The Evolution of STIBOR
SFBF Consultation Paper
Analysis of Stakeholder Feedback

April 2021

SWEDISH FINANCIAL BENCHMARK FACILITY

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This paper offers further discussion on the proposed clarification of the STIBOR definition and revision of the STIBOR calculation methodology. Recipients of this paper are responsible for making their own assessments of the proposals.

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Executive Summary

On 1st March 2021, the SFBF published its first consultation paper on the clarified definition and revised calculation methodology of STIBOR. The consultation period closed on 31 March 2021 and the SFBF received 6 responses from a range of institutions including banks, an infrastructure provider, and a government owned enterprise.

At the launch of the consultation process the SFBF sent notification of the consultation process to the known users of STIBOR and provided all the consultation details on its website. The SFBF acknowledges that there was a limited response from stakeholders which, in its opinion, indicates that most stakeholders were accepting of the proposed adjustments to evolve STIBOR. Reviewing the responses in general terms:

i. Clarification of STIBOR's underlying interest and definition

The feedback was overall supportive of the proposed adjustments. Some feedback suggested that the revised definition was vaguer than the current definition and the definition could be further clarified with the continued use of the term "willing to lend" in place of "applied" which would more accurately reflect STIBOR as a cost of funds (COF) rate with the addition of a Bid to Offer Spread.

Having analysed the stakeholder feedback, the SFBF has determined to move forward with the clarified definition as presented in the consultation paper.

ii. Revision of the STIBOR calculation methodology

The revised STIBOR calculation methodology was generally accepted. There was some request for clarification on the process for managing transactional data and the ability of the contributing panel banks to adjust their estimated cost of funds rate and Bid to Offer Spread. The application of expert judgement was also noted as being undesirable and additional information on the application of expert judgement was sought.

With respect to the risk of contract frustration arising from the clarification of the STIBOR definition stakeholder responses indicated that the adjustments will be generally accepted reducing the risk of contract frustration.

Having analysed the stakeholder feedback, the SFBF has determined to move forward with the revised STIBOR calculation methodology. In response to feedback the SFBF will be making some minor adjustments to the STIBOR calculation methodology document to clarify some elements.

iii. Proposed counterparty types for contributed transactional input data

The proposed counterparty type was generally accepted although the inclusion of non-financial corporations was noted as being potentially problematic given the current negative interest rate environment and banks' terms for receiving deposits from non-financial corporations. There was also feedback that the threshold for transactional volume could be set at a lower level to increase the number of transactions used for the calculation of STIBOR.

Having analysed the stakeholder feedback, the SFBF will move forward with the proposed counterparty type for panel bank reported transactions and the threshold for transactional volume, being SEK100m or equivalent in foreign currency.

iv. Financial product modifications resulting from a revision to the STIBOR calculation methodology.

None of the respondents indicated a need to adjust their financial product offerings because of the revision to the STIBOR calculation methodology. One respondent noted that the SFBF should provide a synthetic historic data set to facilitate the update of risk models.

The SFBF notes the stakeholder feedback. The SFBF will be unable to produce the synthetic historical STIBOR values for reasons detailed later in this analysis.

v. Continuation of STIBOR publication at 11:00am

All stakeholders supported the continued publication of STIBOR at 11:00am.

The SFBF intends to maintain the current STIBOR publication time of 11:00am.

vi. Proposed publication of quarterly benchmark transparency indicators

Stakeholders supported the publication of benchmark transparency indicators with some proposing that the frequency of reporting be monthly and not quarterly.

The SFBF notes the stakeholder feedback and has determined to review the benchmark transparency indicator information with the aim of increasing the timeliness and frequency of benchmark transparency indicator publication.

vii. Other comments

Stakeholders provided some additional feedback for the SFBF's consideration. It was noted that the proposed discontinuation of publishing individual panel bank contributions could be problematic for stakeholders. The revised STIBOR calculation methodology, with its two-step process of calculating panel banks' cost of funds and the application of the Bid to Offer Spread, would benefit from having greater transparency which could be achieved by the SFBF continuing to publish individual panel bank contributions.

The SFBF will consider the feedback regarding the publication of individual panel bank contributions.

Introduction

On 1st March 2021, the SFBF published its first consultation paper on the proposed clarified definition and revised calculation methodology of STIBOR. By providing details of the work the SFBF has been undertaking to evolve STIBOR the SFBF was keen to receive feedback from a broad range of stakeholders. The consultation period closed on 31st March 2021 with the SFBF receiving 6 responses from a range of institutions, including banks, an infrastructure provider, and a government owned enterprise.

This document summarises the respondents' feedback to the SFBF's questions. Direct quotations from stakeholder feedback is presented in italicised text.

Feedback to the questions in the consultation paper

Question 1

a) Do you consider that the SFBF's clarification of STIBOR's underlying interest provides enough transparency and allows stakeholders to understand its definition and decide on its use?

The feedback was overall supportive of the proposed adjustments with some additional suggestions for the SFBF's consideration.

It was identified by one respondent that the clarified definition of STIBOR did not reveal anything about the revised STIBOR calculation methodology to be transaction-based cost of funds instead of indicative prices. In response to this observation the SFBF had, in preparation for the consultation, given considerable thought to the clarified definition including whether a brief description within the definition of the revised STIBOR calculation methodology would be useful for stakeholders. The SFBF concluded that the definition of STIBOR should be a concise statement allowing for all users to understand what STIBOR is intended to measure . The SFBF is of the opinion that adding additional information on the design of the STIBOR calculation methodology was not required for users to understand STIBOR, as the STIBOR calculation methodology will be fully transparent and available to users. Therefore, to maintain a concise definition the current proposed definition was prepared.

Another respondent suggested that the term "willing to lend" be retained in the clarified definition in preference to the use of "applied". The SFBF in its deliberations on the revised definition considered the term "willing to lend" to be subjective and that using "applied" was therefore preferable.

Another respondent commented that *"The definition could be seen as vague compared to the former definition as the measure spans over the waterfall in time and source. It's not a specific rate, at a specific time and not being tradeable. It is quite possible misunderstanding will occur both among professionals and in public understanding"*.

The SFBF is confident that the clarified definition improves users' understanding of STIBOR when compared with the current definition. The SFBF also chose to remove the reference to individual tenors within the definition to cater for any future adjustments to the STIBOR tenors which could be achieved without the need to make further changes to the clarified definition.

b) Do you consider that the SFBF's clarification of STIBOR's definition will be generally accepted by stakeholders and counterparties to transactions that reference STIBOR and therefore minimise the risk of contract frustration?

One respondent commented that the proposed definition of STIBOR is less explanatory than the existing one but should be generally accepted in the absence of alternatives to STIBOR. There were no other responses to this specific question.

Based on the support and feedback received, the SFBF has decided the following as the final version of the clarified STIBOR definition:

"STIBOR is a measure of the interest rate applied by panel banks for unsecured lending in Swedish krona (SEK) to leading banks[1]".

Question 2

a) Do you consider that the SFBF's revision of the STIBOR Calculation Methodology will be generally accepted by stakeholders and counterparties to transactions that reference STIBOR and therefore minimise the risk of contract frustration?

Generally, the feedback from respondents was supportive of the revision to the STIBOR calculation methodology. Some additional clarification was sought such as one respondent stated that the revision of the methodology "*will be generally accepted but ask for clarification on the capabilities for panel banks to adjust contributions that are not representative of their true SEK funding cost. A bank can obtain funding in other currencies than SEK that is not necessarily used as funding of the SEK-related operations, i.e., not de-facto swapped to SEK. Basing the methodology on the assumption that panel banks in full swap funding in other currencies to SEK (which is not always the case) could at times lead to contributions of STIBOR that are not reflecting the bank's true funding costs. Will panel banks be able to adjust the cost of funds rate that is based on reported transactions, i.e., level 1 and 2, and if so, how"?*

In considering this response the SFBF returns to the primary objective of revising the STIBOR calculation methodology that being to use actual transactions where available for the calculation and limit the use of expert judgement to the greatest extent possible.

In designing the revised calculation methodology, the SFBF made the decision to apply a standardised treatment of all reported transactions. Level 1.1 transactions in SEK are used as reported with a volume weighted average determined for each panel bank's transactions for each tenor. Level 1.2 transactions in foreign currencies will be converted to SEK using the WM/Reuters 4:00pm London time foreign exchange rates on day t and a volume weighted average calculated for each panel bank's reported transactions for each tenor. It is recognised that not all foreign currency transactions concluded by panel banks will be converted into SEK by the panel banks and some of those transactions may be managed as a portfolio of transactions and converted into SEK at some later point in time. Therefore, the real panel bank cost of funding is likely to differ from the SFBF calculated estimated cost of funds for each panel banks. The SFBF has determined that using the standardised treatment for all reported transactions is the most consistent approach that can be practically applied by the SFBF. Level 2 applies further modelling techniques to maximise the use of the reported transactions over a period of 6 days (t to t-5). The SFBF will present to each panel bank the SFBF's calculated estimated cost of funds for each tenor via its calculation agent system displayed with the default Bid to Offer Spread. Panel banks will be unable to adjust the SFBF calculated estimated cost of funds.

Panel banks will be allowed to adjust the default Bid to Offer Spread by applying their expert judgement under two scenarios as described in the consultation paper and STIBOR calculation methodology. When a panel bank has no transactions to report to the SFBF and no calculation can produce a cost of funds for a specific tenor the panel bank will be requested to contribute their own estimated cost of funds using their own methodology applied to their chosen mix of currency funding.

b) Are there any aspects of the STIBOR Calculation Methodology for which you would like clarification by the SFBF? If yes, please elaborate.

Some stakeholders sought clarification on certain aspects of the proposed revised STIBOR calculation methodology.

One stakeholder asked: *It is not clear to us if there are no transactions should the levels then be based only on CD and CP issuance prices? In a scenario where a bank has no interest to receive any funds for different reasons, they will most likely post CD/CP levels below the market. How do you look upon that?*

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[1] A leading bank is defined as a bank of investment grade credit rating that is a participant in money and foreign exchange markets on competitive terms

The SFBF recognises that a panel bank's cost of funding will vary according to its own specific liquidity requirements. When a panel bank is more passive in attracting funding, this will of course be reflected in lower CD/CP issuance levels. Such a movement in funding levels is in line with a methodology based on cost of funds plus a Bid to Offer Spread. After all panel bank tenors have been calculated using either reported transactions, level 2 modelling adjustments or contributed cost of funds under level 3 a topping and tailing process is applied prior to the final arithmetic mean being determined. This process will remove outliers, which might occur as described in this stakeholder feedback example.

Another stakeholder responded that: *On page 11 it is stated that "actual transactions being provided directly to SFBF as administrator to calculate an estimated Panel Bank cost of funds". Is that only for control purposes or is it a part of the methodology, i.e. that the panel banks responsibility is to provide transactions so that SFBF can compute the official STIBOR quotes for each panel bank? To summarize: I don't think it is crystal clear if the Panel bank is responsible for providing a computed STIBOR quote backed by provided evidence or if the responsibility for the computations rely on SFBF based on the information from every Panel Bank. If the banks are supposed to provide an already computed STIBOR, how do you ensure that all the banks use the exact same techniques in the different steps in the waterfall.*

For clarification panel banks will be required to report their transactions to the SFBF for the purpose of allowing the SFBF to calculate the estimated individual panel bank cost of funds using the standardised STIBOR calculation methodology. The STIBOR calculation methodology will be applied, using the SFBF calculation agent system, in accordance with the level 1 and level 2 methodology.

On page 17, the STIBOR computation is outlined with outlier removal techniques based on number of reporting panel banks. My wonder is how many potential panel banks on the Swedish Money Market there is? Will they be the same as in the current STIBOR framework? It feels like it is pretty unlikely that they are 9 or more? Could be written something about the presence of potential number of panel banks.

Currently there are 7 contributing banks within the panel. The STIBOR calculation methodology has been drafted to cater for an increase in the number of panel banks without the need to adjust the methodology. The SFBF would welcome an expansion of the panel should more banks wish to participate.

I would like to have a short clarification added in lever 3 to the difference on issuance prices for CDs and CPs in lever 3 to the executed prices on the same instruments in level 1.2. I guess you refer to money market offered prices that are indicative?

As previously stated, reported transactions will be used by the SFBF for the level 1 and level 2 calculations. Level 3 requires the application of expert judgement by each panel bank. Panel banks will have a range of market information to assist them in determining their cost of funds level that they contribute. Each panel bank will determine their contributions based on an applicable funding mix of indicative and firm issuance prices in the prescribed currencies with an appropriate weighting given to each. The SFBF will be providing additional guidance to panel banks to assist them in utilising the market data available to them. In addition, panel banks will be required to submit to the SFBF information, in the form of metadata, to support their level 3 contributions. This control measure will assist the SFBF in validating the input data provided by the panel banks and will be a source of detailed information for the regular review of the methodology by the SFBF and the SFBF Oversight Committee.

If the BO-spreads in step 2 are fixed on the levels on page 16 why not let SFBF add them when the CoF is reported by the panel banks without spread adjustment.

The STIBOR calculation methodology states that the default Bid to Offer Spread will be applied to the estimated cost of funds rates either calculated by the SFBF for levels 1 or 2 or as provided by the panel banks for level 3. The application of the Bid to Offer Spread will be applied by the SFBF. Panel banks will be allowed to adjust the default Bid to Offer Spread in accordance with the two defined criteria prior to the Bid to Offer Spread being applied in the calculation. The SFBF is not permitted to adjust the Bid to Offer Spreads used for the daily STIBOR determination, although the appropriateness of the value of the default spread will be reviewed on a regular basis by the SFBF and potentially can be adjusted following such reviews.

One other stakeholder responded*: Level 1.1: The value of a deposit will differ depending on the counterparty is a corporate or a financial, a corporate will be valued higher in regards to LCR, which can lead to volatility.*

The SFBF recognises that the revised STIBOR calculation methodology is likely to increase the volatility of STIBOR values, to some limited extent. Historic data modelling indicates that this volatility is unlikely to be significant and the topping and tailing process will dampen excessive volatility. A limited increase in volatility is a trade-off to using a broader pool of actual transactions as input data, as well as reducing the application of expert judgement, to the greatest extent possible.

Level 1.2: Issuance of CP and CD´s should only include banks as counterparties (Dealers) but in the consultation, there is several counterparty types mentioned, why?

The SFBF acknowledges that differing counterparty types will transact with the panel banks at varying rates. This is an acceptable approach in the view of the SFBF and is consistent with the methodology adopted by other administrators of IBORs. As previously stated, the ambition of the revised methodology is to capture as many transactions as possible for the calculation of STIBOR and limiting counterparty types to banks alone would greatly reduce the number of applicable transactions.

Level 3: CP and CD quotes mentioned as "market issuance price" and that is unclear as it interprets as actual issuance when it should be quotes. We note that the current minimum requirement of 50% SEK have been removed in the basket.

The SFBF acknowledges that the use of the language "market issuance price" may be misleading and will make a correction in the finalised version to clarify this element.

The consultation paper states that Panel banks are required to estimate their cost of funds rate via quotes of CP and CD´s by determining the correct percentage weighting applicable to eligible currencies that represent their "basket funding mix". It is unclear how to handle this and we are seeking guidance.

As stated previously the SFBF will be providing additional guidance to assist panel banks with their level 3 determination.

Underlying interest spread adjustment: We find the decided bid-to-offer spreads somewhat arbitrary and would like to see more clarity on how the spreads have been decided. Who will decide on adjustments to the spreads going forward? Also, we question if it is reasonable to assume the same spread for all panel banks at a given point in time.

As detailed in the consultation paper the SFBF received two-years of transaction data from the panel banks for analysis. The proposed default Bid to Offer Spread was set at the same levels as the bid to offer spreads currently used for the trading window (as described in section 3.5 of the STIBOR Panel Bank Code of Conduct)[2]. Applying the proposed revised STIBOR calculation methodology and the default Bid to Offer Spread to the transactional data provided by the panel banks allowed the SFBF to create synthetic STIBOR values for comparison to the published STIBOR values over the 2-year period. The resultant data indicated the value of the synthetic STIBOR was similar to the published STIBOR values indicating that the spread values were set at the correct level.

The default Bid to Offer Spread will be reviewed on an ongoing basis by the SFBF and thought is currently being given to determine the most suitable criteria for determining the appropriate value of the default Bid to Offer Spread. The frequency of panel bank adjustments to the Bid to Offer Spread will also be an indicator for the ongoing reviews as to the correctness of the spread settings. The SFBF will apply the same default Bid to Offer Spread for all panel banks as the individual panel bank pricing of their CP and CD issuance will vary in response to several factors including the panel bank's credit rating.

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[2] As the revised STIBOR calculation methodology will reference transactions for the day prior (day t) to the calculation and publication of STIBOR the trading window will cease to be available upon the introduction of the revised methodology.

The SFBF has defined two specific scenarios where panel banks may be allowed to alter their BOS. This means that spreads will be (too) stable even during stressed market conditions, for example the beginning of the Covid outbreak.

The SFBF acknowledges that stressed markets can cause volatility in prices which will flow through to some increased STIBOR volatility. The criteria for panel banks to adjust their Bid to Offer Spread will ensure that the STIBOR rates are not below the perceived term rate structure determined by the floor created by the Riksbank O/N deposit rate and will also cater for panel bank balance sheet pressures, particularly around year end.

Another stakeholder responded: *As described in the consultation, banks obtain a large degree of funding in foreign currencies. As the new definition and methodology will prioritize transactions, which in the majority of cases will be in foreign currencies, the rates will to a lesser degree account for the availability of SEK liquidity in the Swedish system. This affects contributions that are based on level 1 and 2, as the 50% SEK funding estimation used in the current Code of Conduct is no longer applied in the contributions based on those levels in the waterfall. If there is a crisis on other markets while not in Sweden, the impact will to a large degree translate into the STIBOR submissions while the actual SEK rates might be less affected.*

What is the consideration of such impact on STIBOR from the SFBFs side?

The use of foreign currency funding converted to SEK, could under specific market conditions, produce a derived rate that the panel bank considers is not truly representative of their final lending rate when applying the default Bid to Offer Spread. Again, the two stated criteria for the default Bid to Offer Spread to be adjusted provides the panel banks with a limited, but useful, ability to adjust the Spread.

The removal of reference to 50% SEK funding estimate is inevitable at level 1 and level 2 because the input data waterfall applies the EU BMR requirement of basing contributions on actual transactions where possible. It should be noted that if a SEK deal is concluded at level 1.1 it takes priority over a foreign currency transaction concluded on the same day. At level 3, a contribution based on the panel bank's judgement will be determined by the panel bank applying its own methodology for the calculation of its cost of funds rate based on a funding mix of appropriate currencies with an applied percentage weighting.

Another stakeholder responded: *The measure of the panel bank's source of funding is transparent when it comes to transaction based submitted values but the further it deviates from transactions the more oblique the definition becomes.*

Using level 1,1 and 1,2 the T+1 transactions would create a lag compared to the present Stibor methodology and contract rates based on Stibor. The impact of these changes needs to be analyzed before implementing.

With the use of level 2,3 foreign funding rates that have previously used in the calculation of level 1 contributions adjusted for MAF movements in the responding future rates will affect Stibor fixings despite the very weak correlations with Swedish fixing rates and could be adding unnecessary volatility to the fixing.

Six-month rates are more likely to be subject to level 3 contribution since they are omitted from level 2,2 and 2,2 contributions.

Overall, the contributions deriving from funding other currencies than SEK will likely to be more dependent on foreign interest rates and FX volatility leading to more volatility in the Stibor fixing and valuations based on Stibor. An analysis of this effect would be required to evaluate the new fixing method.

The input data waterfall prioritises panel banks' contributions anchored to transactions. When there are insufficient transactions to produce a contribution using levels 1 and 2 the panel bank is required to contribute their cost of funds using the application of expert judgement. The STIBOR calculation methodology remains consistent in requiring an input based on an estimated cost of funds rate plus the default Bid to Offer Spread. This revision to the calculation methodology is more prescriptive than the current methodology. The new methodology solely uses transactions from day 't' so there is no mix with day 't+1'. The SFBF appreciates that the transition to the new methodology will need to be managed prudently, but precedence has been set previously with other IBOR methodology revisions. Structurally the SEK market is heavily reliant on foreign currency funding, there being very limited pure SEK activity. The weak correlation referred to in the stakeholder's response is not the reality of the situation. To maximise the use of transactions and therefore reduce input data solely based on expert judgement the use of an appropriate Market Adjustment Factor (MAF) keeps such reported transactions from previous days relevant. As witnessed with reform of other IBOR benchmarks, some increase in volatility is the result of increasing the transaction pool. The point made regarding the six-month tenor is correct for level 2.1 but not for level 2.2.

Question 3

a) Do you agree with the SFBF's proposal for counterparty types to the transactions to be used in the calculation of the Panel Bank's estimated cost of funds?

The proposed counterparty type was generally accepted although the inclusion of non-financial corporations was noted as being potentially problematic given the current negative interest rate environment and banks' terms for receiving deposits from non-financial corporations.

One respondent stated: *Not sure if it is included in the counterparty type but when a bank issue a CP/CD it is often done through a dealer and who the buyer of the CP/CD is not known to the issuing bank.*

The SFBF understands that when panel banks are issuing CDs and CPs through a dealer program the final buyer may not be known to the issuing bank. Under such circumstances the counterparty type be reported as the name of the respective dealer.

Another respondent stated: *Non-financial corporations is a category that is difficult to take into account for funding cost references, as such counterparties seldomly would be charged with negative rates on their deposits. Instead, they would be charged with fees. Thus, even in a negative interest rate environment, banks would rarely charge non-financials negative interest rates on their deposits, and the interest rate on such deposits would therefore not reflect the true cost of funding for the bank. Hence, we suggest that non-financial corporations are excluded for the determination of the Panel Bank's estimated cost of funds.*

Will there be a minimum-level of volume for transactions that are weighted into the benchmark?

The SFBF is of the opinion that the inclusion of corporate deposit transactions, as witnessed for other IBOR benchmarks, was considered appropriate as a way of increasing the pool of referenced transactional input data. The SFBF has determined, through discussions with the panel banks, that the minimum size of SEK 100m or equivalent in foreign currency is large enough to capture the key corporate counterparties and to importantly exclude retail client transactions. It is worth noting that as a result of the European Money Market Institute's (EMMI's) review of the EURIBOR calculation methodology in 2020 the minimum transaction size for EURIBOR has been reduced from EUR 20m to EUR 10m (EUR 10m being close to SEK 100m). This provides further guidance to the SFBF that the minimum threshold of SEK 100m is appropriate.

b) If not, on what basis would you seek to add or exclude any counterparty type for the determination of the Panel Bank's estimated cost of funds? Please provide your rationale.

Respondents referred to their responses to question 3 a) above.

Question 4

For institutions developing products referencing STIBOR or users of such products, what modifications, if any, do you anticipate will be required to those products as a result of the introduction of the revised STIBOR Calculation Methodology?

Most respondents did not anticipate any modifications would be required to products referencing STIBOR.

One respondent commented: *Since Stibor is the dominant reference rate for SEK Interest Rate Exchange - and OTC traded derivatives the valuations will be affected by a change of the Stibor calculation methodology.*

A complete synthetic historic data set needs to be provided to facilitate up-date of risk models used for margin requirement calculations. Correlations and volatility associated with the new methodology and calculation *might be altered and needs to be analyzed and tested in risk models. Risk managers need to be able evaluate data to anticipate changes of the new methodology.*

The primary objective of the revised STIBOR calculation methodology is to maximise the use of transactional input data for the determination of the estimated panel banks' cost of funds rate with the application of the Bid to Offer Spread to produce a STIBOR lending rate. The SFBF has analysed historical transactional evidence provided to it by the panel banks for the purpose of testing the design of the revised methodology and to measure the change in value and volatility from previous STIBOR determinations in general terms. Whilst the SFBF is of the opinion that the historical transactional evidence provided was adequate for the purposes of testing the methodology design the SFBF considers that the transactional data provided, and resultant test STIBOR values, would not be suitable for publication. Therefore, the SFBF will not be publishing an historical data set of synthetic STIBOR.

It should also be noted that the historical STIBOR rates published are the official record of STIBOR values. Although the SFBF anticipates some variation in value and volatility of STIBOR with the application of the revised STIBOR calculation methodology the anticipated variations are not expected to be significant and therefore do not present a risk of contract frustration.

Question 5

a) Do you have any objection to the publication time of STIBOR being 11:00am as per the current modus operandi? Please provide your rationale.

Stakeholder feedback indicated support for the continuation of the 11:00am publication time for STIBOR. The SFBF therefore intends to maintain the 11:00am publication time.

b) Are the proposed quarterly benchmark transparency indicators suitable for your information purposes?

Generally, stakeholder feedback was supportive of the proposed publication of benchmark transparency indicators. One respondent thought the frequency of publication should be monthly and not quarterly. The same respondent stated: *Furthermore, STIBOR submissions should be published as daily, individual contributions (not indicating the level used in the waterfall but only showing the final submission). If not possible, statistics on the daily contributions should be published indicating highest, lowest, median and average submission, and for both COF and BOS. If not possible on all tenors, at least the 3M tenor*

The SFBF will consider this feedback in the context of supporting transparency for all stakeholders and users of STIBOR.

c) Is a quarterly frequency for the publication of the quarterly benchmark transparency indicators suitable for your information purposes?

Generally, stakeholders were supportive with some request for monthly reporting.

d) Is the maximum delay of 3 months from the date of STIBOR determination the appropriate period of delay for publishing the quarterly benchmark transparency indicators?

Generally, stakeholders were supportive with some request for only a one-month delay.

Question 6

SFBF as the administrator of STIBOR will continue to pursue the adjustments to STIBOR's definition and calculation methodology with the highest degree of transparency and due diligence. Do you see or anticipate any other area not included in this Consultation Paper that should be addressed by the SFBF? Should you have any recommendations, please provide your feedback.

One respondent suggested that the SFBF consider producing reference rates for SEK interest rate swaps for contracts that reference swaps. Another respondent requested the continuation of the publication of individual panel bank contributions.

The SFBF will consider this feedback.

Other comments.

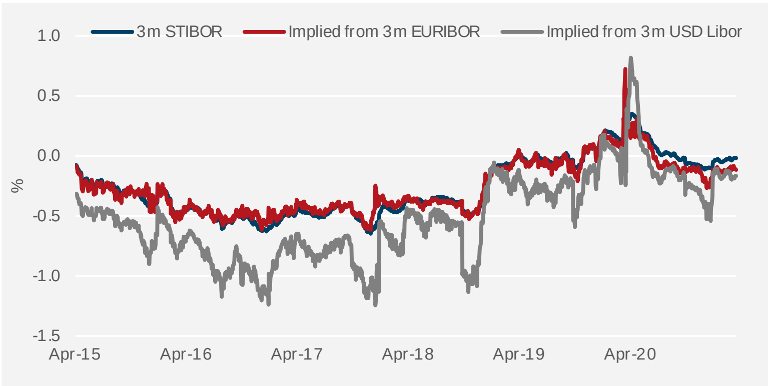
One respondent offered some further comments on the proposed revised STIBOR calculation methodology.

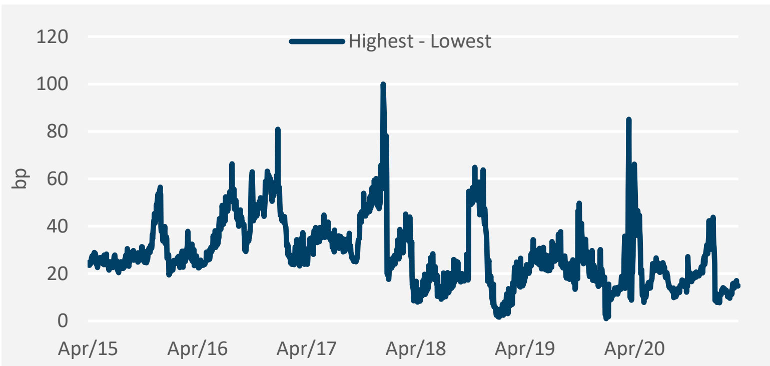
Back-testing results: As we understand it, SFBF has done a back-testing of the new calculation methodology, but has not provided the results. We would like to see as much data as possible from the back-testing to further understand the implications of the new methodology. Foremost, the resulting Stibor levels, to compare against the current fixing methodology, but also fixings for each panel bank (anonymous). We find that more transparency regarding the calculation method is beneficial in this process.

Volatility in fixings: We are concerned that the inclusion of a more direct connection between issuance of foreign CP and Stibor contribution will result in a significant more volatile and unpredictable fixings.

For 3m Stibor (the most important fixing in our view), we note that the "Reliance on respective methodology levels" (Figure 5, page 21 "The Evolution of STIBOR – SFBF Consultation paper") indicates that only a fraction of the input to 3m STIBOR stems from Level 1.1 transactions and a majority from funding in foreign currency.

Below we have illustrated the 3m FX implied rate based on 3m Euribor and 3m USD Libor (as a proxy) to highlight our concerns. As can be seen, the deviations in the implied 3m SEK rate can vary significantly depending on currency. Hence, depending on the currency used in the reported transactions, the implied SEK rate (and hence Stibor input) can vary significantly from day to day.





The FX-forward market is also volatile. While the effect of year-end can be mitigated by adjusting the Bid-To-Offer spread (as suggested on page 16, "The Evolution of STIBOR – SFBF Consultation Paper") we find it worth highlighting that the FX-forward market may experience volatility other times of the year as well. This may again generate large differences between implied SEK rates from foreign currency transactions and hence more volatility in the fixing.
More volatile fixings will have implications for derivatives markets reliant on Stibor, such as FRAs and IRS markets. These markets are currently the most liquid and important Swedish fixed income markets where market participants (such as corporations, life & pension sector and asset managers) trade and hedge interest rate risk.

From a market-making perspective, a volatile fixing will make it more difficult to assess near-term developments of the fixing and hence make it more difficult to trade. This may in the end result in lower liquidity in the marketplace, which then will have a negative impact on end users.

Possible mitigations:
Moving average: A moving average (e.g. 1 week) in the calculations may dampen the day-to-day fluctuations in fixings.

Using SEK CP levels: Allowing a larger share of the input to be based on SEK CP levels (even if not transacted) will also likely dampen the day-to-day volatility. Similar to today where at least 50% of Stibor contribution has to be local SEK funding rates.

As indicated in the consultation paper the SFBF will soon commence receiving panel bank more transactional data for further analysis. The transactional data will be provided to the SFBF in the format described in the revised STIBOR calculation methodology. Panel banks are required to develop internal reporting systems to provide the data to the SFBF and these developments will be completed by the panel banks over the coming weeks and months. The SFBF will commence the application of the revised STIBOR calculation methodology to the transactional data as it is received as a first stage of analysis. The second stage analysis will commence when all panel banks are reporting their transactional data coupled with the level 3 contributions of COF and application of the default Bid to Offer spread, or an adjusted spread if applied by the panel banks as part of their test contributions.

Using this complete test data set the SFBF will be in a position to produce test STIBOR values determined from the actual transactional data and level 3 contributions. The SFBF anticipates being able to make these test results available in Q3 2021, but the exact timing of publication will be dependent upon the receipt of the complete data set for testing purposes.

The revision of the STIBOR calculation methodology to have a greater reliance upon actual transactions is expected to increase the volatility of STIBOR. An increase in volatility has been apparent in other reformed IBOR benchmarks.

With respect to the impact of using foreign exchange rates to convert foreign currency CD and CP issuance prices as stated earlier in this analysis of stakeholder feedback (question 2a) the SFBF believes that applying a consistent approach to the treatment of foreign currency reported transactions is preferrable. The consequence of such an approach is likely to be an increase in volatility, although the anticipated volatility of STIBOR will be reduced through the application of the topping and tailing of final calculated contributions.

The ability of panel banks to adjust the Bid Offer Spread for the two stated criteria is desirable to manage exceptional circumstances. The limiting of the application of adjustment is in line with the ambitions of EU BMR, Recital 26:

"Any discretion that can be exercised in providing input data creates an opportunity to manipulate a benchmark. Where the input data is transaction-based data, there is less discretion and therefore the opportunity to manipulate the data is reduced. As a general rule, benchmark administrators should therefore use actual transaction-based input data where possible but other data can be used in those cases where the transaction data is insufficient or inappropriate to ensure the integrity and accuracy of the benchmark".

With respect to applying a moving average to the methodology the SFBF is not supportive of the concept. A moving average would by definition reduce the volatility compared to a single day calculation but would also reduce the ability of STIBOR to reflect movements in the underlying interest in a timely manner.

With respect to the weighting of SEK and foreign currencies within the panel bank level 3 contributions the SFBF will receive contributions determined by each panel bank's applied methodology. Additional guidance will be provided by the SFBF for level 3, but this will not be prescriptive with regard to the funding mix that panel banks should apply. Each panel bank will provide metadata to support their level 3 contributions. The metadata will be retained by the SFBF for ongoing analysis of panel banks' contributions that might assist in the development of more prescriptive guidelines for level 3 contributions if this was considered desirable.

Riksbank response to the consultation paper.

On 31 March 2021, the Riksbank published comments in response to the SFBF consultation paper. The Riksbank's comments focussed on the proposed revised STIBOR calculation methodology and concerns that although a transition to a greater reliance on transactions is planned the low volume of transactions would require STIBOR to continue to be reliant upon expert judgement. The published comments didn't specifically respond to questions tabled in the SFBF consultation paper so the SFBF's response is presented in general terms.

The following comments address the specific statements within the Riksbank response

Reference rates in global transition
The introduction of the ESMA-EBA Principles for Benchmark-Setting Processes in the EU (June 2013), the IOSCO Principles for Financial Benchmarks (July 2013) and the EU BMR in 2016 all recognised the need for benchmarks to be able to utilise contributed input data that relied to varying extents on discretion and expert judgement.

The foundation of the principles and regulation was to minimise the opportunity for manipulation of benchmarks through the management of conflicts of interest and the application of appropriate control and accountability frameworks including an independent oversight function. The SFBF as administrator of STIBOR and through the STIBOR Panel Bank Code of Conduct ensures that the contributors to STIBOR meet the requirements of EU BMR. BMR caters for various information sources to be used by contributors for determining their input data. The following definitions from BMR clarify this:

> Article 3, 1. (13) - 'expert judgement' means the exercise of discretion by an administrator or a contributor with respect to the use of data in determining a benchmark, including extrapolating values from prior or related transactions, adjusting values for factors that might influence the quality of data such as market events or impairment of a buyer or seller's credit quality, and weighting firm bids or offers greater than a particular concluded transaction
>
> Article 3, 1. (14) - 'input data' means the data in respect of the value of one or more underlying assets, or prices, including estimated prices, quotes, committed quotes or other values, used by an administrator to determine a benchmark
>
> Article 3, 1 (15) - 'transaction data' means observable prices, rates, indices or values representing transactions between unaffiliated counterparties in an active market subject to competitive supply and demand forces

STIBOR is too rarely calculated using actual transactions
The SFBF acknowledges the challenges to reform IBORs and transition them to a greater reliance on transactional input data when financial intermediaries have less requirement to fund themselves through money market transactions. As stated in the STIBOR consultation paper it is well known that the STIBOR panel banks utilise a variety of funding options available to them including the issuance of foreign currency certificates of deposit and commercial paper. The revised STIBOR calculation methodology will capture those transactions and through the use of the level 1 and 2 methodology create individual estimated panel bank cost of funds and apply the default Bid to Offer Spread to create the STIBOR contribution. Panel banks will

only be required to contribute their cost of funds when a lack of transactional input data prohibits the production of a STIBOR tenor for that panel bank.

The SFBF's analysis of the transactional data provided by the panel banks, with the application of the revised STIBOR calculation methodology, indicated that the use of expert judgement by the panel banks has been reduced to the greatest extent possible.

The SFBF recognises that the STIBOR Tom/Next tenor will rely upon expert judgement, to a large extent. The development of the SWESTR rate by the Riksbank may provide market participants and other users of STIBOR with an alternative reference rate that users may wish to transition towards. A transition away from Tom/Next STIBOR to the overnight SWESTR rate will need to be decided by market participants and users of STIBOR rather than it being a decision for the SFBF. Should such a transition occur there may develop the case where Tom/Next STIBOR is no longer required. As such a time a planned cessation of Tom/Next STIBOR could be proposed by the SFBF in accordance with the requirements of BMR. In the meantime, the SFBF recognises the importance of Tom/Next STIBOR in the settlement of local currency derivative products and the requirement therefore, for it to be maintained to avoid any unnecessary market disruption.

On 16 April 2021, the Riksbank announced its intention during the third quarter of 2021, to start calculating and publishing backward-looking average rates, and an index, based on the Riksbank's transaction-based reference rate SWESTR. In the related consultation, the Riksbank proposes that averages are produced for time periods of 1 week, 1 month, 2 months, 3 months and 6 months. It is proposed that averages and an index are published every business day, either at the same time as or just after publication of SWESTR. The exact time of this publication will be announced later in 2021. The Riksbank states that the average rates can be used in new financial contracts but are also an important part of a so-called fallback solution for the STIBOR.

Calculation of STIBOR in two stages lacks transparency

The SFBF notes the comments from the Riksbank regarding the need for transparency on the application of the two-stage methodology – cost of funds plus application of a Bid to Offer Spread. The SFBF will consider the best approach to support transparency for users of STIBOR to understand the application of the Bid to Offer Spread and how to communicate when the spread is adjusted in accordance with the two permissible criteria. The SFBF will also be reviewing the frequency and magnitude of spread adjustments. The development of the backward-looking average rates based on SWESTR may provide suitable indicators (STIBOR/SWESTR spread) to assist the SFBF with its analysis of the default Bid to Offer Spread values and panel bank adjustments. The intention of the design of the criteria for Bid to Offer Spread adjustment is to limit the frequency of the adjustments so that the predominant application of the STIBOR calculation methodology utilises the default spreads. During the analysis of actual transactional data and the application of a test level 3 contributions the SFBF can analyse the use of the spread adjustment prior to the launch of the revised STIBOR calculation methodology.

In support of transparency the SFBF will consider publishing an indicator detailing the number of spread adjustments on each particular day, without reference to the identity of the panel bank, or panel banks, making adjustments. The frequency and value of adjustments to the default Bid to Offer spreads by panel banks will be a useful indicator to the SFBF for its ongoing review of the default spread settings.

Important that STIBOR is reported with a high degree of transparency

The SFBF will consider the timeliness and frequency of the publication of the benchmark transparency indicators. There was feedback to support greater frequency and a reduced time lag for the publication of the benchmark transparency indicators. The SFBF notes this feedback and will consider how the timeliness and frequency of the publication can be improved for the benefit of all stakeholders and users of STIBOR.

List of respondents

The SFBF appreciates the stakeholder feedback on the SFBF's first consultation paper on the clarification of the STIBOR definition and revision of the STIBOR calculation methodology. Only one respondent requested anonymity in their response. In accordance with the SFBF's Consultation Policy their name is not included in the list below.

Organisation	Sector
Akademiska Hus	Government enterprise
Danske Bank	Credit institution (panel bank)
Insurance Sweden*	Industry association
NASDAQ	Market infrastructure provider
Riksbank	Central Bank
Swedbank	Credit institution (panel bank)

* Acknowledged the consultation paper but had no specific feedback to communicate to the SFBF.