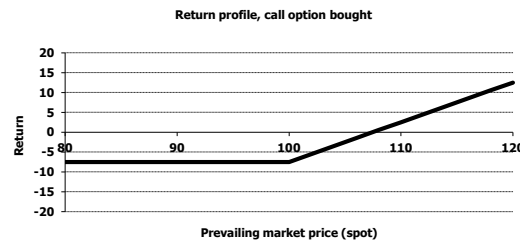
This section provides a number of examples of return profiles that show whether or not a transaction is profitable.

*Buying a fixed income option (call)*

A buyer of a fixed income option (call) obtains a right, but not an obligation, to buy the underlying asset at an agreed price.

If on expiry the rate is higher than the strike price, exercising the option produces a profit.

If on expiry the price is lower than the strike price, the buyer will not exercise the option,



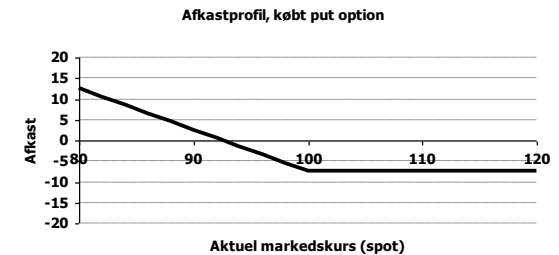
because it would be more beneficial to buy the underlying asset in the market.

*Buying a fixed income option (put)*

A buyer of a fixed income option (put) obtains a right, but not an obligation, to sell the underlying asset at an agreed price.

If on expiry the price is lower than the strike price, exercising the option produces a profit.

If on expiry the price is higher than the strike price, the buyer will not exercise the option, because it would be more beneficial to sell the underlying asset in the market.

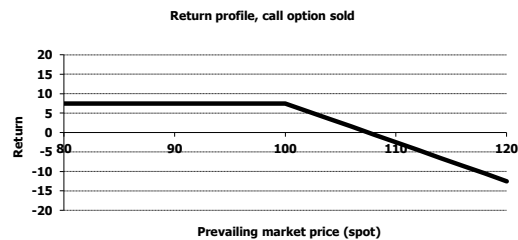


*Selling a fixed income option (call)*

A seller of a fixed income option (call) obtains an obligation to sell the underlying asset at an agreed price.

If on expiry the price is higher than the strike price, the option will typically be exercised.

If on expiry the price is lower than the strike price, the option will not be exercised, because it would be more beneficial to buy the underlying asset in the market.

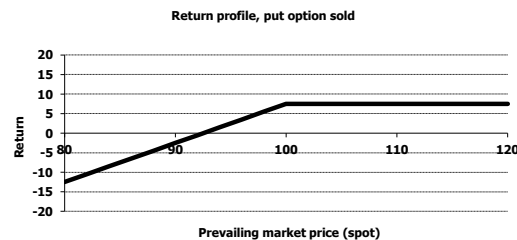


*Selling a fixed income option (put)*

A seller of a fixed income option (put) obtains an obligation to buy the underlying asset at an agreed price.

If on expiry the price is lower than the strike price, the option will typically be exercised.

If on expiry the price is higher than the strike price, the option will not be exercised, because it would be more beneficial to sell the underlying asset in the market.

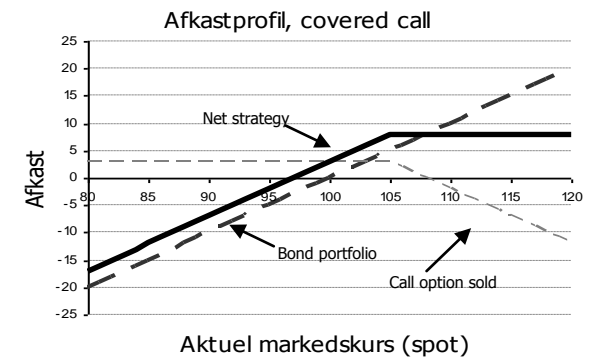


**Examples of investment strategies**

*Covered call*

A covered call consists of a sold call option with simultaneous ownership of the underlying bonds. The contingent obligation to sell the underlying bonds can therefore always be met.

The seller receives a premium for selling the call option in return for waiving the right to a potential appreciation gain on the underlying bonds in excess of the strike price.

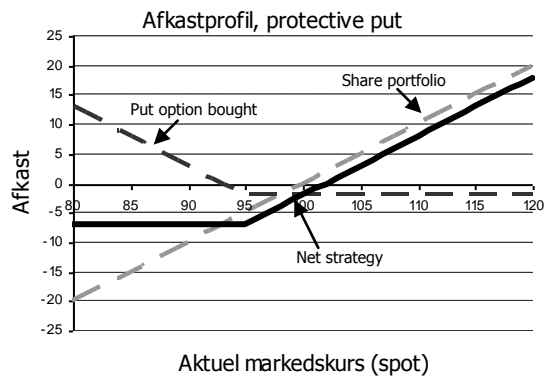


The investor should not expect the return to exceed the strike price plus the premium received, as this marks the break-even point of the transaction.

*Protective put*

A protective put consists of a bought put option with simultaneous ownership of the underlying bonds. This gives the party the right to sell the underlying bonds at the option strike price.

The investor pays a premium in order to buy the put option, while the upside potential of the underlying bonds is intact.



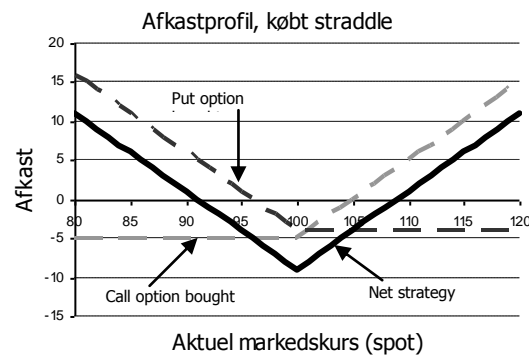
The strategy is used to hedge against the underlying bonds depreciating.

*Bought straddle*

In a bought straddle, a party buys a call option and a put option at identical strike prices. This gives the party the right to buy and/or sell the underlying bonds at the option strike price.

The investor pays a premium to buy the options.

The strategy is used to hedge against an expected appreciation or depreciation of the price of the underlying bonds.

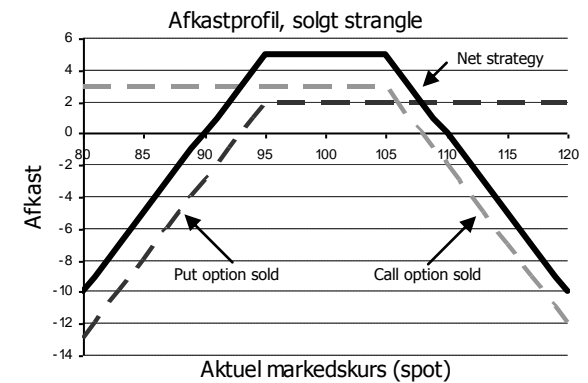


*Sold strangle*

In a sold strangle, a party sells a call option and a put option at different strike prices. This gives the party a contingent obligation to sell and/or buy the underlying bonds at the option strike price.

The investor receives a premium for the options sold.

The strategy is used in a situation of expected stable price developments in the underlying bonds.





**Risk factors**

You should be aware that trading in fixed income options involves substantial risk.

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The “Red” category consists of: “Investment products involving a risk of losing more than the amount invested, or product types which are difficult to understand”.

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The risk-labelling system should not form the exclusive decision-making basis of an investment. It is only intended as a supplement to the information you should obtain before making an investment or to the advice you receive from the bank after defining your investment profile.

*Selling fixed income options*

A sale involves the risk of an unfavourable difference arising between the price at which delivery of the underlying asset must be made or taken and the price at which the underlying asset can be bought or sold in the market.

For options with cash settlement, a sale involves the risk that the cash settlement is made on the basis of an unfavourable price.

In a worst-case scenario, the seller of a call option could suffer an unlimited loss.

In a worst-case scenario, the seller of a put option could suffer a loss equal to the difference between the strike price less the premium and nil.

The risk of a loss is increased by the instrument’s leverage component. The leverage component is the relationship between the instrument’s underlying value and the amount invested or received.

*Buying fixed income options*

When you buy fixed income options, you limit your risk to the premium paid.

**Collateral**

When you enter into transactions with Danske Bank as the counterparty, we may require that you provide collateral.

When you enter into contracts with Stockholmbörsen AB as the counterparty, the stock exchange will require that, as a seller of options, you provide collateral through Danske Bank. See the rules of the stock exchange on derivatives trading at [www.omxgroup.com](http://www.omxgroup.com).

**Special market conditions**

Under special market conditions, it may be difficult or impossible to close a position; for example if, during periods of frequent price fluctuations, prices rise or fall to such an extent that we are unable to fix a price or the stock exchange suspends or restricts trading in contracts.

**Tax**

Due to the complex nature of this area, we recommend that you consult an accountant or other professional adviser to clarify the tax and accounting consequences to you of engaging in such trading.

**Transaction costs**

The various prices and fees are shown in the cost overview.