

REPORT WITH A RECOMMENDATION FOR AN ALTERNATIVE REFERENCE RATE IN NOK

WORKING GROUP ON ALTERNATIVE REFERENCE
RATES FOR THE NORWEGIAN KRONE

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Contents

Introduction	3
1. Background	3
2. Preferred criteria for a reference rate.....	4
3. Reformed Nowa as alternative reference rate	5
4. Expanded Nowa as alternative reference rate	7
5. An assessment of expanded Nowa and reformed Nowa as an alternative reference rate in NOK.....	9
6. The working group's recommendation	11

Introduction

The ARR working group recommends a reformed version of Nowa as an alternative reference rate for the Norwegian krone. The rate will be very similar to today's Nowa, but will be reformed when Norges Bank becomes the administrator for Nowa as from 1 January 2020. Among other things, a reformed Nowa will probably be calculated based on data the central bank already has available via banks' reporting of money market data (RPD). The current use of panel banks will then be discontinued. In the opinion of the working group, a reformed Nowa will satisfy the criteria a reference rate should meet.

The working group also assessed an expanded Nowa rate as an alternative reference rate, which would be based on banks' deposits from non-banks as well as banks. In the opinion of the working group, such a rate does not satisfy the preferred criteria.

1. Background

In response to the financial crisis, work on reference rates was launched internationally. In 2013, the International Organization of Securities Commissions (IOSCO) drew up a set of criteria that financial benchmarks should meet, and the EU has introduced a new regulatory framework for financial benchmarks.^{1,2} In 2014, the G20 countries, under the auspices of the Financial Stability Board (FSB), recommended reforming today's reference rates and finding alternative near risk-free interest rate benchmarks. Alternative reference rates have subsequently been established in a number of countries. All the alternative reference rates have a maturity of only one day (overnight rates), reflecting that most money market transactions take place in the overnight market.

In line with the work in other countries, a working group was established in Norway to identify a new reference rate for the Norwegian krone that could serve as an alternative to Nibor. The group's members represent Norwegian banks and branches of foreign banks with a good understanding of the Norwegian interest rate market. Norges Bank attends as an observer and provides the secretariat.³

The working group published a consultation report in October 2018.⁴ The report pointed to criteria reference rates should satisfy and recommended two candidates for closer examination: a reformed version of Nowa (reformed Nowa) and a rate based on a broader transaction base (expanded Nowa). Market participants' response to the consultation report was in particular that a reference rate should have the same characteristics as international

¹ [EU regulation 2016/1011](#) sets out rules governing the use of financial benchmarks.

² [IOSCO's criteria for financial benchmarks](#) is described in more detail in the 2018 consultation report.

³ The members of the working group are: Sparebanken Vest, DNB Bank ASA, Nordea Bank ABP, Handelsbanken, Skandinaviska Enskilda Banken AB, Danske Bank, Swedbank AB, Sparebank 1 SMN, Sparebank 1 Nord-Norge, Sparebank 1 Østlandet, Sparebank 1 SR-Bank ASA. Finance Norway attends as an observer in addition to Norges Bank.

⁴ See [Consultation Report](#) 2018.

reference rates. The respondents also agreed with the working group's assessment that Nowa, or some form of this rate, is the best option for an alternative reference rate in NOK.⁵

In line with the group's mandate, this report contains the group's recommendation for an alternative reference rate in NOK. The assessment must be seen in light of the criteria a reference rate should satisfy.

2. Preferred criteria for a reference rate

The working group's October 2018 consultation report listed a number of criteria a reference rate should meet, cf. Box 1. The criteria are largely based on IOSCO's principles.

Box 1: Preferred criteria for the selection of a Norwegian krone reference rate

<p>Properties</p> <ul style="list-style-type: none"> ✓ Sensitive to changes in the key policy rate ✓ Robust to changes in regulation and the monetary policy regime ✓ Clearly defined ✓ Correlated with other money market rates for the Norwegian krone <p>Quality</p> <ul style="list-style-type: none"> ✓ Should be based on transactions in a robust and reliable market ✓ Robust to changes in market structure ✓ Minimal opportunities for manipulation 	<p>Method</p> <ul style="list-style-type: none"> ✓ Transaction-based data as far as possible ✓ Clearly defined data ✓ Calculation method that is transparent and easy to understand <p>Administration and monitoring</p> <ul style="list-style-type: none"> ✓ Comply with regulatory requirements for financial benchmarks <p>Other considerations</p> <ul style="list-style-type: none"> ✓ Should be modelled in line with alternative reference rates in other countries ✓ Potential for the creation of a well-functioning derivatives market based on the reference rate
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Source: Working group for alternative reference rates for Norway

A reference rate is a standardised rate used to price loans and other financial instruments. The purpose of reference rates is to reduce cash flow risk in financial contracts when changes occur in the general interest rate level. When two parties agree on a long-term contract based on a floating reference rate, for example a loan, both borrower and lender will be ensured that cash flows will follow the general interest rate level in the economy. Reference rates are used in many financial contracts, and it is important that a reference rate is clearly defined, allowing users of the rate to assess whether it is suited to their purpose.

In Norway it is the central bank policy rate that determines the general interest rate level in the economy. Nevertheless, there are reasons why the policy rate should not be a reference rate (discussed in the 2018 consultation report). However, it is desirable for the reference rate to be as close as possible to the policy rate. An overnight rate will be closer to the policy rate the more the rate reflects transactions between banks that have access to the central banks market operations and standing facilities. Then the central bank's liquidity management system will determine the overnight rate. The policy rate and the overnight

⁵ [Market participants' response to the consultation report.](#)

rate are also the first point on the yield curve and the basis for monetary policy transmission. A reference rate should therefore be sensitive to changes in the policy rate. It should also be correlated with other NOK money market rates.

The background for the work on alternative reference rates is to a large extent related to falling trading volumes and a considerable degree of judgement in quoting existing reference rates. Revelations of manipulation of international reference rates may also have reduced confidence in the ibor-rates. Therefore, a critical point has been to base the alternative reference rates as far as possible on actual transactions in a robust and reliable market. This means, there should be a sufficient number of transactions for the reference rate to provide an exact and reliable picture of the economic reality the rate is intended to measure. In addition, the rates should be derived from markets that are competitive on both the supply and demand side (referred to as an active market). This will reliably reflect prices and minimise the opportunities for manipulation.

A reference rate should be based on clearly defined data and calculated in a way that is transparent and easy to understand. This will also allow users of the reference rate to understand how the rate is derived and to interpret changes in the rate.

For a rate to be used as a reference rate, it must meet the regulatory requirements for financial benchmarks. In Norway, the alternative reference rate will be subject to the requirements in the EU regulation on financial benchmarks.

Furthermore, the working group has strongly emphasised that an alternative reference rate in Norway should be in line with reference rates in other countries.⁶ This will simplify the pricing of financial instruments across currencies.

For a reference rate to be used extensively, users must have the option to hedge against movements in the reference rate. This generates demand for derivatives based on the reference rate and there should be a potential for the creation of a well-functioning derivatives market based on the alternative reference rate.

3. Reformed Nowa as alternative reference rate

There is currently only one NOK overnight rate: Nowa (Norwegian Overnight Weighted Average). Nowa is a weighted average of the interest rate on unsecured overnight loans between banks in NOK submitted by a selection of banks active in the Norwegian money market.⁷

The transactions on which Nowa is based are largely a result of banks' overnight liquidity management. Norges Bank's liquidity management system is a quota system whereby each bank receives interest at the policy rate on a certain quantity of reserves. Reserves in excess

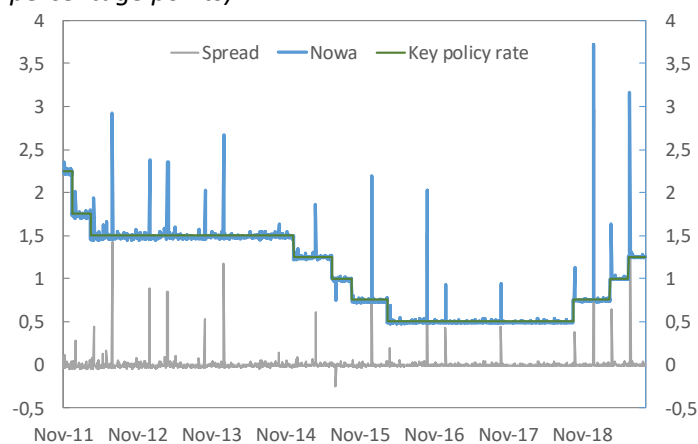
⁶ See [BIS Quarterly Bulletin March 2019](#) for an overview of the work on reference rates globally.

⁷ The Nowa panel currently comprises 11 panel banks. These banks submit Nowa quotes daily to Norges Bank.

of the quota are remunerated at the reserve rate, which is 100 basis points below the policy rate. Banks with a negative reserve balance at the end of the day have to borrow at a rate that is 100 basis points above the policy rate (the D-loan rate). Norges Bank aims to keep the total quantity of reserves⁸ at a certain level. This level is lower than the sum of banks' quotas. As long as banks distribute reserves in the interbank market, all reserves held at Norges Bank overnight will be remunerated at the policy rate.⁹

The distribution of central bank reserves between banks with accounts at Norges Bank, takes place in a transparent market where movements in the interest rate are closely linked to the key policy rate. These transactions largely satisfy the preferred criteria. However, the transaction volume on which Nowa is based often falls on days at quarter- and year-ends. Owing to regulatory requirements, banks may be less willing to lend to other banks at these times. With a limited number of transactions on these days, the Nowa rate often has to be estimated¹⁰, i.e. panel banks submit estimates of the interest rate they would have charged on a hypothetical loan. As banks will be less interested in lending on these days, interest rates are often very high. This results in adverse effects in the form of a higher spread between the key policy rate and Nowa. Nowa is normally close to the policy rate, but often rises sharply on the days when Nowa must be estimated (Chart 1).

Chart 1. Nowa and the policy rate (rhs. in percent) and the spread between Nowa and the key policy rate (lhs. in percentage points)



Source: Norges Bank

Norges Bank will become the administrator for Nowa as from 1 January 2020 and the Bank has announced that it will draw up a new framework for the calculation and publication of Nowa. Norges Bank will probably calculate Nowa by using data already available to the central bank via banks' reporting of money market data (RPDs). This means that the current

⁸ Central bank reserves, or reserves, are banks' overnight deposits at the central bank.

⁹ See [here for details on Norges Bank liquidity system](#).

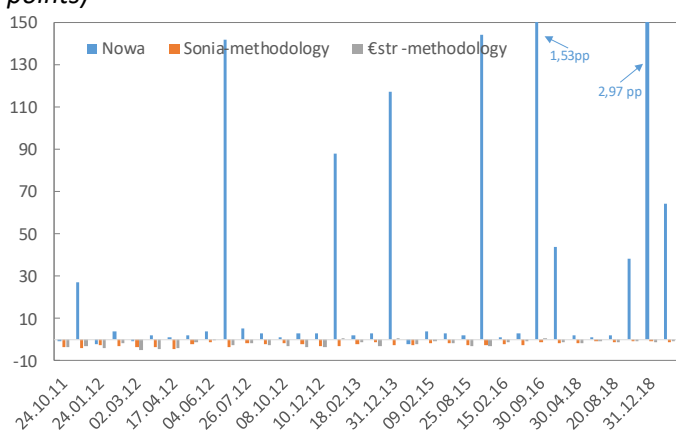
¹⁰ Norges Bank calculates Nowa provided data are available from at least three banks and total reported turnover is at least NOK 250 million. Nowa estimates are based on figures for actual loans supplemented by panel bank estimates. Since autumn 2011, Nowa has been estimated around 35 times.

system with panel banks will be discontinued. On days where the underlying transactions are not sufficient, the calculation will probably be based on a combination of historical data and actual traded data, to the extent that actual traded data exists.

There are several possible alternative calculation methods that can be applied if the transaction volume is too low or if the concentration in some banks is too high. In the euro area, if the conditions for calculating €STR are not met, the rate is calculated as a volume-weighted average of the previous day's transactions and the transactions that have taken place. In the UK, SONIA is calculated using the mean of the spread of SONIA to Bank Rate over the previous five publication days, excluding the days with the highest and lowest spread.

Chart 2 compares the spread in Nowa (as calculated today), the spread in Nowa calculated with the €STR method and the spread in Nowa calculated with the SONIA method, on dates where Nowa has been estimated. There are small differences between the €STR and SONIA method, but both methods results in a Nowa that is much closer to the policy rate than with today's solution using estimates.

Chart 2. Comparison of alternative calculation methods on days with estimates. Actual Nowa, €STR method, SONIA method. Spread against the key policy rate (percentage points)



Source: Banks' test reporting/Norges Bank

Norges Bank has emphasised that in their opinion, a reformed version of Nowa will be best suited as an alternative reference rate in NOK. Norges Bank expects that a reformed Nowa will be operational from 1 January 2020.

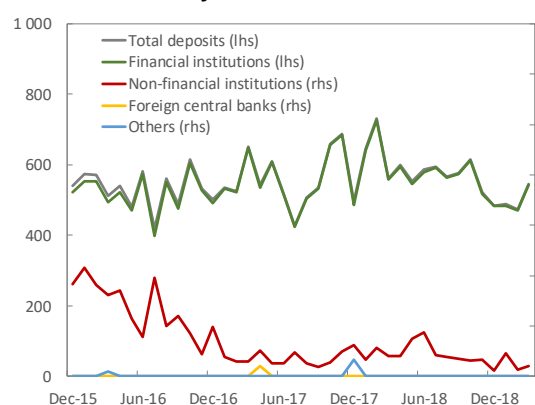
4. Expanded Nowa as alternative reference rate

The working group has assessed the possibility of establishing an overnight rate based on a broader transaction base than today's Nowa. To obtain a data base, the group conducted test reporting of all unsecured NOK overnight transactions in the period 1 December 2015 –

31 March 2019.¹¹ Nine of the banks in the working group submitted transaction data. Both lending and deposits were reported for the following counterparties: financial institutions, non-financial institutions, the public sector, foreign central banks and others. The data include 14 quarter-ends (of which four are year-ends), and the policy rate in the period was cut once and raised twice.¹²

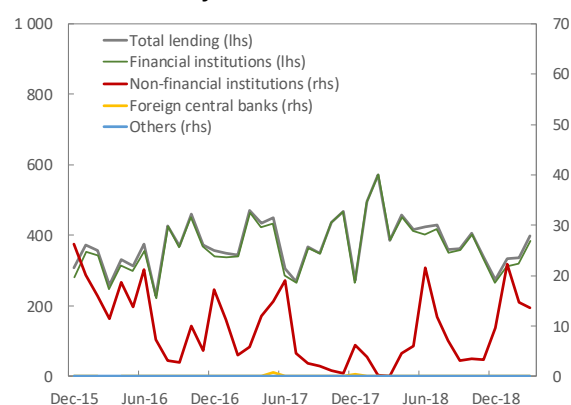
The data set shows that financial institutions account for virtually all of the lending and deposit transactions in the overnight market (cf. Chart 3 and 4). The working group therefore considered that it would not be useful to include counterparties other than financial institutions in the input data for a new overnight rate. Furthermore, the deposit volume is generally higher than the lending volume.¹³ The volume of daily deposit transactions is just below NOK 10 billion at its lowest, in contrast to today's Nowa, where daily volumes are considerably lower and where there are no transactions on some days.

Chart 3. Monthly deposit volume for different institutions, note the differences between the axes. In billions of NOK



Source: Banks' test reporting/Norges Bank

Chart 4. Monthly lending volume for different institutions, note the differences between the axes. In billions of NOK



Source: Banks' test reporting/Norges Bank

A large portion of the deposit volume is deposits from other banks with access to Norges Bank's market operations and facilities. These deposits make up most of the Nowa volume and satisfy the preferred criteria. The question is whether also other transactions should be included in an overnight rate based on a broader transaction base.

Apart from transactions included in today's Nowa, the expanded data set is dominated by Norwegian and foreign banks' deposits in Norwegian banks in what are referred to as loro accounts. Loro deposits are not attractive from an LCR perspective and are therefore priced

¹¹ Transactions with a nominal value of less than NOK 10 million and transactions with counterparties defined as SMEs according to Article 153 (4) in Regulation (EU) 575/2013 were not reported. Intragroup transactions were not reported. Deposits in the form of operating accounts etc, where the customer relies on the account to maintain business operations, were not reported.

¹² The working group assumes the reported data to be correct, but cannot guarantee that reporting errors have not occurred. In the group's judgement, the reported data seem reasonable.

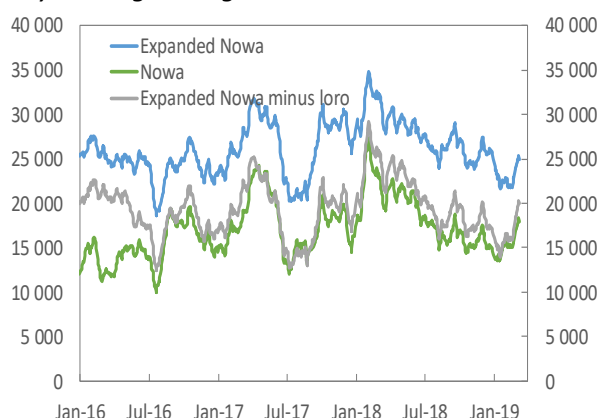
¹³ The lending volume is practically equal to the Nowa volume.

at a low interest rate. There does not seem to be any competition for these deposits, and the interest rate does not seem to have any effect on the volume deposited. It is therefore reasonable to argue that the interest rate on these deposits does not reflect a market price.

On days when Nowa transactions are limited, such as at year- and quarter-ends, loro deposits will account for a substantial share of the total volume of transactions on which an expanded overnight rate is based. The loro deposits could thereby generate volatility in the extended rate. Analyses show clearly that the spread between the expanded Nowa and the policy rate increases with foreign banks' share of total volume. This type of interest rate movement probably does not reflect changes in underlying demand or supply of liquidity or other economic conditions.

Moreover, if what we assume is loro deposits are excluded from the transaction base, the remaining transaction volume would be close to today's Nowa volume, cf Chart 5.¹⁴ On the other hand, with such a rate, the transaction volume could increase in the future if the overnight market for other financial institutions should grow. At the same time, excluding this type of deposit would likely require the use of judgement by banks and/or an administrator.

Chart 5. Deposit volume for Nowa, expanded Nowa and expanded Nowa minus loro accounts. Volume in millions of NOK, measured as a 30-day moving average



Source: Banks' test reporting /Norges Bank

5. An assessment of expanded Nowa and reformed Nowa as an alternative reference rate in NOK

A reformed Nowa will on the whole satisfy the preferred criteria, despite a considerably lower transaction base compared to an expanded Nowa. This difference largely reflects that the increased volume of an expanded Nowa primarily consists of foreign banks' deposits in Norwegian banks (loro accounts). These transactions are not necessarily traded in an active market where the interest rate reflects the price of liquidity. Hence the interest rates in this

¹⁴ It is not possible to distinguish loro deposits from other deposits in the dataset. In the chart we have therefore excluded all deposits from banks on the levels that loro deposits are normally made.

market will not reliably reflect changes in economic conditions. These transactions do not therefore satisfy the criteria related to quality. In addition, an expanded Nowa will also be influenced by the relative relationship between loro deposits and other deposits. For users of reference rates, such fluctuations will be difficult to interpret and the definition of the rate will be less clear.

A reformed Nowa also seems to be more robust to manipulation than an expanded Nowa. An expanded Nowa is affected by the interest rates foreign banks receive on their loro accounts in Norwegian banks. And even if there is no direct manipulation, the reference rate could be sensitive to changes in the rates on loro accounts. A reformed Nowa, which primarily reflects trades in central bank reserves between banks with an account at Norges Bank, seems more robust in the light of this criterion.

The most important argument against Nowa is the lack of transactions at some quarter-ends, which would continue to be a challenge even if Nowa is reformed. However, the effects of using an alternative calculation method are likely to be smaller when the rate is based on historical data rather than estimates. This method may however have unintended consequences. If interbank rates are driven up at certain times (quarter-ends) by fundamental conditions in the financial system, these movements will not be reflected in the reference rate when the calculation is based on historical data.

Regarding the properties of the reference rate, an expanded Nowa and a reformed Nowa will both be sensitive to changes in the policy rate. A reformed Nowa, however, is expected to be closer to the policy rate and be less volatile than an expanded Nowa.

To ensure consistency across countries, the alternative reference rate in Norway should preferably be in line with alternative reference rates in other countries. Like the alternative reference rates in other countries, both reformed Nowa and expanded Nowa will be based on transactions in the overnight market. The exact transaction base in alternative reference rates abroad varies with the structure of money markets in different countries. In terms of definition, expanded Nowa will most closely resemble the reference rates in the UK and the euro area, but will also be similar to the suggested alternative reference rates in Sweden and Denmark. The alternative reference rate in Australia is based on transactions in the interbank market and is therefore very similar to our Nowa. The alternative reference rates in the US, Canada and Switzerland are secured rates based on repo market transactions, as opposed to reformed and expanded Nowa, which are both unsecured rates.

In addition, derivatives based on the reference rate, for example overnight indexed swaps (OIS), should be established. In the working group's assessment, the rate on which an OIS is based should be close to the policy rate, and changes in that rate should be related to fundamental changes in the financial system.

The working group has had a thorough discussion about the two potential alternative reference rates. A majority of the group unequivocally supports the choice of reformed Nowa as an alternative reference rate. The minority was initially more inclined towards

expanded Nowa. These group members emphasised that expanded Nowa, defined as a deposit rate, has the potential to capture a larger number of transactions in the future. The minority nevertheless see some clear, practical advantages of using reformed Nowa. In particular, it was emphasised that it is highly uncertain whether the transaction base of expanded Nowa will improve in the future. It was also a decisive factor for the minority that Norges Bank regards reformed Nowa as the most appropriate reference rate, and that such a rate could be operational by the end of the year. Therefore, all the members of the working group support the overall assessment (see Section 6).

6. The working group's recommendation

- A reformed version of Nowa should be the alternative reference rate in NOK.
- The working group requests the administrator of Nowa, Norges Bank, to assess in more detail:
 - how Nowa should alternatively be calculated on days with an insufficient trading base, and
 - the criteria that would trigger such an alternative calculation of Nowa, and
 - the transaction base that should be used for Nowa, as a result of the change in calculation method (from panel bank submissions to RPDs).
- The working group requests that Norges Bank assesses these factors bearing in mind that Nowa should serve in the best way possible as an alternative reference rate and meet the IOSCO criteria.