NoRe

# Nibor Transparency Statement

**No 7 – 17 October 2022**

The information in this statement is unaudited and provided for illustration purposes only. The information may not be regarded as part of the provisioning of the interest rate benchmark Nibor, and the information cannot for any purposes be used as a benchmark.

# Nibor Transparency Statement

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*The Nibor Transparency Statement has been introduced with the purpose to provide users of Nibor with information about the data which the fixings of Nibor have been based on. The statement includes the Nibor Transparency model for the Nibor three months tenor, the tenor most widely used as interest rate reference in Norwegian kroner. The model illustrates how various individual factors have contributed to the observed development in Nibor.*

*The Nibor Transparency Statement is updated four times a year.*

## Nibor

Nibor is derived from "Norwegian Interbank Offered Rate" and is the collective term for the set of Norwegian kroner money market interest rates administered by Norske Finansielle Referanser AS (NoRe). Nibor is intended to reflect the interest rate level a bank requires for unsecured money market lending in Norwegian kroner (NOK) to another bank, and is published for the maturities one week, one month, two months, three months, and six months.

Nibor is based on contributions of input data from a panel of six banks. When determining its submissions, the individual bank shall follow the Nibor "waterfall methodology" priority for the use of input data (see explanation in box below).

Nibor is calculated and distributed by Global Rate Set Systems (GRSS). GRSS also acts as licensing agent for Nibor.

**Brief introduction to the Nibor calculation methodology**

The Nibor Panel Banks must be active in the market in which the redistribution of NOK liquidity takes place – in the relevant maturities and throughout the market's trading hours – and have been active for a period of at least three months. The panel banks are also required to quote committing sales prices on Certificates of Deposits (CDs) or Commercial Papers (CPs) denominated in NOK, for the maturities 1, 2, 3 and 6 months. Minimum sales commitment is NOK 100 million for all maturities.

When determining its submissions, the individual bank shall follow the Nibor "waterfall methodology" priority of use of input data, summarized as follows:

a. The bank's own interbank lending transactions concluded with leading banks in the Norwegian Money Market with a minimum value of NOK 100 million at the same day as the Fixing. If none;
b. the bank's own borrowing transactions concluded from sales of CDs or CPs denominated in NOK with a minimum value of NOK 100 million at the same day as the fixing. If none;
c. the bank's committed price quotes on CDs or CPs denominated in NOK and expert judgements based on the bank's weighted funding costs in USD and EUR, preferable prices from actual transactions. With exception for the one-week tenor, committed price quotes on CDs and CPs shall be given at least 50 percent weight in the calculations.

A spread shall be added to calculated borrowing rates, so that the submissions reflect the interest rates that the bank would charge for unsecured lending.

Nibor is fixed/calculated as trimmed averages of the interest rates submitted by the panel banks, where the lowest and the highest rates submitted are omitted. For more information about Nibor please refer to the Nibor Benchmark Statement and the Nibor Framework published on NoRe's website.

## Background data for the banks' Nibor submissions

The Nibor Panel banks provide NoRe with background information on their submissions. This information is used as support for NoRe's control activity. The information to be provided depends on which level in the waterfall methodology the submissions have been based on. For transaction-based submissions (level a og b) information is to include whether or not interpolation or transactions with deviating maturity have been used. For non-transaction-based submissions (level c) the banks shall provide information about the underlying elements in their calculations (CD/CP quotes, foreign funding interest rates, foreign exchange spot and term rates) and the weights applied for each individual component. For level b and c submissions the banks also provide information on the spreads used for transforming borrowing rates into offered/lending rates.

**The underlying market**

The Norwegian money market is characterised by liquidity, in terms of volume, being redistributed between the major market participants by using the currency swap market. This has been the situation all the time since the liberalisation of the credit markets in the 1980s. The use of currency swaps reflects the characteristics of the small open Norwegian economy, with relatively large international engagements connected to trade in raw materials and shipping. In the aftermath of the financial crisis of 2007-08, the use of unsecured interbank market lending in Norwegian kroner has contracted even more, in line with the developments

## Nibor input data

The lack of unsecured NOK-denominated interbank market transactions in the Norwegian interbank market implies that the submissions to Nibor, with few exemptions, are of type c. Table 1 below shows statistics on the types of submissions received since the reporting of background data was introduced in April 2020.

| Period | Number of business days | Number of fixings | Number of submissions | | | |
|---|---|---|---|---|---|---|
| | | | Total | Level a | Level b | Level c |
| 01.04.-30.06.20 | 59 | 295 | 1770 | 0 | 0 | 1770 |
| 01.07.-30.09.20 | 66 | 330 | 1980 | 0 | 0 | 1980 |
| 01.10.-31.12.20 | 64 | 320 | 1920 | 0 | 1 | 1919 |
| 01.01.-31.03.21 | 63 | 315 | 1890 | 0 | 1 | 1889 |
| 01.04.-30.06.21 | 59 | 295 | 1770 | 0 | 0 | 1770 |
| 01.07.-30.09.21 | 66 | 330 | 1980 | 0 | 0 | 1980 |
| 01.10.-31.12.21 | 65 | 325 | 1950 | 0 | 0 | 1950 |
| 01.01.-31.03.22 | 64 | 320 | 1920 | 3 | 0 | 1917 |
| 01.04.-30.06.22 | 59 | 295 | 1770 | 0 | 0 | 1770 |
| 01.07.-09.09.22 | 51 | 255 | 1530 | 0 | 0 | 1530 |

## The Nibor Transparency model

Since Nibor primarily is based on level c submissions, the panel banks' underlying input data to level c submissions may be used to illustrate how separate factors have contributed to the calculation of Nibor. The Nibor Transparency model calculates a Norwegian Krone Offered Rate applying the same methodology as the Nibor Panel Banks use to calculate their submissions of level c, by using averages of the underlying data reported by the banks. This illustrative derived rate is called "D-NOR". For more explanation see separate box.

Nibor is calculated as a mean of Nibor submissions omitting the lowest and highest submission. This trimmed mean is normally not very different from a simple average of all submissions. The Nibor fixings, averages of submissions and D-NOR is shown for the Nibor 3-month tenor in Chart 1 on the next page. The model calculations are presented in Chart 2. D-NOR and the corresponding Nibor fixing values are shown as lines. The underlying components are shown as stacked columns.

**Chart 1. 3-month Nibor, average of submissions and D-NOR. Percent.**

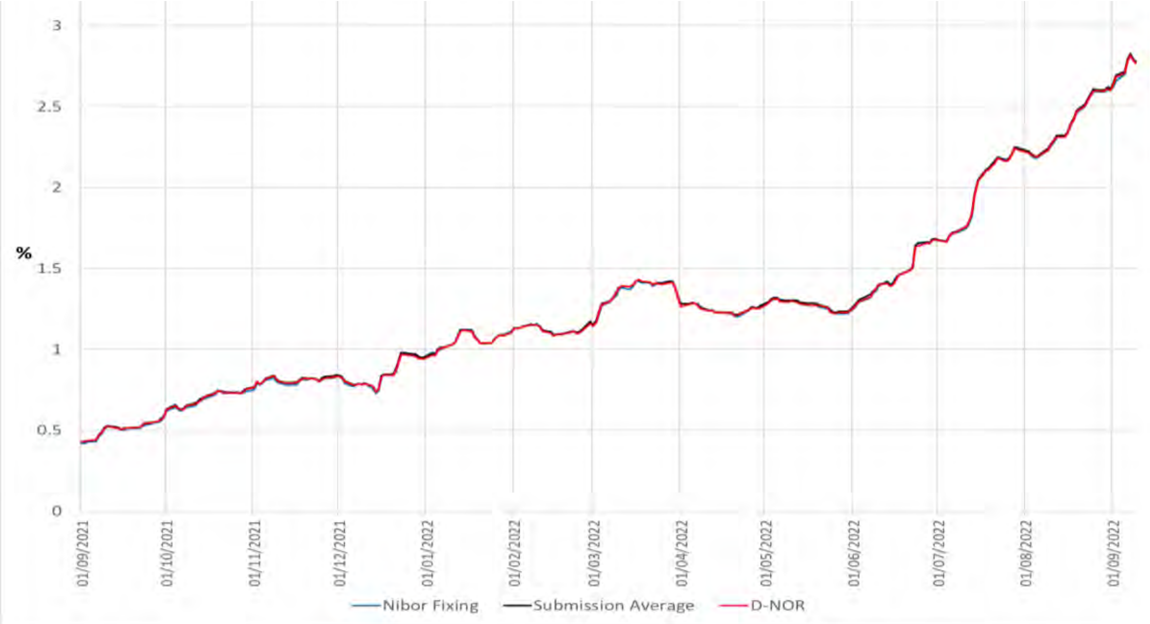
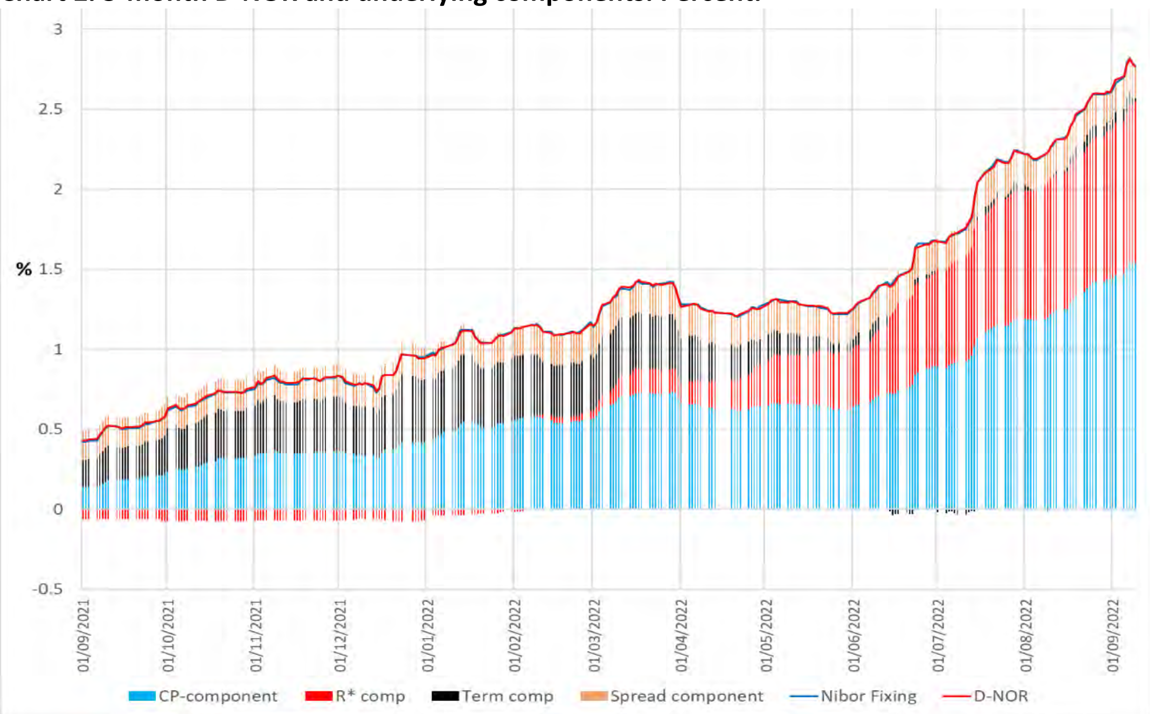



**Chart 2. 3-month D-NOR and underlying components. Percent.**




R*: Foreign lending costs, Term: Term premium from the foreign exchange market

3-month Nibor has continued to rise since issuance of the last Transparency statement, reflecting expectations for the Norwegian central bank's policy rate. During the period 01.09.2021 – 09.09.2022 the policy rate was raised five times, in sum from 0 to 1,75 percent. Chart 2 illustrates the increases in both in the Cp component (blue area) and in the R*-component (red area), reflecting higher funding rates both in domestic and in foreign currencies. The Term component (black area), which is reflecting the interest rate differential between NOK and an average of EUR and USD, has been reduced significantly during the last year, and has been very low since mid-June. The average bid/offer spread (Orange area) has increased slightly, from just below 0,2% to just above 0,2%.

## The Nibor Transparency Model explained

The Nibor Transparency model calculates a Norwegian Krone Offered Rate based on background input data from the Nibor Panel Banks and the formula the banks use to determine their Nibor submissions of type c. This illustrative derived rate is called "D-NOR".

The Nibor contributions of type c is the result of calculations using the following formula:

$$\mathbf{R_{PB} = r_{PBcp} * w_{PBcp} + (r_{PBeur} + t_{PBeur}) * w_{PBeur} + (r_{PBusd} + t_{PBusd}) w_{PBusd} + margin_{PB}}$$

where

"$\mathbf{R_{PB}}$" is the Nibor submission of type c from the panel bank (**"PB"**),
"**w**" is the weight used on each component, in sum equal to 1,
"**r**" is interest rates from different markets,
"**t**" is the term premia from the foreign exchange marked expressed as an interest rate
**"margin"** is the lending-borrowing margin
"**cp**", "**eur**" and "**usd**" is short for CP/CD, euro and US dollars respectively.

The transparency model isolates the individual components into sub-submissions representing the mean of received data for each individual factor.

- CP/CD-prices (expressed as interest rates): $\mathbf{r_{cp}}$
- Foreign funding costs: $\mathbf{r_{eur}}$ and $\mathbf{r_{usd}}$
- Foreign Exchange Term premia (expressed as interest rates): $\mathbf{t_{eur}}$ and $\mathbf{t_{usd}}$
- Lending-borrowing margin/Spread: **margin**

Thereafter the offered rate (D-NOR) is calculated as a weighted average of these mean-sub-submissions using the averages of the banks' calculation weights for each factor and the following formula:

$$\mathbf{D\text{-}NOR = r_{cp} * w_{cp} + (r_{eur} * w_{eur} + r_{usd} * w_{usd}) + (t_{eur} * w_{eur} + t_{usd} * w_{usd}) + margin}$$

The results of the calculations are presented graphically, where
CP component = $\mathbf{r_{cp} * w_{cp}}$
R* comp = $\mathbf{r_{eur} * w_{eur} + r_{usd} * w_{usd}}$
Term comp = $\mathbf{t_{eur} * w_{eur} + t_{usd} * w_{usd}}$
Bid/ask spread component = **margin**

The explanatory power of the model is somewhat limited when it comes to the part of Nibor movements being explained by changes in CD quotes. CD quotes are required to be given at least 50 percent weight in the Nibor submissions. However, the data indicates a clear historical correlation between the prices on CDs and NOK borrowing costs calculated from foreign funding costs and foreign exchange term premia (the sum of the Term and R* components), which reflects that both data sources indicate similar NOK funding cost developments.

The model uses information connected to level c-submissions only. As long as the majority of submissions continues to be based on level c, the model will illustrate the factors behind the movements in Nibor. However, if submissions of type a and b become frequent, the model's explanatory power will be reduced.