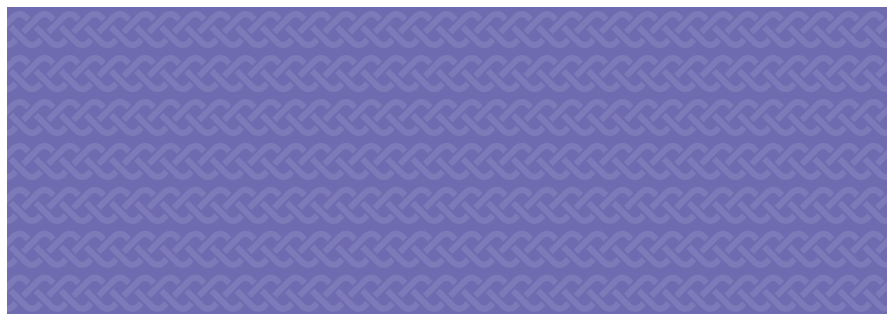




Summary and response to market feedback

Supporting Risk-Free Rate transition through the provision of compounded SONIA

Updated July 2020



Executive summary

The Bank of England recently published a discussion paper on how it could support Risk-Free Rate (RFR) transition in sterling markets through the provision of compounded SONIA.¹

Views were sought on: the Bank's intention to publish a daily SONIA Compounded Index; and the usefulness of the Bank publishing a simple set of compounded SONIA "period averages". This document summarises the feedback received and sets out the Bank's response.

In total 41 organisations provided responses to the discussion paper. The Bank is grateful to all contributors for their input.

There was near-unanimous support for the Bank's intention to produce a SONIA Compounded Index. Respondents agreed that an index could help to provide a standardised way of calculating compounded rates, particularly for less sophisticated counterparts who may not have access to detailed financial data. There was also a high degree of support for the proposed methodology, with a number of respondents citing the alignment with other similar RFR-based indices (in particular the SOFR Index) as positive for supporting international consistency.

The Bank therefore confirms that it will produce the SONIA Compounded Index using the methodology described in the discussion paper and set out below. The Bank anticipates that it will commence the publication of the SONIA Compounded Index in early August. The precise date will be confirmed in due course.

A number of respondents suggested additional indices or data that might be produced by the Bank. The Bank has reviewed these proposals carefully, and is also aware of ongoing discussions on how best to use RFRs in sterling and non-sterling loan markets. Any further work in this area would however require both a definitive market consensus on specific additional conventions, and a clear cost/benefit case. Consistent with the design principles of simplicity and wide utility set out in the discussion paper, the Bank is not therefore minded to produce additional indices or data at this time.

On the question of the Bank producing a set of "period averages", the Bank made clear in the discussion paper that without sufficient consensus on their usefulness and on the conventions underpinning such rates, it was unlikely to opt to publish such averages. Responses to the discussion paper were very mixed on this topic. While a relatively narrow majority were broadly supportive of the broad concept of period averages, there was no consensus on the choice of methodology. A number of those respondents noted they would not use them in financial contracts. And a significant minority – including all trade bodies who responded (representing a range of banks, intermediaries and small and large end users) – said the Bank should not produce such period averages. Therefore, in line with the position set out in the discussion paper, the Bank will not produce SONIA period averages at this time.

¹ www.bankofengland.co.uk/-/media/boe/files/paper/2020/supporting-rfr-transition-by-providing-compounded-sonia.pdf

Contents

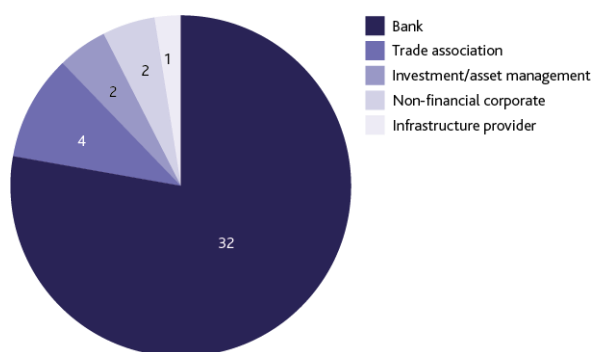
Executive summary	1
1 Introduction	3
2 SONIA Compounded Index	4
2.1 Summary of feedback	4
2.2 The Bank's position	5
2.3 Design and policies to be adopted	6
2.3.1 Calculation methodology	6
2.3.2 Publication	6
2.3.3 Republication	7
2.3.4 Calculating compounded SONIA rates from the Index	7
2.4 Implementation	7
3 SONIA period averages	8
3.1 Summary of feedback	8
3.2 The Bank's position	9
Annex 1 – Worked example of calculating compounded SONIA rates	10

1 Introduction

1 In February 2020, the Bank published a Discussion Paper (“the DP”) seeking views on the Bank’s intention to publish a daily SONIA Compounded Index and the usefulness of the Bank publishing a simple set of compounded SONIA period averages.²

2 Responses were received from 41 stakeholders, the large majority of whom were banks and other financial institutions (**Chart 1**). The trade associations who responded represent a range of banks, intermediaries and small and large end users. Anonymised responses are published on the Bank’s website.³

Chart 1 Distribution of respondents



3 This document summarises the main feedback from respondents; explains how the Bank has responded to this feedback; and sets out next steps for how the Bank will continue to support Risk-Free Rate transition.

4 Section 2 covers the SONIA Compounded Index, including the final methodology and associated policies. Section 3 covers period averages.

This document was updated in July 2020 to reflect a change to how the SONIA Compounded Index is presented. The updates are a new paragraph 12, amendments to paragraphs 18 and 20, and to the Annex.

² www.bankofengland.co.uk/-/media/boe/files/paper/2020/supporting-rfr-transition-by-providing-compounded-sonia.pdf

³ www.bankofengland.co.uk/-/media/boe/files/paper/2020/supporting-rfr-transition-through-the-provision-of-compounded-sonia-dp-responses

2 SONIA Compounded Index

5 The aim of the SONIA Compounded Index is to simplify the calculation of compounded interest rates and in doing so provide a standardised basis through its publication as an official source. Conceptually, the SONIA Compounded Index is equivalent to a series of daily data representing the returns from a rolling unit of investment earning compound interest each day at the SONIA rate. The change in the SONIA Compounded Index between any two dates can be used to calculate the interest rate payable over that period.

2.1 Summary of feedback

6 Feedback was near-universally supportive of the Bank producing a SONIA Compounded Index, with only one respondent of 41 not in favour. Respondents saw the introduction of an Index by the Bank as a positive step forward, and something that would play a valuable role in RFR transition by helping to provide a standardised way of calculating compounded rates and allowing end-users to validate interest rate calculations produced by financial institutions.

7 Respondents supported the Bank's proposed methodology for the SONIA Compounded Index. A number emphasised the benefits of international consistency given the similarities to the SOFR Index's calculation methodology.

8 Respondents noted the compatibility of the proposed SONIA Compounded Index with the 'observational shift' convention for providing payment certainty but not with the 'observational lag' approach. Respondents did not see this as an impediment to proceeding, as the market for products developed before the delivery of the index could continue as before. Some respondents felt the production of the SONIA Compounded Index could be a catalyst for a switch in the offset convention for products currently using the observational lag approach.⁴

9 A number of respondents asked the Bank to produce an additional variant of the SONIA Compounded Index which could be used by contracts which do not allow negative rates to be paid. This feature is currently relatively common in loan facilities.

10 There was also a request from two respondents for the Bank to publish SONIA Compounded Index data for non-good business days.

11 On a detailed design point, there was broad support for the number of decimal places that the index would be published to, although some saw merit in increasing the granularity even further.

12 During the period of external testing with licensees prior to publication commencing, it became apparent that some infrastructure providers' systems, while able to cope with the necessary number of significant figures the SONIA Compounded Index was calculated to, were unable to handle data with more than eight decimal places (as the SONIA Compounded Index was originally proposed to be).

⁴ Since the formal feedback period closed, discussions about how best to reflect compounded RFRs in loan agreements have continued, both in the United Kingdom and internationally. Some of the options under consideration in other jurisdictions include the use of the observational lag methodology. As noted in the DP, such lag methodologies would not be compatible with the proposed design of the SONIA Compounded Index

2.2 The Bank's position

13 Given the clear and supportive feedback received to the DP, the Bank confirms that it will produce the SONIA Compounded Index using the methodology described in the discussion paper and set out below in Section 2.3.

14 The Bank recognises that market participants will continue to follow developments in the evolution of loan markets, both domestically and internationally, especially where they are directly impacted by the desire to have consistency across currencies and jurisdictions. Within the UK, work on how best to reflect SONIA in contracts is being coordinated by the Working Group on Sterling Risk-Free Reference Rates,⁵ working with similar international groups. A potential outcome of that work is that parts of the sterling loan market adopt conventions which are incompatible with the SONIA Compounded Index. While this means the SONIA Compounded Index may not then be usable by the widest range of participants in sterling markets, the Bank judges that a sufficiently wide range of stakeholders will still be able to use it to meet the Bank's 'wide utility' design principle.

15 Regarding the publication of SONIA Compounded Index data in respect of non-business days, as noted in the DP, if a user had an interest period which started or ended on a non-good London business day the contract would have to define a method of interpolation based on the SONIA rates published for the adjacent good business days. There are a number of ways that this could be done, and correspondingly a number of ways that the SONIA Compounded Index values for non-good business days could be calculated.

16 For the Bank to consider the production of additional indices or data there would need to be a definitive market consensus on the specific additional conventions and a clear cost/benefit case. The Bank would then assess the proposals against a number of factors, including the design principles set out in the DP:

- Simplicity – any measures produced should be few in number, easily understood and capable of unambiguous application; and
- Wide utility – any measures produced should be usable by a wide range of stakeholders across different parts of the economy.

17 Consistent with these design principles, the Bank is not minded to produce additional indices or data at this time.

18 The SONIA Compounded Index will be rounded to 11 significant figures for publication. The base of the SONIA Compounded Index will be 100.00000000, rather than 1.0000000000 as originally proposed. The use of the SONIA Compounded Index to calculate specific compounded SONIA rates is unaffected by this change. This method of presenting the SONIA Compounded Index maintains the same precision as before but is compatible with a wider range of infrastructure providers' systems. This ensures the SONIA Compounded Index is made available to all users in a consistent form, regardless of where they access the data from, supporting the 'simplicity' design principle. In calculating the SONIA Compounded Index each day, the Bank confirms it will do so rounded to 18 decimal places (21 significant figures) with that more precise value then used in the calculation of the subsequent day's index. We judge this approach balances accuracy and ease of use.

⁵ www.bankofengland.co.uk/markets/transition-to-sterling-risk-free-rates-from-libor

2.3 Design and policies to be adopted

19 The final design and the relevant policies to be adopted for the SONIA Compounded Index are set out below. These will be incorporated into the SONIA Key features and policies document when the Bank commences publication of the SONIA Compounded Index.⁶

2.3.1 Calculation methodology

20 The SONIA Compounded Index will be calculated as:

$$SONIA\ Compounded\ Index_i = SONIA\ Compounded\ Index_{i-1}^* \times \left(1 + \frac{SONIA_{i-1} \times a_{i-1}}{365}\right)$$

Where:

SONIA Compounded Index_i = The index for date *i*, calculated and publishing on date *i*, rounded to 8 decimal places (*SONIA Compounded Index₁* = 100.00000000 published on 23 April 2018)

SONIA Compounded Index_{i-1}^{}* = The index for business day *i-1*, calculated on business day *i-1*, rounded to 18 decimal places

SONIA_{i-1} = The SONIA rate for business day *i-1*, calculated and publishing on business day *i*

a_{i-1} = The number of calendar days for which *SONIA_{i-1}* applies. This is equal to the number of calendar days between business day *i-1* and business day *i*

21 The illustrative series of SONIA Compounded Index data, which should not be considered official published rates, has been updated to end May 2020, see: www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/illustrative-sonia-compounded-index.

2.3.2 Publication

22 Publication of the SONIA Compounded Index will be aligned with the processes for SONIA and incorporated into the existing licensing arrangements.⁷ This means at the commencement of publication:

- The SONIA Compounded Index for a given London business day will be first made available to licensees at 09:00 on that business day.
- Authorised redistributors of the SONIA Compounded Index will include:
 - Bloomberg Ticker: SONCINDX
 - ICE Group Ticker: [tbc]
 - Refinitiv RIC: .SONIA
Screen: SONIA
- Firms who access the data on a timely basis via authorised redistributors and are using the data for their own internal business purposes will not need a direct licence with the Bank.

⁶ www.bankofengland.co.uk/markets/sonia-benchmark/sonia-key-features-and-policies

⁷ See Section 3 of www.bankofengland.co.uk/markets/sonia-benchmark/sonia-key-features-and-policies

- Each day's SONIA Compounded Index data will be made freely available via the Bank of England's Interactive Statistical Database⁸ by 10:00 on the business day after it is first published. Reproduction of these data in the Database are subject to the terms of the UK Open Government Licence,⁹ allowing and encouraging free and flexible data reuse.

2.3.3 Republication

23 Reflecting that the primary input into the calculation of the SONIA Compounded Index is SONIA, the SONIA Compounded Index will only be republished if either SONIA is republished,¹⁰ or an error is identified in the calculation of the SONIA Compounded Index.

24 The republishing deadline is midday on the day that the relevant SONIA Compounded Index data is first published. Once this has passed, no amendments will be made to that day's SONIA Compounded Index data under any circumstances.

2.3.4 Calculating compounded SONIA rates from the Index

25 To calculate the compounded SONIA rate for any reference period, the SONIA Compounded Index values for the start and end date of the reference period are combined in the following formula:

$$\text{Compounded SONIA rate between } x \text{ and } y = \left(\frac{\text{SONIA Compounded Index}_y}{\text{SONIA Compounded Index}_x} - 1 \right) \times \frac{365}{d}$$

Where:

x = start date of the reference period

y = end date of the reference period

d = the number of calendar days in the reference period

26 Annex 1 provides a worked example of calculating compounded SONIA rate using the SONIA Compounded Index.

2.4 Implementation

27 The Bank anticipates it will commence publication of the SONIA Compounded Index in early August 2020. The precise date will be confirmed in advance.

28 Shortly following its first publication, the Bank will publish the full series of the SONIA Compounded Index data from 23 April 2018 on the Bank's Interactive Statistical Database.¹¹

⁸ www.bankofengland.co.uk/boeapps/database/

⁹ www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

¹⁰ See Section 6.1 of www.bankofengland.co.uk/markets/sonia-benchmark/sonia-key-features-and-policies

¹¹ www.bankofengland.co.uk/boeapps/database/

3 SONIA period averages

29 The DP also referred to the possibility of the Bank publishing daily a simple set of SONIA period averages. These would have the merit of further reducing the calculations that most users would have to perform, making them an even simpler way of getting compound rates than using the SONIA Compounded Index. However, that convenience would come at a cost, as it is not possible to generate a simple set of period averages that will always reflect precisely the same time periods as currently used in products which reference SONIA. These small differences in how time periods are defined would lead to differences in the calculation of interest. There were also a range of ways of defining the time periods to be used in such period averages.

30 In the DP, we noted that in order for the Bank to take on the cost of administering and publishing a set of period averages:

“we would require sufficient market consensus on how to define the reference periods. The Bank’s current view is that failure to reach consensus on such conventions could introduce further fragmentation and complexity undermining the potential benefits of publishing SONIA Period Averages; failing the ‘wide utility’ design principle. Given this, in the absence of a clear market consensus it is likely the Bank would choose not to publish period averages at this time.”

3.1 Summary of feedback

31 Feedback on the merits of the Bank producing SONIA period averages was mixed. 25 respondents (61%) supported the Bank doing so, while 16 (39%) were against, including all the trade bodies who responded (**Chart 2**).

32 Going beyond the binary yes/no responses, where a rationale for the answer was provided the picture was even less conclusive (**Chart 3**):

- Although supporting their production, a number of respondents noted that they (or their clients) would not use period averages in financial contracts, albeit they could be helpful to build familiarity with the behaviour of term SONIA rates.
- The majority of those not in favour of the Bank producing period averages viewed them as at best a distraction (as unlikely to be used contractually), but at worst a development that could cause confusion and fragmentation in the adoption of SONIA in contracts.

Chart 2 Do you support the publication of period averages?

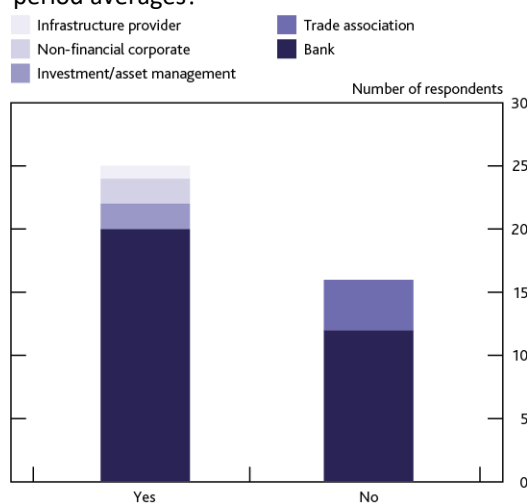
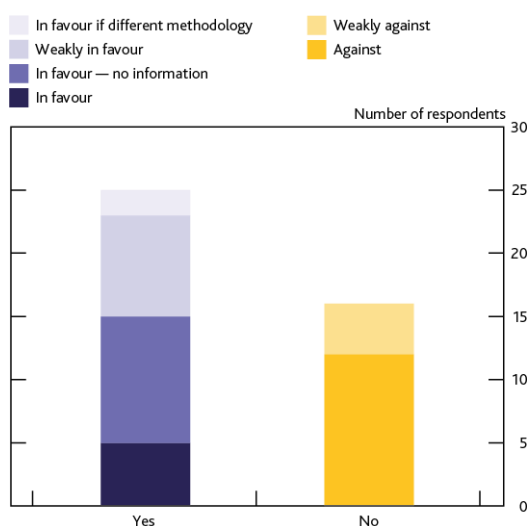
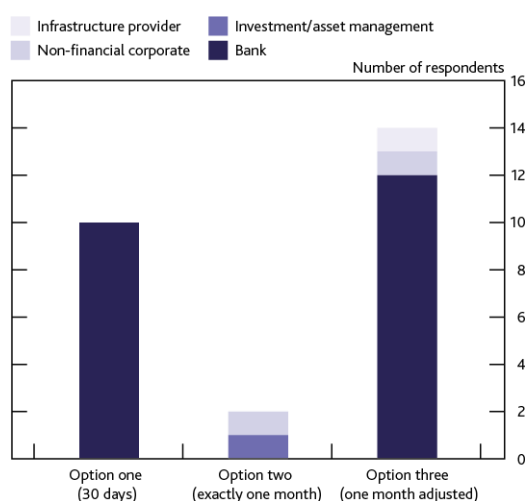


Chart 3 Do you support the publication of period averages? (by sentiment)



33 In the DP the Bank set out three possible methodologies for how the reference periods could be defined. These reference periods would then be used to calculate the relevant period average rates. As can be seen from **Chart 4**, there was no clear consensus as to which was preferable. Indeed, two respondents proposed different methodologies beyond those set out by the Bank.

Chart 4 Preferences for reference period methodology



3.2 The Bank's position

34 Given the lack of consensus on either the usefulness of producing period averages or the convention used to calculate them, consistent with the position set out in the DP the Bank will not produce SONIA period averages at this time.

35 Should the market views become more unified on both the utility of period averages and the methodology for defining the reference periods, the Bank would be open to considering this question again. As with any such proposal, its merits would be assessed against the two design principles of 'simplicity' and 'wide utility', along with any other factors the Bank thought relevant at that time.

Annex 1 – Worked example of calculating compounded SONIA rates

The table below contains the SONIA rate and illustrative SONIA Compounded Index data for the period Monday 6 January 2020 to Monday 13 January 2020.

Publication date	SONIA value date	SONIA rate	Calendar days applicable	SONIA Compounded Index value date	SONIA Compounded Index
Mon 06/01/20	Fri 03/01/20	0.7110%	N/A	Mon 06/01/20	101.14238727
Tue 07/01/20	Mon 06/01/20	0.7124%	1	Tue 07/01/20	101.14436135
Wed 08/01/20	Tue 07/01/20	0.7120%	1	Wed 08/01/20	101.14633436
Thu 09/01/20	Wed 08/01/20	0.7124%	1	Thu 09/01/20	101.14830852
Fri 10/01/20	Thu 09/01/20	0.7123%	1	Fri 10/01/20	101.15028243
Mon 13/01/20	Fri 10/01/20	0.7117%	3	Mon 13/01/20	101.15619931

The calculations below illustrate how the compound rate for a loan drawn on Monday 6 January 2020 and repaid on Monday 13 January 2020 could be calculated using the SONIA Compounded Index.

$$\begin{aligned}
 \text{Compounded rate (using the Index)} &= \left(\frac{\text{SONIA Compounded Index}_{13/01/20}}{\text{SONIA Compounded Index}_{06/01/20}} - 1 \right) \times \frac{365}{d} \\
 &= \left(\frac{101.15619931}{101.14238727} - 1 \right) \times \frac{365}{7} \\
 &= 0.7121\%
 \end{aligned}$$