

CONSULTATION:

**FALLBACK SOLUTIONS AND TERM- AND
SPREADJUSTMENT BETWEEN NIBOR AND
NOWA IN THE EVENT OF A CESSATION OF
NIBOR**

WORKING GROUP ON ALTERNATIVE REFERENCE
RATES FOR THE NORWEGIAN KRONE

SEPTEMBER 2020

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1. Introduction

The working group for alternative reference rates in Norwegian kroner (herein referred to as the “ARR-group”) was established in the beginning of 2018. The ARR-group recommended a reformed version of the overnight rate Nowa (Norwegian Overnight Weighted Average) as the alternative reference rate in Norwegian kroner in September 2019.¹

Since then the work has been focused on how one can make use of Nowa as a reference rate. This consultation paper reflects the possible solutions for fallback for contracts that have Nibor (Norwegian Interbank Offered Rate) as reference rate.

The ARR-groups seeks to gather comments from all relevant market participants. Feedback may be sent to the working group’s secretariat at ARR@norges-bank.no at **2. November 2020** the latest.

2. Background

Nibor is the main reference rate for contracts denominated in Norwegian kroner. In September 2019, the ARR-group recommended a reformed version of Nowa as the alternative reference rate in Norwegian kroner.

After the recommendation, two sub-groups have been established to look further into how Nowa can be used as a reference rate. One group is working on market conventions and fallback solutions while the other group is working on establishing a market for derivatives with Nowa as the reference rate. In June 2020 the ARR-group published two consultation reports named “Market conventions for financial products referencing Nowa” and “Establishing an OIS (Overnight Index Swap) market in NOK”²

According to the Nibor-regulation, Nibor should reflect the interest rate one bank requires for unsecured money market lending in NOK to a leading bank with delivery two days after the trade date. Nibor is published for tenors ranging from one week to six months while the alternative reference rate Nowa is an overnight rate. This difference implies that Nibor comprise elements that are not a part of Nowa. These elements include risk premiums in the form of credit and liquidity risk, term premium and expectations on the future interest development. Nowa is seen as a nearly risk-free rate and has followed the central bank’s (Norges Bank) key policy rate closely over time. For Nowa to replace Nibor in financial contracts, solutions will be needed to deal with the differences between these two rates. .

This consultation elaborates on how one should handle the different maturities for the two reference rates (term adjustment), different methods on how to calculate the spread between Nibor and Nowa (spread adjustment) as well as what would trigger the use of fallbacks. The report is based on recommendations in the previous reports mentioned above and the feedback received during the consultation period.

The objective for the work on fallback solutions is as follows:

- To the greatest extent possible – seek to find a solution that minimizes value transfer between parties in the case of Nibor being replaced by Nowa.
- To the greatest extent possible – seek to recommend fallback solutions in a way that ensures predictability and minimizes potential conflicts in the case of Nibor being replaced by Nowa.

¹ See [Report with a recommendation for an alternative reference rate in NOK](#) from September 2019.

² See [Market conventions for financial products referencing Nowa](#) and [Establishing an OIS market in NOK](#) from June 2020

- To the greatest extent possible – seek to recommend fallback solutions based on the same principles as the fallback solution for other currencies.

This consultation report enables market participants to give feedback on the recommended fallback solutions. ISDA (International Swaps and Derivatives Association) should also be consulted in terms of fallback solutions for derivatives in Norwegian kroner.

The consultation report “Market conventions for financial products referencing Nowa” mentioned above, this consultation, as well as the received feedback, will form the basis for the final official report. The final official report will encompass the final recommendation on fallback solutions for contracts with Nibor as a benchmark and market conventions for different financial products with Nowa as benchmark. The report will be published before year-end 2020.

3. Legal background

Amendments to the Reference Interest Act came into force on 20 December 2019. The Act changed the title to the Reference Benchmarks Act and implemented the EU Benchmark Regulation (2016/1011)³ into Norwegian law.

Pursuant to Article 28(2) of the Regulation, supervised entities other than an administrator that use a benchmark shall produce and maintain robust written plans setting out the actions that they would take in the event that a benchmark materially changes or ceases to be provided. Where feasible and appropriate, such plans shall nominate one or several alternative benchmarks that could be referenced to substitute the benchmarks no longer provided, indicating why such benchmarks would be suitable alternatives. The supervised entities shall, upon request, provide the relevant competent authority with those plans and any updates and shall reflect them in the contractual relationship with clients.

Pursuant to Article 3(7) of the Regulation, “use of a benchmark” means;

- a) issuance of a financial instrument which references an index or a combination of indices;
- b) determination of the amount payable under a financial instrument or a financial contract by referencing an index or a combination of indices;
- c) being a party to a financial contract which references an index or a combination of indices;
- d) providing a borrowing rate as defined in point (j) of Article 3 of Directive 2008/48/EC calculated as a spread or mark-up over an index or a combination of indices and that is solely used as a reference in a financial contract to which the creditor is a party;
- e) measuring the performance of an investment fund through an index or a combination of indices for the purpose of tracking the return of such index or combination of indices, of defining the asset allocation of a portfolio, or of computing the performance fees.

“Financial contract” is in the Regulation defined as any credit agreement as defined in point (c) of Article 3 of Directive 2008/48/EC (Consumer Credit Directive) and any credit agreement as defined in point (3) of Article 4 of Directive 2014/17/EU (Mortgage Credit Directive). The regulation thus does not apply to credit agreements that are not entered into with consumers, which in the regulation is defined as a “natural person who, in financial contracts covered by this Regulation, is acting for purposes which are outside his or her trade, business or profession”.

“Financial instrument” is in the Regulation defined as any of the instruments listed in Section C of Annex I to Directive 2014/65/EU (“MiFID II”) for which a request for admission to trading on a

³ [Regulation \(EU\) 2016/1011 of the European Parliament and the Council of 8 June 2016](#)

trading venue, as defined in point (24) of Article 4(1) of MiFID II, has been made or which is traded on a trading venue as defined in point (24) of Article 4(1) of MiFID II or via a systematic internaliser as defined in point (20) of Article 4(1) of the said Directive.

On 24 July 2020, the European Commission submitted a proposal to amend the Benchmark Regulation. The aim of this proposal is to ensure that when a widely used benchmark, including a widely used reference rate, is phased out, it does not cause disruptions to the economy and harm financial stability in the EU. This may occur as a result of a public statement from the competent authority for the administrator of that benchmark, in which it is announced that the capability of that benchmark to measure the underlying market or economic reality cannot be restored through the exercise of any of the remedial powers referred to in Article 23 of the Benchmark Regulation. In addition, this may occur as a result of a public statement from the administrator of a benchmark, the competent authority for the administrator of a benchmark or any entity with insolvency or resolution authority over the administrator of that benchmark in which it is stated that the administrator of that benchmark has ceased or will cease to provide that benchmark permanently or indefinitely, provided that, at the time of the issuance of the statement or the publication of the information, there is no successor administrator that will continue to provide that benchmark.

The Commission is therefore proposing amendments to the Benchmark Regulation that will empower it to designate a replacement benchmark that covers all references to a widely used reference rate that is phased out. For example, the Commission could replace any reference to Libor with a reference to a suitable replacement rate. In selecting this replacement rate, the Commission will take into account recommendations made by the relevant industry working groups, such as the "Alternative Reference Rates Committee" (ARRC) for USD Libor or the "Working group on euro risk-free rates" for Euribor/Eonia. The statutory replacement rate will only be available for financial contracts that reference, for example Libor, at the time this benchmark ceases to be published. As the statutory replacement will be a matter of law, contractual conflicts on this issue will be avoided. At the same time, market participants are encouraged to agree on a permanent replacement rate for all new contracts whenever feasible.

The proposed amendment to the Benchmark Regulation is proposed to be included in Chapter 4 as a new Article 23a, and will therefore apply to critical benchmarks only. The proposal will also only apply to contracts involving an undertaking under supervision pursuant to the Benchmark Regulation ("supervised entity"). Contracts that do not involve supervised entities would not benefit from the statutory replacement rate. For such agreements, Member States are encouraged to provide their own statutory replacement rate. At the appropriate time, the European Commission might recommend that national laws supplement the harmonised replacement rate that applies to supervised entities.

4. The working group's assessment and proposed trigger events

The basis for the fallback solution assessed by the working group are the solutions proposed by ISDA, ARRC etc. and adapted to the Norwegian situation.

One important aspect has been to define the trigger events that will lead to Nibor being replaced by the Nowa-based replacement rate (fallback clause). These events are separated into two categories: cessation triggers and pre-cessation triggers.

Cessation triggers are attached to a public announcement saying that the relevant benchmark will cease to be published. A pre-cessation trigger regards an event which will happen earlier, and will trigger the fallback clause without a public announcement on the cessation of the benchmark. An

example of the latter is an announcement by a competent authority stating that the relevant benchmark no longer reflects the economic reality that it intends to measure.

In line with the recommendations from ISDA and ARRC, the working group has decided that the fallback clause for Nibor should be triggered following a public statement from the Administrator (Norske Finansielle Referanser AS - NoRe), The Financial Supervisory Authority of Norway, the court or any entity with insolvency or resolution authority over the Administrator saying that Nibor will cease to be published. Nibor will be replaced with the Replacement Rate based on Nowa from the date Nibor is no longer published, with effect from the first subsequent interest period.

The framework for Nibor published by NoRe states the approach by NoRe in the event that a process is started in order to evaluate whether one or more of the Nibor tenors should be discontinued.⁴ In such a situation a public consultation should take place, taking into account the possible consequences for market participants and the market itself.

The Nibor framework is based on the fact that NoRe initiates and controls the processes in terms of possible amendments. However, this might not always be the case. NoRe might for example be placed under insolvency proceedings or be dissolved by the supervisory authority.

Triggering the fallback clause is under the assumption that a new administrator is not ready to take over as the administrator for Nibor at the time of the announcement. Should a new administrator be ready to take over at this point in time the transition to this entity will follow NoRe's Nibor Transition Policy, i.e. this will not be deemed as a trigger event.

The working group assumes that NoRe is well prepared for the event mentioned above. This would reduce the risk of having a situation where a new administrator is not ready at the time of the announcement of NoRe no longer being the administrator for Nibor.

Regarding pre-cessation triggers, it follows from the benchmark regulation (BMR) article 11 (4) that NoRe may consider that the input data does not represent the market or economic reality that Nibor is intended to measure. If so, NoRe shall within a reasonable time period either change the input data, the contributors or the methodology to ensure that the input data does represent such market or economic reality. Given that NoRe is under public supervision it should be expected that a decision from the supervisory authority on Nibor no longer being representative for what it is intended to reflect should coincide with a decision stating that Nibor will cease to be published. Due to this, the working group has chosen not to recommend any pre-cessation triggers, but rather expects such issues to be resolved through NoRe's obligations via article 11 (4) mentioned above and the Nibor framework in general.

The working group has also assessed the need for a trigger that reflects a situation where Nibor is not published for e.g. 5 consecutive days. Given that such a trigger would deviate from the recommendations by ISDA and ARRC the working group decided not to recommend this. It is also difficult to take into account all possible situations where Nibor is not being published and thereby assessing whether a certain situation should be regarded as a trigger event or not. Should Nibor again be published after some days of cessation it might be the case that some want to change back to Nibor. This could create bilateral conflicts between the parties in a contract.

⁴ See [NoRe's homepage](#) for more information on the Nibor framework.

Question 1: Does your institution support the recommendation from the working group stating that the fallback clause only enters into force when it is officially announced that Nibor for various reasons will cease to be published?

Question 2: Does your institution see the need for pre-cessation triggers?

ARRC and ISDA have in their proposals a definitions of conversion date, which for cessation triggers will be the day where IBOR no longer is published due to a trigger event. The working group has not included a definition of the conversion date in its recommendation but suggests that this is specified in the fallback clause. The replacement rate based on Nowa should apply from the date Nibor is no longer published, with effect from the first subsequent interest period.

Question 3: Does your institution see the need for a definition of conversion date?

The working group has also assessed whether the fallback clause should reflect a situation where one or more of the Nibor tenors cease to exist. This could have been done through a paragraph on for instance interpolation. As described above the working group's conclusion is that such an event should be solved through the Nibor framework.

Question 4: Should the fallback clause reflect a situation where one or more of the Nibor tenors cease to exist?

The working group has assessed whether the fallback clause, and especially the recommendations on spread and term adjustment, should be designed in a way that reflects one single methodology for determining and calculating the replacement rate. The alternative is to design it in a waterfall structure which includes mandatory steps on how to determine and calculate the replacement rate. In the latter case the working group has looked into ARRC's hardwired approach which states that the first step is a forward-looking term rate based on the alternative reference rate.

A common feature of these alternatives is that they are anchored in clear indications and concrete statements from authoritative and normative institutions saying that such a rate/market is in process and development for the relevant benchmark. This is not the case for Nowa. Consequently, the working group does not want to recommend a waterfall structure with a forward-looking term rate based on Nowa as a first step. The working group considers that having one single methodology, which will satisfy the objective on having a predictable fallback clause that to the extent possible seeks to minimise potential conflicts and the risk of value transfer between parties in a situation where Nibor is replaced with Nowa, is to be preferred. This solution will also be in line with the fallback clause recommended by ISDA and ARRC's hedged loan approach.⁵

Question 5: Does your institution support the working group's recommendation on a single methodology for the fallback clause?

The recommended fallback clause is seen as adapted to the fallback clauses recommended by ISDA on derivatives and ARRC for the reference rate USD Libor. The fallback clause should be adapted across different markets and products.

⁵ See «[ARRC recommendations regarding more robust fallback language for new originations of Libor bilateral business loans](#)».

Question 6: Does your institution support the working group's recommendation on the fallback clause being adapted across different markets and products?

As mentioned in chapter 3, the EU-Commission has proposed to amend the BMR giving the Commission the mandate to decide a replacement rate. This only applies for critical benchmarks. Nibor is currently not defined as a critical benchmark. Having a regulated replacement rate for Nibor will contribute positively in terms of negotiating a replacement rate for existing contracts that are linked to Nibor and where a trigger event occurs. It is however outside the working group's mandate to consider whether a competent authority in Norway should have an equivalent mandate for Nibor.

5. The working group's assessments and recommendations for spread- and term adjustments for the cessation of Nibor

5.1 Introduction

Nibor is a set of interest rates with tenors from 7 days to 6 months. The difference between Nibor and Norges Bank's key policy rate can be seen as an average credit premium on the banks that quote Nibor interest rates. Nowa is a 1-day overnight rate and consequently has a smaller credit premium than Nibor. In existing contracts with Nibor as a reference rate, the credit premium is an important component in the valuation of the product, hence the difference between Nibor and Nowa must be adjusted for when replacing Nibor with Nowa as a reference rate to minimise the value transfer between the counterparties.

By replacing Nibor with a fallback rate based on Nowa in a contract, the objective is to make the use of Nowa as similar as possible to the use of Nibor in the same contract. Therefore, the fallback rate for Nibor must both be converted to an interest rate with the same payment structure as the Nibor-period and compensate the receiver of Nibor for the difference between Nowa and Nibor. In the following, the working group has based the term and spread adjustment for Nowa on the answers in the consultation report of 19 June 2020 in addition to similar processes in other countries, including ISDA and Bloomberg's rulebook for Libor Fallbacks⁶.

5.2 How to replace Nibor with Nowa?

If Nibor ceases to exist, we propose the fallback rate to be calculated as Nowa compounded in arrears over the original Nibor tenor plus a spread adjustment to compensate for the expected difference between Nibor and Nowa. The fallback rate can be formulated as:

$$FR_{f,t} = ARR_{f,t} + SA_{f,t}$$

Where

$FR_{f,t}$ is the fallback rate for tenor f on fixingday t

$ARR_{f,t}$ is the average compounded Nowa in arrears for tenor f on fixingday t

$SA_{f,t}$ is the spreadadjustment for tenor f on fixingday t

⁶ See «[libor fallback rate adjustments rule book](#)».

5.3 How to calculate the fallback rate for Nibor based on compounded Nowa

Nowa uses an act/365 day count convention and the interest period is calculated using a modified following convention. To calculate the compounded Nowa average, we propose the following formula:

$$ARR_{f,t} = \frac{360}{365} \times \frac{1}{\delta_{S_{f,t},E_{f,t}}} \times \left[\prod_{u \in AP_{f,t}} (1 + \delta_{u,u+1} \times Nowa_u) - 1 \right]$$

Where

$S_{f,t}$ is the startdate in the interest period for tenor f on fixingday t

$E_{f,t}$ is the enddate in the interest period for tenor f on fixingday t

$\delta_{x,y}$ is the coverage factor from and including day x until but not including, day y

$$\delta_{x,y} = \frac{\text{number of days between } x \text{ and } y}{365}$$

$AP_{f,t}$ all business days in the interest period for tenor f on fixingday t

u is a business day

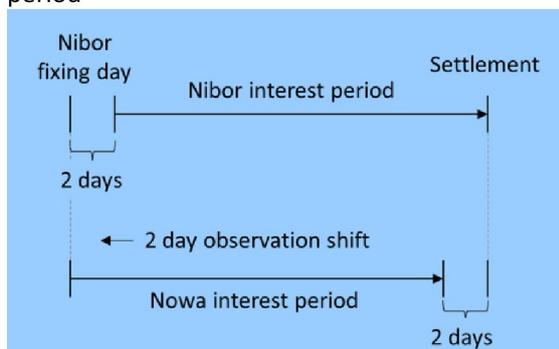
$u + 1$ is the following business day after u

$Nowa_u$ is the Nowa fixing on business day u

5.4 Which interest days are to be used in the calculation

The interest period $AP_{f,t}$ is the same as for the Nibor interest period with a maturity f on fixing day t but the start date and the end date are shifted two business days. Since Nibor reflects the interest rate for a loan that starts two days after the fixing date, the interest period for calculating the compounded Nowa average rate will usually start on day t . See Chart 1 and the examples below.

Chart 1: Interest period for calculating compounded Nowa-rates are shifted two business days relative to the Nibor interest period



In the example below, we use the formulas to calculate the fallback rate for 1-month Nibor fixed on 4 February 2020, interest period start date on 6 February 2020 and interest period maturity on 6 March 2020 using Nowa fixings. We see that in this example the ARR = 1.472%, while 1-month Nibor was at 1.62%.

Date	NOWA	NIBOR 1M	Ant dager	$\delta_{u,u+1}$	$1+\delta_{u,u+1} \times NOWA_u$
04.02.2020	1.49 %	1.62 %	1	0.00274	1.000041
05.02.2020	1.49 %	1.61 %	1	0.00274	1.000041
06.02.2020	1.49 %	1.62 %	1	0.00274	1.000041
07.02.2020	1.49 %	1.64 %	3	0.00822	1.000122
10.02.2020	1.49 %	1.63 %	1	0.00274	1.000041
11.02.2020	1.49 %	1.63 %	1	0.00274	1.000041
12.02.2020	1.49 %	1.63 %	1	0.00274	1.000041
13.02.2020	1.49 %	1.63 %	1	0.00274	1.000041
14.02.2020	1.49 %	1.64 %	3	0.00822	1.000122
17.02.2020	1.49 %	1.64 %	1	0.00274	1.000041
18.02.2020	1.49 %	1.64 %	1	0.00274	1.000041
19.02.2020	1.49 %	1.64 %	1	0.00274	1.000041
20.02.2020	1.49 %	1.64 %	1	0.00274	1.000041
21.02.2020	1.49 %	1.64 %	3	0.00822	1.000122
24.02.2020	1.49 %	1.65 %	1	0.00274	1.000041
25.02.2020	1.49 %	1.64 %	1	0.00274	1.000041
26.02.2020	1.49 %	1.64 %	1	0.00274	1.000041
27.02.2020	1.49 %	1.63 %	1	0.00274	1.000041
28.02.2020	1.51 %	1.62 %	3	0.00822	1.000124
02.03.2020	1.49 %	1.60 %	1	0.00274	1.000041
03.03.2020	1.49 %	1.60 %	1	0.00274	1.000041
04.03.2020	1.49 %	1.56 %	0	0.00000	1.000000

$\left[\prod_{u \in AP_{f,t}} (1 + \delta_{u,u+1} \times NOWA_u) - 1 \right]$	0.001186 =PRODUCT(G4:G24)-1
$\frac{1}{\delta_{S_{f,t},E_{f,t}}}$	12.59 =1/((B25-B4)/365)
$ARR_{f,t} = \frac{360}{365} \times \frac{1}{\delta_{S_{f,t},E_{f,t}}} \times \left[\prod_{u \in AP_{f,t}} (1 + \delta_{u,u+1} \times NOWA_u) - 1 \right]$	1.472 % =G28*G32*360/365

Some examples:

3-month Nibor fixed on Monday 1 June is the rate for the interest period starting Wednesday 3 June and ending Thursday 3 September. When we move the observation period 2 days for the calculation of compounded Nowa, it runs from Monday 1 June to Tuesday 1 September.

1-month Nibor fixed on Thursday 2 July is the interest rate for an interest period from Monday 6 July to Thursday 6 August. The corresponding period for 1-month compounded Nowa average rate is Thursday 2 July to Tuesday 4 August using a 2 day observation shift.

1-week Nibor for Friday 24 July is the interest rate for an interest period from Tuesday 28 July to Tuesday 4 August. The corresponding observation period for 1-week compounded Nowa average rate is Friday 24 July to Friday 31 July using a 2 day observation shift.

5.5 Calculation of the spread adjustment between Nibor and Nowa

The first Nowa fixing using the current fixing methodology was Jan 2, 2020. In order to compare various measures to calculate the spread adjustment between Nibor and Nowa, we have chosen to use Norges Bank's key policy rate as an approximation for Nowa. Due to major changes in the way monetary policy was conducted, we have only looked at data since 2001. We have compared the effect of using a history of 2 years, 5 years or 10 years to calculate the average and the median difference between Nibor and a compounded key policy rate for the Nibor tenor (as an approximate expression for Nowa), see charts 2 and 3. We have also looked at how the average absolute daily deviations between the calculated all-in fallback rates (compounded key reference rate plus spread

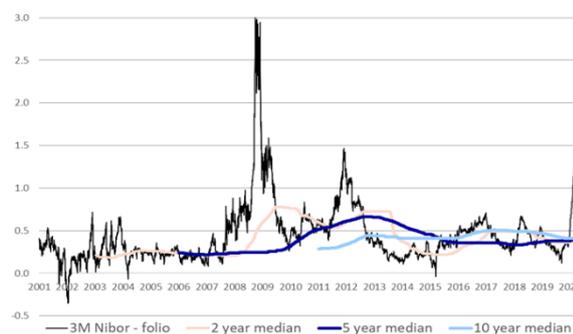
adjustment) and Nibor would have been since 2011 (since the 10-year method needs 10 years of data). For this period, it can be seen that the fallback rate using the median difference for spread adjustment gives a slightly smaller absolute deviation between the fallback rate and Nibor and that the deviation also becomes smaller the more data is used in the estimation (see table 1). Since 2011 the average difference between 3-month Nibor and the compounded key policy rate has been 47 basis points, the median difference with a 5-year history has averaged 48 basis points and has given an average absolute deviation to actual Nibor fixings of 21 basis points.

Chart 2: The difference in percentage points between 3-month Nibor and 3-month compounded key policy rate, and median and average of this difference based on 5 years rolling history



Sources: Bloomberg, Norges Bank and working group's own calculations

Chart 3: The difference in percentage points between 3-month Nibor and 3-month compounded key policy rate, and median differences based on 2, 5 and 10 years rolling history



Sources: Bloomberg, Norges Bank and working group's own calculations

Table 1: The effect of different methods for spread adjustment for 1M, 3M and 6M Nibor on historical data between 2011 and 2020. Basis points.

		Realized Nibor-key policy rate	2 years		5 years		10 years	
			Median	Average	Median	Average	Median	Average
1M Nibor	Average	31	31	33	33	38	33	39
	Absolute deviation		15	15	14	17	13	17
3M Nibor	Average	47	46	48	48	55	45	56
	Absolute deviation		22	23	21	25	18	22
6M Nibor	Average	62	61	63	63	73	60	72
	Absolute deviation		35	35	32	37	27	32

Sources: Bloomberg, Norges Bank and working group's own calculations

Both ISDA and the working groups in the US and UK recommend setting the spread adjustment equal to the median difference between ibor and the compounded alternative reference rates over the last 5 years before ibor is discontinued. Thereafter the spread adjustment will be kept fixed. The use of an average of the difference or a trimmed average where the periods with the highest and lowest difference are removed have also been studied. Various years of data history for calculating the spread adjustment have also been investigated.

The main arguments for choosing a median difference are that it represents a more typical difference and is less vulnerable to extreme values than an average. At the same time, 5 years of

history was found to be sufficient to capture different market situations while the period is not too long and contains a lot of outdated data.

Table 1 above shows the average difference between a fallback rate and Nibor using different calculation methods for the spread adjustment. If Nibor would have ceased to exist, the 14 September 2020 the 5 years median difference between Nibor and the compounded risk-free reference rates would have been:

Table 2: Spread adjustment at cessation of Nibor for different Nibor tenors. Basis points

	Nowa*	Norges Bank's key reference rate
1M Nibor	29	27
3M Nibor	43	42
6M Nibor	53	52

*For Nowa before 1 Jan 2020 the estimated, reformed Nowa has been used. See chapter 5.6.

Sources: Bloomberg, Norges Bank and working group's own calculations

If the 5 year median difference between Nibor and Nowa is chosen as the recommended method for calculating the spread adjustment, the values in table 2 would have been the estimated spread adjustments for a discontinuation of Nibor 14 September 2020.

Based on the above calculations and international harmonization, the Working Group recommends that the spread adjustment if Nibor cease to exist should be calculated as a 5-year median difference between Nibor and the compounded Nowa with a 2day observation shift.

Question 7: Do you support the working group's proposal to use the median difference between Nibor and Nowa for calculating spread adjustment?

Question 8: Do you support the working group's proposal to use a 5-year history for calculating spread adjustment?

5.6 Lack of history in calculation of the spread adjustment

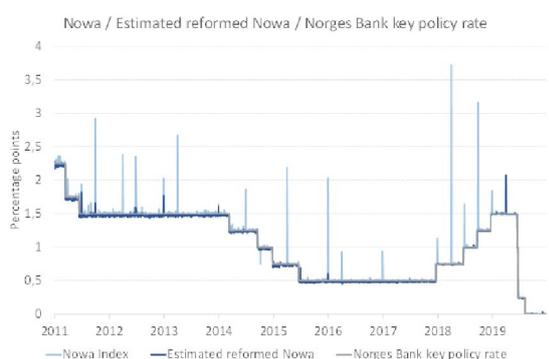
In order to calculate the spread adjustment, in the event of a cessation of Nibor, a sufficient amount of historical Nowa observations are needed. If one chooses a 5-year median difference, a 5-year history is needed for Nowa. The working group for alternative reference rates in NOK (ARR) recommended a reformed version of Nowa as the alternative reference rate for the Norwegian krone in September 2019. As of 2020, Norges Bank took over as the administrator of Nowa and implemented new principles for calculating Nowa.⁷ The new principles for calculating Nowa have meant that the volatility previously seen in Nowa over the quarter- and year-end has been reduced.

Norges Bank has used data from its settlement system (NBO) to estimate what reformed Nowa would have been back in time.⁸ Chart 4 shows Nowa, estimated reformed Nowa and Norges Bank's key policy rate back to 2011. The graph shows that estimated reformed Nowa has been close to the key policy rate and Nowa back in time, except for the increases in Nowa previously seen around the quarter and year-end. Chart 5 shows the same rates compounded with a 3-month tenor.

⁷ [Principles for calculating and publishing Nowa](#)

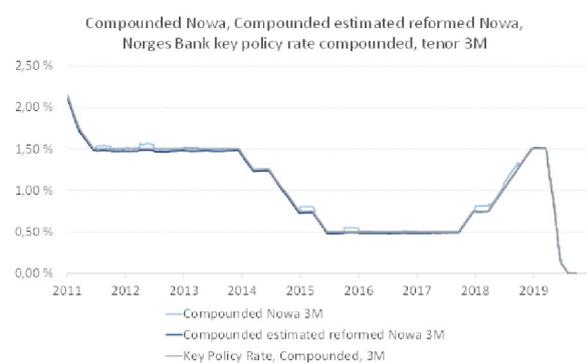
⁸ See [Norges Bank Paper 3/2019](#) for more details on the data and method being used.

Chart 4: Nowa, estimated reformed Nowa and Norges Bank's key policy rate from 2011 onwards



Sources: Norges Bank and working group's own calculations

Chart 5: Compounded Nowa, compounded estimated reformed Nowa and Norges Bank's key policy rate compounded over a 3 month-period



Sources: Norges Bank and working group's own calculations

This shows that compounded estimated reformed Nowa follows the key policy rate more closely back in time compared with compounded Nowa.

As the reformed Nowa is expected not to show the same increases at the quarter- and year-end as have been observed historically, it will most likely, be better to use estimated reformed Nowa historically for the period before 2020.

The working group has calculated a 5-year median difference between Nibor and compounded Nowa, compounded reformed Nowa and Norges Bank's key policy rate over a rolling 3-month period respectively. The choice of data source gives a difference of approximately 3 basis points over the last 5 years, where estimated reformed Nowa gives rise to the biggest difference to Nibor, Nowa gives rise to the smallest difference and the compounded key policy rate has, for the most of the time, been hovering between the two.

The differences observed are expected to decrease as time goes by. It is also worth mentioning that the choice of method (for example median or average) as well as the time period used (for example 2 years, 5 years, or 10 years) is expected to have a greater impact than the choice of data source.

The working group recommends using estimated, reformed Nowa as the data source for the period before 2020 for calculating the spread adjustment between the alternative reference rate and Nibor in an event of a cessation of Nibor.

Question 9: Does your institution support using estimated, reformed Nowa as the data source before 2020 for calculating the spread adjustment between the alternative reference rate and Nibor in the event of a cessation of Nibor?

5.7 Term adjustment for Nowa

The replacement rate for Nibor is, as mentioned in chapter 5.2, comprised of a compounded Nowa over the original Nibor period plus a spread adjustment. In the consultation report of 19 June 2020 on market conventions for the use of Nowa, the majority of respondents answered that the preferred convention for calculating a Nowa average over a given Nibor period is a compounded average with a 2 days observation shift.⁹ Observation shift also enables the use of the proposed return index for Nowa. ISDA's replacement rate is also calculated with a 2 days observation shift. In addition, ARRC's recommended market convention for floating rate bonds is to use observation

⁹ See «[Summary of responses](#)»

shift, as well as ARRC's recommended "Hedged Loan Approach" where the replacement rate in corporate loans linked to a derivative is also ISDA's replacement rate.

The working group recommends that the replacement rate for Nibor be calculated as the daily compounded Nowa rate with a 2-day observation shift plus the spread adjustment as set out in chapter 6.5.

Question 10: Does your institution support that the replacement rate for Nibor is calculated as daily, compounded Nowa with a 2 day observation shift plus a spread adjustment?

5.8 Day convention for the replacement rate

The day convention for Nibor and Nowa are actual/360 and actual/365 respectively. If Nibor is the benchmark in a loan agreement, it naturally follows that the total interest the borrower must pay, i.e. Nibor plus a margin, must also use a day convention corresponding to actual/360. If Nowa is the reference rate in a loan agreement, it follows correspondingly that the total interest rate the borrower must pay uses the day convention actual/365. When the replacement interest rate for Nibor in a fallback is defined as:

$$FR = ARR + SA$$

Where ARR is the compounded Nowa average for the Nibor period, the replacement interest rate FR will also be an interest rate with a day convention actual/365. In other words, not the same day convention as Nibor, the interest rate it is intended to replace. If no adjustments are made, FR must therefore be calculated with actual/365 in the loan, while the original margin over Nibor is multiplied by actual/360 to calculate the term amount in the loan. Such a difference in calculation between the reference rate and the margin seems unnecessarily complicated. Therefore, you have two choices to find a total interest rate in the loan contract with one day convention:

1. Adjust the replacement rate, *FR*, from a 365 rate to a 360 rate.
2. Adjust the margin in the loan agreement from day convention 360 to 365.

By converting the replacement rate to a 360 interest rate, it can be included in all Nibor agreements without further adjustments to the agreements. FR will thus be a direct replacement for Nibor. The method described for calculating the spread adjustment in section 5.2 above converts the compounded Nowa interest rate, ARR, to the same day convention as Nibor. This corresponds to ISDA's method (as described in Bloomberg's technical document) where FR is converted to the same day convention as the interest rate it is intended to replace. However, for some institutions it may seem unnecessarily complicated to convert compounded average Nowa to a 360 interest rate at each interest payment. In option 2, the Nowa 365 convention is retained. The advantage of this is that you can use the calculated period interest rate directly without converting to a 360 interest rate. The disadvantage of this method is that the agreed margin in the loan agreement must be adjusted to a 365 convention. Then the choice of replacement interest rate will not only affect the reference interest rate in a loan agreement, but also the margin over Nibor.

The working group recommends that the replacement rate, FR defined in section 5.2, be converted to the same day convention as Nibor, since this is the interest rate it is intended to replace.

Question 11: Does your institution support the replacement rate being converted into the same day convention as Nibor?

6. The working group's proposals for a fallback clause

Based on the assessments in Chapter 4 above, the working group's proposal is that the fallback clause only enters into force when it is official that Nibor for various reasons will cease to be published. The replacement interest rate will thus apply from the time the publication of Nibor ceases and with effect from the first subsequent interest period. Where Nibor can be adjusted within The Nibor Framework, there will be no trigger event and the clause will not enter into force. The same applies to the cessation of one or more of the tenors, as this will presumably be resolved through The Nibor Framework.

Based on the working group's assessments and proposals, the fallback clause can be formulated as follows:

«In the event of a public statement from the Administrator, The Financial Supervisory Authority of Norway, the court or any entity with insolvency or resolution authority over the Administrator, that Nibor will cease to be published or that the Administrator will cease to provide Nibor, provided that, at the time of the latter statement there is no successor administrator that will continue to provide Nibor, the parties agree that Nibor will be replaced with the Replacement Rate from the date Nibor is no longer published, with effect from the first subsequent interest period.»

*«**Administrator**» means the administrator of Nibor.*

*«**Replacement Rate**» means the sum of The Term Adjusted Nowa and The Spread Adjustment Factor for the relevant Nibor tenor.*

*«**The Term Adjusted Nowa**» means the daily compounded Nowa rate with a 2 day observation shift multiplied by 360/365.*

*«**The Spread Adjustment Factor**» means a 5 year median difference between the compounded Nowa interest rate with a 2 day observation shift, and Nibor.*

The working group's proposals are generally designed in accordance with the proposals for triggers, spread and term adjustments for USD Libor, GBP Libor, EUR Libor, Euribor CHF Libor among others that most likely will be included in the forthcoming "supplement to the 2006 ISDA Definitions" and in the "ISDA 2020 IBOR Fallbacks Protocol". As mentioned in chapter 2, ISDA shall be consulted with regard to fallback solutions for derivatives in Norwegian kroner, e.g. with a view to incorporating a fallback clause for Nibor into ISDA's standard documentation for derivatives. The precondition is that the working group's proposals are in accordance with the principles for fallback solutions for other currencies as proposed by ISDA and calculated and published by Bloomberg Index Services Limited ("BISL"). This has also been the working group's objective and it is the group's assessment that the proposal in this chapter is consistent and harmonized with ISDA's terminology and therefore well adapted for practical implementation.

Question 12: Does your institution support the proposed fallback clause? Please suggest changes, if any.

Question 13: Are there any other matters your institution would like to comment that are not already covered in questions 1-12?

7. Summary of the questions

<i>Question 1: Does your institution support the recommendation from the working group stating that the fallback clause only enters into force when it is officially announced that Nibor for various reasons will cease to be published?</i>
<i>Question 2: Does your institution see the need for pre-cessation triggers?</i>
<i>Question 3: Does your institution see the need for a definition of conversion date?</i>
<i>Question 4: Should the fallback clause reflect a situation where one or more of the Nibor tenors cease to exist?</i>
<i>Question 5: Does your institution support the working group's recommendation on a single methodology for the fallback clause?</i>
<i>Question 6: Does your institution support the working group's recommendation on the fallback clause being adapted across different markets and products?</i>
<i>Question 7: Do you support the working group's proposal to use the median difference between Nibor and Nowa for calculating spread adjustment?</i>
<i>Question 8: Do you support the working group's proposal to use a 5-year history for calculating spread adjustment?</i>
<i>Question 9: Does your institution support using estimated, reformed Nowa as the data source before 2020 for calculating the spread adjustment between the alternative benchmark interest rate and Nibor in the event of a cessation of Nibor?</i>
<i>Question 10: Does your institution support that the replacement rate for Nibor is calculated as daily, compounded Nowa with a 2-day observation shift plus a spread adjustment?</i>
<i>Question 11: Does your institution support the replacement rate being converted into the same day convention as Nibor?</i>
<i>Question 12: Does your institution support the proposed fallback clause? Please suggest changes, if any.</i>
<i>Question 13: Are there any other matters your institution would like to comment that are not already covered in questions 1-12?</i>

Disclaimer

Tables, charts and calculations included in this consultation have been prepared in the working group's best judgment and are based on sources that the working group finds reliable. However, neither the working group nor Norges Bank is responsible for any calculation or data errors that may exist in the consultation. Market participants are themselves responsible for their own calculations based on the proposed formulas.