Interest rate derivatives

Introduction
Interest rate derivatives are complex financial instruments. This is a general concept which covers options, future, swaps, etc.

One characteristic of derivatives is that they are linked to events or conditions at a specific time or time period in the future.

The value of the derivative depends on its underlying assets, for example fixed income (i.e. interest-bearing) instruments.

Different derivatives have different risk levels and factors which affect the yield. It is therefore important that you find out what applies to the particular derivative you are planning to invest in.

How interest rate derivatives work
Interest rate derivatives are used partly to change or protect the interest on a loan, without needing to change the terms of the underlying loan. There are several different types of interest rate derivatives, and below we present the most common ones.

For some derivatives, including options and swaptions, there is a leverage effect. This means that when the value of the underlying fixed income instrument rises or falls, the relative value of an investment in an option can be influenced more than the relative value of an investment in the underlying fixed income instrument.

Transactions in certain interest rate derivatives require that you pledge collateral, and as the price of the underlying asset changes, the collateral requirement also changes.

Interest rate derivatives are normally not traded over an exchange market.

Interest rate options
An agreement between two parties which gives:

the holder
- the right but not the obligation to buy (call option) or sell (put option) an underlying asset at a predetermined price (strike price) at a predetermined date (expiry date).

the issuer
- the obligation to sell (call option) or buy (put option) an underlying asset at a predetermined price (strike price) and at a predetermined time (expiry date).

The price of an option is referred to as the premium. When issuing an option collateral has to be provided.

European-type options: an option contract that can only be utilised or settled for cash on the expiry date. Interest rate options are usually of the European type.

Bermudan-type options: an option contract that can be utilised on a number of predetermined occasions during the option’s lifetime, but not simply at any time of your choosing.

American-type options: an option contract that can be utilised at any time during the option’s lifetime. Interest rate options are rarely of the American type.

Interest rate forwards/futures
An interest rate forward or future is an agreement between two parties which means:

- that both buyer and seller commit to buying or selling the underlying asset at a predetermined price with delivery or with cash settlement.

An FRA (Forward Rate Agreement) is an interest rate forward relating to the three-month Sibor (Stockholm Interbank Offered Rate). As a rule, FRAs are settled for cash on the expiry date.

Forwards – forward contracts where payment and delivery take place on the expiry date.

Futures – future contracts for which there is daily settlement. Futures relating to Swedish government or mortgage bonds are generally settled monthly, with final settlement on the final expiry date.

When futures are bought and sold, you are required to provide collateral. As the price of the underlying asset changes, the collateral requirement also changes.

Interest rate swaps
In an interest rate swap, the parties agree to swap payment flows, and thus risks, with each other, e.g. to make payments to each other calculated according to the fixed or floating interest rate respectively.

A swap is always non-standardised and is therefore not listed – it is an OTC (Over The Counter) instrument.

Interest rate swaptions
An interest rate swaption is a derivative in the form of an option with the right to enter into an interest rate swap agreement. It is an agreement between two parties which gives:

the holder
- the right but not the obligation to buy (call swaption) or sell (put swaption) an underlying asset at a predetermined price (strike price) at a predetermined date (expiry date).

If the actual price/rate on the final date is lower for a payer swaption than, higher for a receiver swaption than, or equal to the strike price/strike rate, the option/swaption expires as worthless and all the invested capital is lost.

the issuer
- the obligation to sell (call swaption) or buy (put swaption) an underlying asset at a predetermined price (strike price) at a predetermined date (expiry date).

If the price/rate on the expiry date is higher for a payer swaption than or lower for a receiver swaption than the strike price, the issuer must receive/pay to the holder at the strike price/rate.

Structured interest rate derivatives
A structured derivative consists of a combination of different derivatives with a specific yield/payment profile. A structured interest rate derivative can be constructed so that specific requirements are met, in terms of interest rate hedging, yield, etc.

The financial characteristics and risks associated with structured derivatives are a combination of the characteristics and risks displayed by the component parts.

The value of the derivative depends on its underlying assets, for example fixed income (i.e. interest-bearing) instruments.
Examples:

**Rate cap**
This is an agreement that gives the buyer the right to receive payment on any occasion that the Stibor reference rate is registered as being above the strike price. Borrowers with floating 3-month Stibor loans often buy a rate cap to ensure a maximum interest rate level.

**Interest rate corridor**
This is an agreement that contains both a call option and a put option. It is an interest rate structure whereby the borrower/buyer pays a Stibor rate between a cap and a floor and gives the investor/seller or issuer the yield between the floor and the cap.

**Mixed interest rate swap**
This is an agreement between two parties to swap interest rate flows, whereby the buyer of the mixed interest rate swap pays a fixed swap rate on part of the nominal amount and a floating rate on the remainder of the loan. The floating part includes a rate cap, whereby the buyer of the mixed interest rate swap receives payment if the reference rate is higher than the strike price. The buyer of the mixed interest rate swap receives floating interest.

**Performance swap**
This is an agreement between two parties to exchange interest rate flows with each other. Buyers of a performance swap are normally borrowers. The buyer of a performance swap pays either fixed or floating interest. The rate that the customer will pay is determined by whether the reference rate (normally 3-month Stibor) is above or below a barrier set at the beginning of the interest period in question.

**Bermudan swap**
This is an agreement between two parties to exchange interest rate flows with each other. Buyers of a Bermudan swap are normally borrowers. The buyer of a Bermudan swap pays fixed interest and receives floating interest (normally 3-month Stibor). The seller of a Bermudan swap receives fixed interest, and during the life of the swap has the right to close the swap on one of several predetermined dates. As payment for this, the buyer must pay a fixed interest rate with a discount.

**Extendible swap**
This is an agreement between two parties to exchange interest rate flows with each other. Buyers of extendible swaps are normally borrowers. The buyer of an extendible swap pays fixed interest with a discount and receives floating interest (normally 3-month Stibor). In return, the seller of an extendible swap has the right to extend the swap to a new, predetermined expiry date.

**Risk**

**General**
In an investment context, risk signifies the probability that the invested capital will fall in value. Taking a greater risk often means more opportunity of a high yield, but at the same time the risk of losing money also increases.

- The higher the risk, the greater the fluctuations in price you may expect.
- The lower the risk, the more even the price performance you can expect.

There may be a very large variation in risk among different derivatives. Derivatives can be used to either increase or reduce the risk.

There is a risk that the counterparty in an interest rate derivative will not fulfil its commitments, which can affect the price of the derivative during its lifetime.

By using an interest rate derivative, you can avoid the risks involved in future changes in interest rates. If you choose to use interest rate derivatives for speculative purposes, you are taking a higher risk.

**Options**
- Price fluctuations may be greater for the option than its underlying asset.
- The buyer of an option can at most lose the premium paid.
- If you issue an option, the risk of loss may be unlimited.

**Futures/forwards**
- In general, the risk in a future/forward is the same as for the underlying asset.
- The difference in price between a future/forward and the current daily price consists mainly of an interest premium calculated up to the future/forward’s expiry date.

**Swaps**
Via a swap you can switch to either a higher or a lower risk level.

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**Advantages and disadvantages of interest rate derivatives**

- Can provide a yield regardless of market conditions.
- Suitable as a risk diversification instrument:
  - can be used to protect a holding.
  - can produce higher yield with a lower capital investment than would be required for an equivalent transaction in which you invest directly in the underlying asset.
  - create the opportunity to realise a profit in an underlying asset, while also profiting from further price rises.
  - Can require extensive monitoring of the price performance.
  - The structure of interest rate derivatives can be so advanced that it can be difficult to comprehend the risk and expected yield.
  - Prices are rarely publicly available, and the derivatives may be more difficult to buy and sell during their lifetime.
  - The risk of loss may be unlimited.

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**Important information**

- The historical return of a financial instrument is not a guarantee of future return. The value of financial instruments can rise or fall, and it is not certain that you will get back all the capital you have invested. Trade in certain interest rate derivatives may result in losses that exceed the invested capital.
- You must familiarise yourself with Handelsbanken’s agreement – Trading in Financial Instruments and Currencies, as well as the other agreements and terms and conditions that may apply to trading in financial instruments.
- Check the information on the contract slip and if there are any errors, immediately inform us.
- You should regularly monitor your holdings and positions.
- You are responsible for investigating the taxation consequences that owning the instrument may entail for you.
- You are responsible for taking any action necessary to reduce the risk of losses.

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**Appropriateness test**

By law, financial institutions are obliged to ascertain whether you have sufficient knowledge and/or experience to understand the risk involved in trading in financial instruments.

If you are classified as a retail customer, and are buying interest rate derivatives through Handelsbanken for the first time, we will need to go through the following questions with you:

1. Do you have previous experience of, and sometime during the last two years have carried out trading in interest rate derivatives, and/or have knowledge of this group of instruments?
2. Are you familiar with the risk involved in investing in interest rate derivatives?

If you do not have sufficient experience and/or knowledge to understand the risks, we can take you through the workings of interest rate derivatives, as well as the risks involved in investing in them.

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<thead>
<tr>
<th>Interest rate derivatives</th>
<th>Answer</th>
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<tbody>
<tr>
<td><strong>Knowledge</strong></td>
<td></td>
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<tr>
<td>1. Does the buyer (issuer) of an interest rate option pay a premium?</td>
<td>☐ ☐ ☐</td>
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<tr>
<td>2. Is collateral required in order to issue/sell an option?</td>
<td>☐ ☐ ☐</td>
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<tr>
<td>3. Does an interest rate swap involve a swap of payment flows?</td>
<td>☐ ☐ ☐</td>
</tr>
<tr>
<td>4. Are interest rate derivatives normally traded over a stock exchange?</td>
<td>☐ ☐ ☐</td>
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<tr>
<td>5. Does the holding of a call option give the right but not the obligation to buy the underlying asset?</td>
<td>☐ ☐ ☐</td>
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<tr>
<td>6. Does an issued call option give an obligation to sell the underlying asset?</td>
<td>☐ ☐ ☐</td>
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<tr>
<td>7. Do you have to buy or sell the underlying asset if you carry out an interest rate future transaction?</td>
<td>☐ ☐ ☐</td>
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<tr>
<td>8. Does the buyer (holder) of a rate cap receive payment if Stibor is above the strike price?</td>
<td>☐ ☐ ☐</td>
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<tr>
<td>9. Can you secure a maximum interest rate level via a rate cap?</td>
<td>☐ ☐ ☐</td>
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<tr>
<td>10. Is a structured derivative a combination of different derivatives?</td>
<td>☐ ☐ ☐</td>
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<tr>
<th>Risk</th>
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<tbody>
<tr>
<td>1. Does the leverage effect mean that the loss on a derivative can be higher than for the underlying asset?</td>
<td>☐ ☐ ☐</td>
</tr>
<tr>
<td>2. Does an issued option involve greater risk than a held one?</td>
<td>☐ ☐ ☐</td>
</tr>
<tr>
<td>3. Is the performance of the underlying asset the only factor affecting the price of the derivative during its lifetime?</td>
<td>☐ ☐ ☐</td>
</tr>
<tr>
<td>4. Can a derivative instrument be used to protect an investment, for example?</td>
<td>☐ ☐ ☐</td>
</tr>
<tr>
<td>5. Can the price of a call option decrease, even though the price of the asset increases?</td>
<td>☐ ☐ ☐</td>
</tr>
<tr>
<td>6. Are you required to provide collateral when trading in futures/forwards?</td>
<td>☐ ☐ ☐</td>
</tr>
<tr>
<td>7. Can an investment in an interest rate derivative result in a loss that exceeds the capital invested?</td>
<td>☐ ☐ ☐</td>
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