Riksbank Futures

The monetary policy of the Riksbank (Central Bank of Sweden) is of great significance to interest rates in capital markets. Since the repo rate is the principal interest rate employed by Riksbanken, market players carefully monitor changes in this rate and the signals given by Riksbanken. Expectations regarding future repo rates are key indicators for many players when choosing to take positions in the interest-rate market. The RIBA futures contract base is a fictitious loan with a term corresponding to the period between two IMM dates, with final settlement occurring against the average repo rate for the period concerned.

Facts about Riksbank Futures contracts

<table>
<thead>
<tr>
<th>Contract type</th>
<th>Futures contract with daily cash settlement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract base</td>
<td>Fictitious loan extending between two consecutive IMM dates</td>
</tr>
<tr>
<td>Contract base size</td>
<td>Nominal value of SEK 1,000,000</td>
</tr>
<tr>
<td>Tick size</td>
<td>0.001</td>
</tr>
<tr>
<td>Tick value</td>
<td>Depending on the number of days in the contract base, tick value of approx. SEK 2.528 per contract with 91 days term</td>
</tr>
<tr>
<td>Price</td>
<td>Contract price quoted as compound interest on the repo-rate periods concerned</td>
</tr>
<tr>
<td>Day Calculation convention</td>
<td>Actual/360</td>
</tr>
<tr>
<td>Expiration months</td>
<td>March, June, September and December</td>
</tr>
<tr>
<td>Final settlement day</td>
<td>First bank day following expiration day</td>
</tr>
<tr>
<td>Expiration day/final day of trading</td>
<td>Two bank days prior to the third Wednesday of the expiration month</td>
</tr>
<tr>
<td>Daily fix</td>
<td>Median value of indicative buy and sell interest rates quoted by market makers</td>
</tr>
<tr>
<td>Expiration fix</td>
<td>The Riksbank’s repo rate between IMM dates in the contract’s end month and the preceding IMM date, expressed as compound interest</td>
</tr>
<tr>
<td>Offsetting</td>
<td>Offsetting can take place during the entire term</td>
</tr>
<tr>
<td>Series duration</td>
<td>Twenty four months</td>
</tr>
</tbody>
</table>

Market model

Trades in futures will either take place on the regulated market of Nasdaq Stockholm AB (the Exchange) and reported as block trades or reached through bilateral negotiations between buyers and sellers and reported to NASDAQ Clearing (the Clearinghouse) for central counterparty clearing.
The exchange has agreements with several market makers regarding the maintenance of a market with two-way prices aimed at ensuring ample liquidity in the contract. Market makers are expected to establish indicative two-way prices in the exchange’s trading system in accordance with standard market practices in the Swedish interest-rate market.

**Contract base and settlement principles**

The contract base is a fictitious loan of SEK 1,000,000, which extends between two consecutive IMM dates, meaning between the third Wednesday in the months of March, June, September and December. Accordingly, the underlying duration can vary between series with different delivery months. Normally the period is 91 days but may be shorter or longer (84 days or 98 days). The term corresponds to the terms for NASDAQ Stockholm’s FRA contract, but the differences in the name standards and underlying interest-rate periods for each delivery month should be observed.

There is no delivery of the underlying loan amount. Only a cash amount corresponding to the interest-rate difference between the agreed interest rate and the fixing rate will be paid. Accordingly, the contract can be considered a CFD, contract for difference. The buyer of the contract is a fictitious borrower who assumes the obligation to pay the difference between the agreed interest rate and the fixing rate to the seller on condition that the agreed interest rate is higher. If the agreed interest rate is lower than the fixing rate, the buyer is paid the interest rate amount by the seller.

When the contract is cleared, no actual payment takes place between the buyer and seller; instead, each party receives/pays from/to the exchange (the Clearing House).

**Settlement and offsetting**

All purchased and sold contracts are entirely offsetable against each other. This means that only one net position is held against the Clearing House and, if the contracts sold equal those purchased, the portfolio may be said to be closed in practice.

Daily cash settlements take place on bank days at noon and are based on the profit/loss on the net position at the end of the trading day on the bank day before the settlement day.

**Name standard**

Contracts are listed by the short name RIBA followed by a letter designation for the delivery month and the figure for the year in which the delivery month falls.

<table>
<thead>
<tr>
<th>Delivery month</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2016</td>
<td>RIBAH6</td>
</tr>
<tr>
<td>June 2016</td>
<td>RIBAM6</td>
</tr>
<tr>
<td>September 2016</td>
<td>RIBAU6</td>
</tr>
<tr>
<td>December 2016</td>
<td>RIBAZ6</td>
</tr>
<tr>
<td>March 2017</td>
<td>RIBAH7</td>
</tr>
<tr>
<td>June 2017</td>
<td>RIBAM7</td>
</tr>
<tr>
<td>September 2017</td>
<td>RIBAU7</td>
</tr>
<tr>
<td>December 2017</td>
<td>RIBAZ7</td>
</tr>
</tbody>
</table>
Example of contracts with end month March 2016

- **Contract name**: RIBA H6
- **First trading day**: March 16, 2015
- **End day**: March 14, 2016
- **Final fix**: March 14, 2016
- **Final settlement day**: March 15, 2016
- **Term of contract base**: 91 calendar days, December 16, 2015- March 16, 2016
- **Daily cash settlement**: every bank day beginning March 17, 2015
- **Collateral**: Established daily at 11:00 a.m.

Calculation of final fix RIBA H6

The Riksbank's repo rates from Dec 16, 2015 to March 16, 2016

<table>
<thead>
<tr>
<th>Start day</th>
<th>End day</th>
<th>Number of days, (d)</th>
<th>Repo rate, (r)</th>
<th>( 1 + \frac{r}{100} \cdot \frac{d}{360} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 16, 2015</td>
<td>Dec 23, 2015</td>
<td>7</td>
<td>-0.35</td>
<td>0.999931944</td>
</tr>
<tr>
<td>Dec 23, 2015</td>
<td>Dec 30, 2015</td>
<td>7</td>
<td>-0.35</td>
<td>0.999931944</td>
</tr>
<tr>
<td>Dec 30, 2015</td>
<td>Jan 6, 2016</td>
<td>7</td>
<td>-0.35</td>
<td>0.999931944</td>
</tr>
<tr>
<td>Jan 6, 2016</td>
<td>Jan 13, 2016</td>
<td>7</td>
<td>-0.35</td>
<td>0.999931944</td>
</tr>
<tr>
<td>Jan 13, 2016</td>
<td>Jan 20, 2016</td>
<td>7</td>
<td>-0.35</td>
<td>0.999931944</td>
</tr>
<tr>
<td>Jan 20, 2016</td>
<td>Jan 27, 2016</td>
<td>7</td>
<td>-0.35</td>
<td>0.999931944</td>
</tr>
<tr>
<td>Jan 27, 2016</td>
<td>Feb 3, 2016</td>
<td>7</td>
<td>-0.35</td>
<td>0.999931944</td>
</tr>
</tbody>
</table>
Final fix corresponds to the average repo rate during the term of the contract, expressed as compound interest. In this case, there are 13 repo-rate periods with a total of 91 calendar days.

The compound interest, expressed to three decimal places, for the interest period between Dec 16, 2015 and Mar 16, 2016 thus equals -0.396%

\[(0.999931944)^{13} - 1\] * (360/91) * 100 = -0.396

**Example of final settlement RIBA H6**

Final settlement takes place one bank day before the third Wednesday of the end month. For RIBA H6, final settlement takes place on Tuesday, March 15 and is based on the difference between the final fix calculated on Monday, March 14, and the last daily fixing calculated on Friday, March 11. In this example, we have assumed that the daily fixing rate on March 11 was -0.395% and that we have a purchased position of 10,000 contracts.

Number of purchased contracts * nominal amount * (final fix – daily fix)/100 * d/360

\[10,000 * 1,000,000 * (-0.396 - -0.395)/100 * 91/360 = 25,277.78 \text{ (rounded to 25,278)}\]

**Example of final day fix calculation**

The Daily fix is calculated as the median value of the indicative buy and sell interest rates that market makers, among others, quote in the stock exchange’s trading system on bank days at 4:15 p.m.

<table>
<thead>
<tr>
<th>Mm</th>
<th>Bid</th>
<th>Ask</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>-0.415</td>
<td>-0.395</td>
<td>-0.405</td>
</tr>
<tr>
<td>B</td>
<td>-0.410</td>
<td>-0.390</td>
<td>-0.400</td>
</tr>
<tr>
<td>C</td>
<td>-0.405</td>
<td>-0.385</td>
<td>-0.395</td>
</tr>
<tr>
<td>D</td>
<td>-0.400</td>
<td>-0.380</td>
<td>-0.390</td>
</tr>
<tr>
<td>E</td>
<td>-0.395</td>
<td>-0.375</td>
<td>-0.385</td>
</tr>
</tbody>
</table>

**Median** -0.395

In this example, the daily fix is -0.395%