Summary of Responses to the ISDA Consultation on Final Parameters for the Spread and Term Adjustments

PREPARED FOR

International Swaps and Derivatives Association ("ISDA")

PREPARED BY

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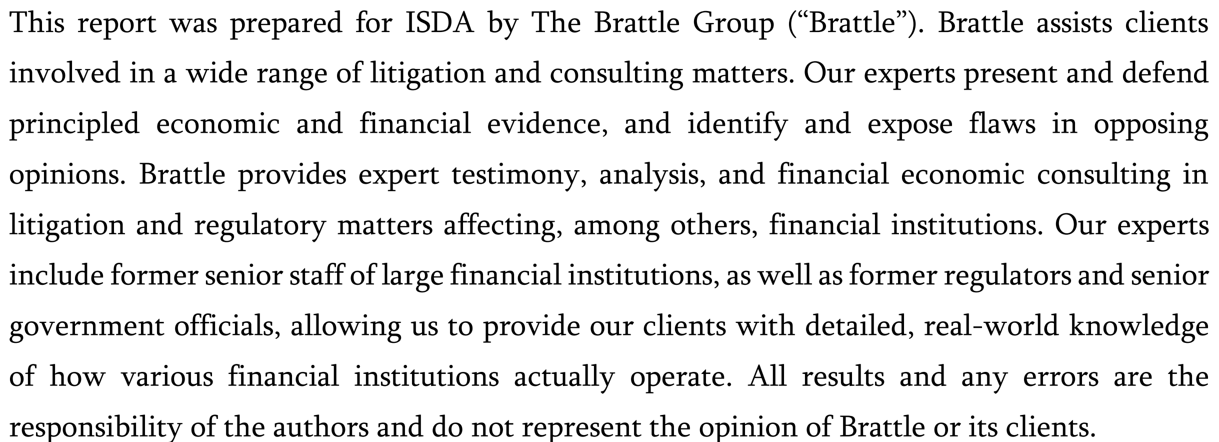

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Brattle has been engaged by ISDA to provide an independent overview, summary, and analysis of the market participant responses to the ISDA consultation on final parameters for the spread and term adjustments in derivatives fallbacks for key IBORs ("Final Parameters Consultation"). Brattle understands that ISDA will rely on the analysis contained in this report to determine the market participant preferences with respect to technical aspects related to spread and term adjustments and ISDA will share the results of this work with ISDA's selected vendor, Bloomberg, to guide implementation.

As part of this analysis, Brattle reviewed the content of all responses to the Final Parameters Consultation, and evaluated (based on the number and diversity of respondents) the degree to which the process followed by ISDA allowed for the consideration of different market perspectives. This report also presents areas of consensus across respondents and areas where additional considerations were raised.

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I. Executive Summary

1. On September 18, 2019, the International Swaps and Derivatives Association, Inc. ("ISDA") published a market-wide consultation on final parameters for the spread and term adjustments in derivative fallbacks for key IBORs ("Final Parameters Consultation").[1] The Final Parameters Consultation followed an initial market-wide consultation published by ISDA on July 12, 2018 ("2018 Consultation"), which primarily focused on technical issues related to fallbacks for derivative contracts that reference GBP LIBOR, CHF LIBOR, JPY LIBOR, TIBOR, Euroyen TIBOR, and BBSW, and a supplemental market-wide consultation published by ISDA on May 16, 2019 ("Supplemental Consultation") which focused on fallbacks for derivative contracts that reference USD LIBOR, CDOR, HIBOR, and certain aspects of fallbacks for derivatives that reference SOR.[2] The results of the 2018 Consultation and the Supplemental Consultation were discussed in separate reports prepared by The Brattle Group that were commissioned by ISDA (Brattle's 2018 Consultation Report and Brattle's Supplemental Consultation Report).[3]

2. The 2018 Consultation and the Supplemental Consultation established that the overwhelming majority of respondents preferred the compounded setting in arrears rate to address the difference in tenors between IBORs and overnight risk free rates ("RFRs"), and the historical mean/median approach for the spread adjustment to address credit risk and other premia between IBORs and corresponding RFRs across benchmarks. The Final Parameters Consultation built on the framework established by the 2018 Consultation and the Supplemental Consultation, and focused on technical questions to determine the specific methodologies for the adjustments that will be made to derivative fallbacks in the event they are triggered. The Final Parameters Consultation comprised 16 questions in two groups. Questions No. 1 through No. 9 solicited feedback on implementation choices with respect to the historical mean/median approach to the spread adjustments, and Questions No. 10 through No. 16 solicited feedback on implementation choices with respect to the compounded setting in arrears rate.

3. Responses revealed respondents' majority preferences in all areas addressed in Questions No. 1 through No. 9. A majority, consisting of approximately 61% of all respondents, preferred a

[1] https://www.isda.org/a/Ua0TE/Consultation-on-Parameters-for-Fallback-Adjustments.pdf

[2] In addition, ISDA published a consultation on pre-cessation issues for LIBOR and certain IBORs on May 16, 2019.

[3] http://assets.isda.org/media/04d213b6/db0b0fd7-pdf/
https://www.isda.org/a/0LPTE/2019.09.18-Anonymized-ISDA-Supplemental-Consultation-Report.pdf

calculation of a spread adjustment based on a historical median over a five-year lookback period (Option I). This was more than double the percentage of respondents (29%) who preferred a calculation of a spread adjustment based on a historical trimmed mean over a ten-year lookback period (Option II), while the remaining 10% of all respondents either selected both options or did not indicate a preference. Among the respondents who expressed a preference, 69% selected the historical median over a five-year lookback period. This figure includes two respondents who selected both options.

4. Many of the respondents reiterated some of the arguments made in the earlier consultations with respect to the median and to the length of the lookback period. Respondents cited the median as being a simple, transparent and more stable method that is less sensitive to outliers and would not require complicated data treatments like trimming. Respondents also stated that a historical median approach over a five-year lookback period would be more reflective of current market conditions, would not include data from the financial crisis, and would minimize reliance on proxy or indicative data.

5. A total of 52% of all respondents stated that they would not be opposed to or harmed by an option that did not reflect their top choice for calculating a spread adjustment, and 27% of respondents did not provide a preference. 50% of the respondents who had selected the historical ten-year trimmed mean stated that they would not be opposed to or harmed by an option that did not reflect their top choice.[4] Of the approximately 21% of all respondents that stated that they would be opposed to or be harmed by an option that did not reflect their top choice, 53% had selected the historical five-year median and 42% had selected the historical ten-year trimmed mean as their top choice.

6. Approximately 69% of respondents thought that consistency of the calculation method for the spread adjustment across IBORs was either critical or very important, with another 17% of respondents stating that consistency was somewhat important. Some of the points made by respondents in support of consistency included less complexity and operational risk and an easier transition process. Some respondents also cited that consistency would be critical for cross-currency derivatives.

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[4] 58% or respondents who had selected the historical five-year median stated that they would not be opposed to or harmed by an option that did not reflect their top choice.

7. A slight majority of respondents (56%) found consistency across IBORs to be more important than their top choice of calculating the spread adjustment. A majority of respondents (67%) who had selected the historical five-year median found consistency to be more important than their top choice. There was no majority among the respondents who had selected the historical ten-year trimmed mean as their preferred option, with 46% of these respondents finding their top choice to be more important and 42% of these respondents finding consistency to be more important (and 12% not providing a preference).

8. A clear majority of approximately 71% of respondents did not prefer to include a transitional period in the calculations of the spread adjustment. Respondents supported their preference citing the operational difficulty and the complexity associated with a transitional period, that any costs would outweigh any benefits, and that it would not help insulate against any potential value transfer. Respondents who favored the transitional period argued that it would provide a smoother transition and avoid potential "cliff effects" of market dislocations.

9. Approximately 49% of respondents preferred that outliers not be excluded in the calculation of the spread adjustment and 19% did not provide a preference. This was consistent among both the respondents who preferred the historical median over a five-year lookback period (49% who also often noted that their selection of the median minimizes the need for removing outliers) and among the respondents who preferred the historical trimmed mean over a ten-year lookback period (54%). Of the 32% of all respondents that preferred to exclude outliers, 38% had selected the historical ten-year trimmed mean and 55% had selected the historical five-year median as their top choice. Several of the respondents that preferred outliers to be excluded explicitly stated that their preference applied in the event that the historical trimmed mean over a ten-year period was selected as the top choice for calculating the spread adjustment.

10. Respondents reaffirmed their preference not to exclude outliers when asked to state their preferred method in the hypothetical that outliers would be excluded. The majority of all respondents (approximately 60%) either restated their preference not to exclude outliers or were unresponsive. From the approximately 40% of respondents[5] who expressed some preference

[5] There was no consensus among trimming options with 8% of all respondents selecting to exclude the top and bottom 1% of observations, 10% selecting a winsorized mean, 2% selecting to remove the maximum and minimum observations, another 8% selecting to exclude observations outside +/- three standard deviations, and 12% preferring a different option than those offered.

regarding the treatment of outliers, 50% had selected the historical five-year median and 44% had selected the historical ten-year trimmed mean as their top choice. Several of the respondents that provided a preference regarding treatment of outliers explicitly stated that their preference applied in the event that the historical trimmed mean over a ten-year period was selected as the top choice of calculating the spread adjustment.

11. An overwhelming majority of respondents (79%) found no compelling reason to exclude any negative spreads from the calculation of the spread adjustment. Respondents cited that negative spreads are a valid part of the data that reflect real market conditions and not false observations, and some respondents cautioned that excluding negative spreads would bias the spread adjustment higher. A similarly robust majority of respondents (86%) found no compelling reason to not implement an overall negative spread adjustment. Respondents argued that the spread adjustment calculation should be objective and representative of market conditions and historical reality, and should reflect this feature of the market.

12. Comments from respondents on Questions No. 1 through No. 9 are summarized in Section III.

13. Overall, respondents supported an adjustment to the compounded setting in arrears rate in order to accommodate payment and operational issues. A large majority (approximately 70%) of respondents supported an adjustment to the to the interest accrual period for the RFR to avoid making payments on the same date that a rate becomes known. Respondents cited that an adjustment was required for operational issues to help avoid payment and settlement disruptions, and to allow sufficient settlement time for transactions between counterparties located in different geographic zones.

14. A clear majority of respondents (56%) preferred a backward-shift adjustment over a lockout or other adjustment, as they stated the backward-shift is consistent with the OIS market standards and it would be less likely to exaggerate extreme movements in the RFR during the compounding interval. A large number of respondents (47%) did not consider either adjustment option as problematic in their ability to transact. However, many respondents considered the lockout method to be problematic (26%). Approximately 14% of respondents indicated that the backward shift was potentially problematic.

15. A clear majority of respondents (81%) preferred an adjustment option by reference to the city or to banking days for which the RFR is published. Further, more than half of respondents (56%) found that two banking days would be the appropriate length of time to effectuate an adjustment.

16. There was no majority in respondents' preferences as to whether it would be problematic to use the calculation period instead of the IBOR period. Approximately 49% of respondents did not find it problematic to use the calculation period and approximately 28% found it would be problematic. The responses suggest that ISDA may need to continue working with its counsel and advisors on these issues prior to final implementation.

17. Respondents were also asked to provide feedback as to specific products for which the proposed adjustment options would not work. In response, 21% of respondents stated that the options would work for all products and 46% provided no preference. The remaining 33% of respondents identified at least one product they thought may not work. These responses reflect the idiosyncratic nature of information solicited by this question and have no impact on the majorities established in other questions of the Final Parameters Consultation.

18. Comments from respondents in Questions No. 10 through No. 16 are summarized in Section IV.

II. Demographics of Respondents to the ISDA Final Parameters Consultation

19. Brattle reviewed responses from 90 respondents,[6] collectively from 17 countries across Europe, Asia-Pacific, and the Americas. These respondents operate in a number of sectors and include asset managers, banks, pension funds, an insurance company, government entities, financial services firms, clearinghouses, and an automotive firm. Collectively, the responses to the Final Parameters Consultation came from a broad group of market participants, reflecting different perspectives regarding the options under consideration.

[6] ISDA received 81 responses. One of the responses was submitted by an industry association on behalf of ten entities and therefore was counted as ten distinct respondents, which led to 90 respondents (or entities) who participated in the Final Parameters Consultation in total.

20. Out of the 90 respondents, 16 were new respondents and 74 had previously responded to the 2018 Consultation and/or the Supplemental Consultation.[7] Figure 1 summarizes the industry affiliation, assigned by ISDA, to each of the 90 respondents to the Final Parameters Consultation. Figure 1 shows that the 90 respondents include most commonly "bank/broker-dealers" (59 entities) and "asset managers" (seven entities). In addition, there are nine government-sponsored entities, which are in the "Other" category. The other entities in the "Other" category include two clearing houses, a cooperative financial institution, a student loan service firm, and a reinsurance firm.

Figure 1
Breakdown of Entities (Respondents) by Industry Affiliation

	ISDA category	Number of entities
	[A]	[B]
[1]	Asset Manager	7
[2]	Bank/Broker-dealer	59
[3]	Nonfinancial Corporation	2
[4]	Insurance Company	3
[5]	Local or Regional Government Entity	1
[6]	Pension Fund	1
[7]	Other Professional Services Firm	3
[8]	Other	14
	Total	**90**

Sources and notes:

Industry affiliations represented by the entities that responded to the Final Parameters Consultation.

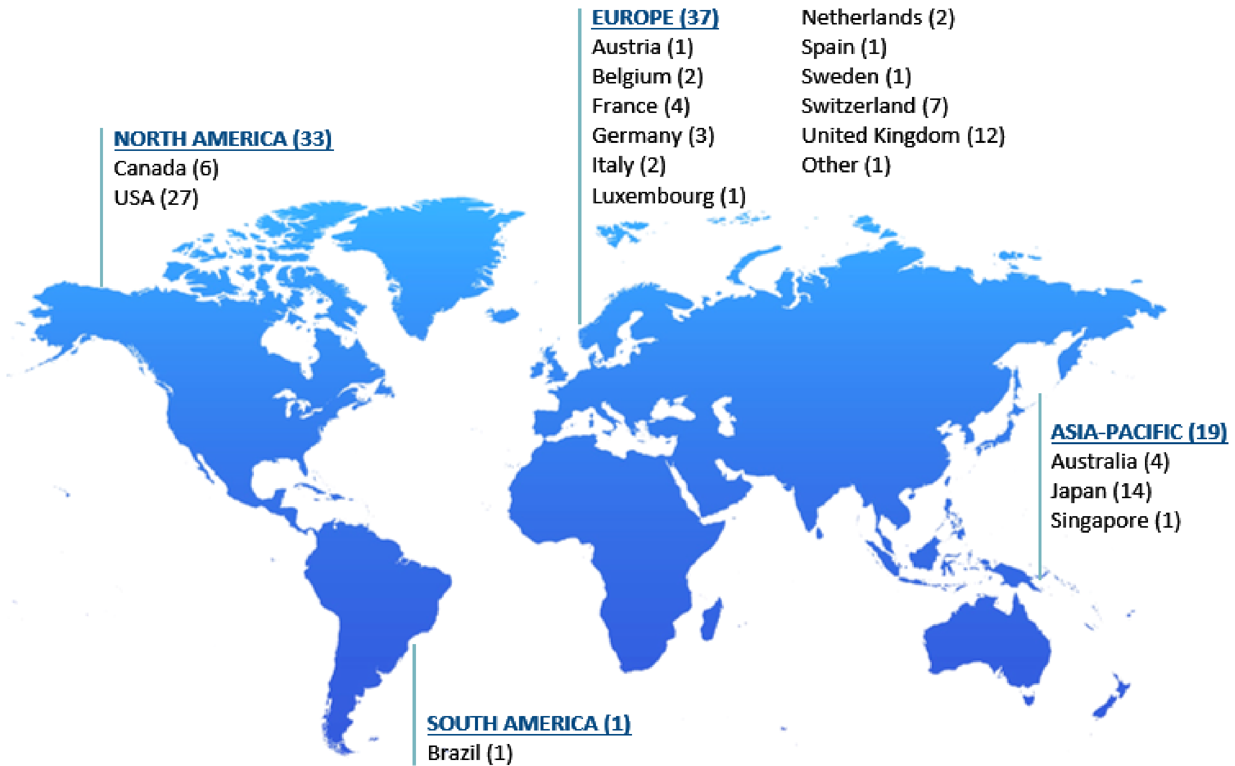
[8]: This category includes: government-sponsored enterprises, central counterparties, reinsurance firms, exchanges, and student loan services.

[B]: When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs.

21. Figure 2 and Figure 3 break down the respondents by region and by country. The largest number of respondents by region (37 entities) came from Europe, including 12 entities from United Kingdom. North America accounted for 33 of the responding entities, 27 of which came from the United States.

[7] 11 entities responded to only the Supplemental Consultation, 12 entities responded to only the 2018 Consultation, and 51 entities responded to both.

Figure 2
Breakdown of Entities (Respondents) by Geography



Sources and notes:

Regions and countries represented by the entities that responded to the Final Parameters Consultation. “Other” entity in Europe does not have a country-specific jurisdiction. 90 entities total.

Figure 3
Breakdown of Entities (Respondents) by Geography

Region	Country	Number of entities
[A]	[B]	[C]
Asia-Pacific		**19**
	Australia	4
	Japan	14
	Singapore	1
Europe		**37**
	Austria	1
	Belgium	2
	France	4
	Germany	3
	Italy	2
	Luxembourg	1
	Netherlands	2
	Spain	1
	Sweden	1
	Switzerland	7
	United Kingdom	12
	Other	1
North America		**33**
	Canada	6
	United States of America	27
South America		**1**
	Brazil	1
Total		**90**

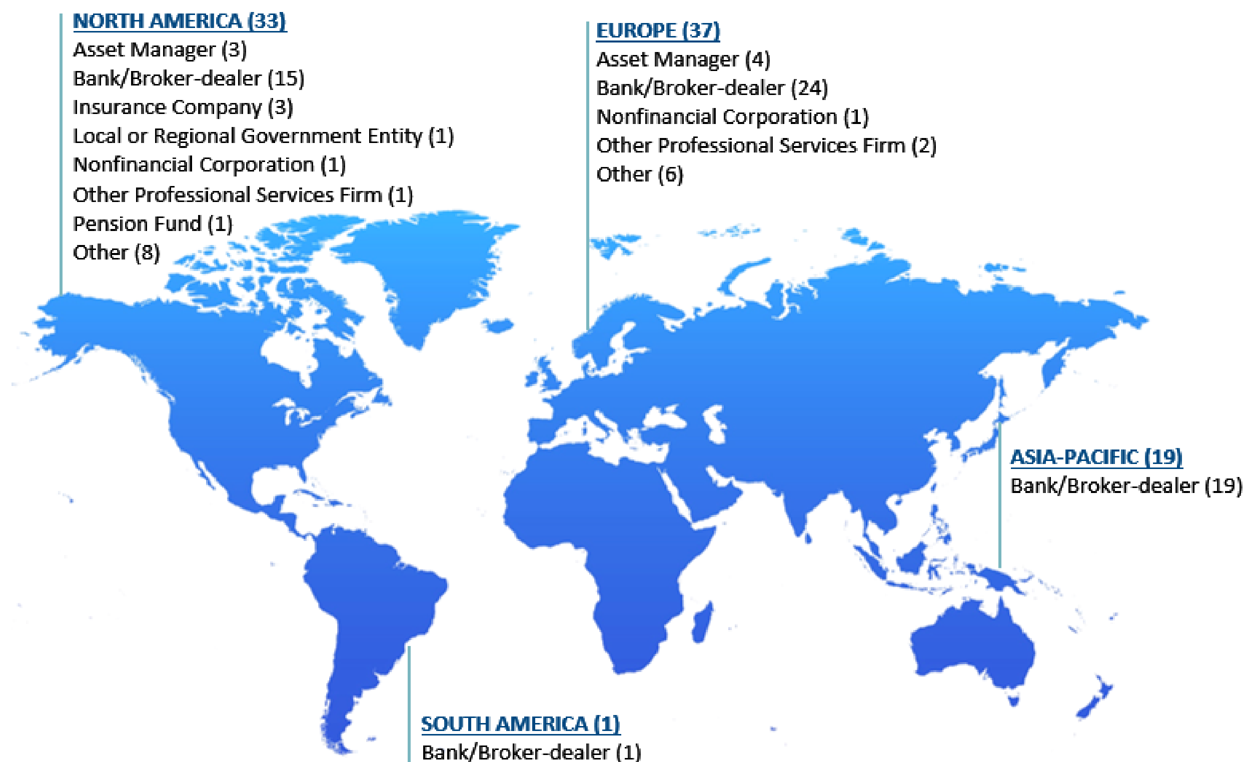
Source and notes:

Regions and countries represented by the entities that responded to the Final Parameters Consultation. “Other” entity in Europe does not have a country-specific jurisdiction.

[C]: When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs.

22. Figure 4 summarizes the demographics of the respondents by both industry affiliation and geography. Consistent with the statistics in Figure 1 above, bank/broker-dealers and asset managers account for the biggest groups of respondents within each region.

Figure 4
Breakdown of Industry Affiliation of Entities (Respondents) by Geography



Sources and notes:

Regions and countries represented by the entities that responded to the Final Parameters Consultation. 90 entities total. Other includes government-sponsored enterprises, central counterparties, reinsurance firms, exchanges, and student loan services.

III. Preferences Regarding Implementation Choices for the Historical Mean/Median Approach to the Spread Adjustment

23. This section summarizes the responses from the 90 respondents to Questions No. 1 through No. 9 of the Final Parameters Consultation. The first two questions expanded on topics and considerations referenced in prior consultations on whether respondents support a median approach with a five-year lookback period or a trimmed mean approach with a ten-year lookback period. Respondents were also asked for their views regarding consistency across IBORs (Questions No. 3 and No. 4), incorporating a transitional period (Question No. 5), and the treatment of outliers (Questions No. 6 and No. 7) and negative spreads (Questions No. 8 and No. 9). Respondent preferences by region and affiliation for Questions No. 4, 5, 6, and 8 are summarized in Appendix A.

A. Summary of Respondents' Preferences for Questions No. 1–4

24. Table 1 summarizes the different answers to Questions No. 1 and No. 2 of the Final Parameters Consultation across all 90 respondents.[8] Overall, Table 1 shows that 61% of the respondents to Question No. 1 of the Final Parameters Consultation preferred an implementation based on a historical five-year median approach (Option I). Table 1 also shows that approximately 52% of all respondents to Question No. 2 of the Final Parameters Consultation stated they would not be opposed to or harmed by their non-preferred choice, including 13 respondents (or 14% of all respondents) that preferred the historical ten-year trimmed mean approach (Option II). While 26 respondents (29% of all respondents) preferred the historical ten-year trimmed mean approach, only eight of those respondents (9% of all respondents) stated that they were opposed or would be harmed by the implementation of their non-preferred approach (Question No. 2).

Table 1: Summary Statistics of Responses to Questions No. 1 and No. 2 of the Final Parameters Consultation

	Question No. 1: Which option do you support?		Question No. 2: Would you oppose and/or be harmed by using an option other than the option you supported in response to question 1?			
Response	**Totals**	**% of Total**	Yes	No	Unresponsive	Unanswered
I. Median with 5 Year Lookback	**55**	**61%**	10	32	3	10
II. Trimmed Mean with 10 Year Lookbacl	**26**	**29%**	8	13	2	3
Both	**2**	**2%**	0	2	0	0
Unresponsive	**6**	**7%**	1	0	5	0
Unanswered	**1**	**1%**	0	0	0	1
Totals	**90**	**100%**	**19**	**47**	**10**	**14**

Sources and notes: Responses to ISDA Consultation on Final Parameters. When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs. Entities classified as Unresponsive did not directly answer the question in their response. Entities classified as Unanswered did not provide any response at all.

25. Respondents' preference for the historical five-year median overall were consistent across geographical regions and industry affiliations. Table 2 shows that respondents in Asia-Pacific and Europe had a strong preference for the historical five-year median. Although a slight majority of North American respondents preferred the historical ten-year trimmed mean, the entity type that

[8] Two respondents preferred "both" approaches but were not opposed to either option.

comprised the biggest subset of this group (bank/broker-dealers) largely preferred the historical five-year median on a global basis.

Table 2: Breakdown of Responses to Question No. 1 by Respondent Region

Question No. 1: Which option do you support?	Region				
Response	Asia-Pacific	Europe	North America	South America	**Totals**
I. Median with 5 Year Lookback	18	22	14	1	**55**
II. Trimmed Mean with 10 Year Lookback	1	10	15	0	**26**
Both	0	2	0	0	**2**
Unresponsive	0	3	3	0	**6**
Unanswered	0	0	1	0	**1**
Totals	**19**	**37**	**33**	**1**	**90**

Sources and notes: Responses to ISDA Consultation on Final Parameters. When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs. Entities classified as Unresponsive did not directly answer the question in their response. Entities classified as Unanswered did not provide any response at all.

26. Table 3 shows that bank/broker-dealers provided the largest support for the historical five-year median based on a breakdown of responses by industry affiliation. Preferences varied across other groups with two nonfinancial corporations and one pension fund selecting the historical ten-year trimmed mean, and three insurance companies selecting the historical five-year median. Asset management firms were split and slightly in favor of the approach that did not receive a majority.

Table 3: Breakdown of Responses to Question No. 1 by Industry Affiliation

Question No. 1: Which option do you support?	Affiliation								
Response	Asset Manager	Bank/Broker-dealer	Nonfinancial Corporation	Insurance Company	Local or Regional Government Entity	Pension Fund	Other Professional Services Firm	Other	**Totals**
I. Median with 5 Year Lookback	3	43	0	3	0	0	1	5	**55**
II. Trimmed Mean with 10 Year Lookback	4	11	2	0	0	1	1	7	**26**
Both	0	2	0	0	0	0	0	0	**2**
Unresponsive	0	3	0	0	1	0	1	1	**6**
Unanswered	0	0	0	0	0	0	0	1	**1**
Totals	**7**	**59**	**2**	**3**	**1**	**1**	**3**	**14**	**90**

Sources and notes: Responses to ISDA Consultation on Final Parameters. When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs. Entities classified as Unresponsive did not directly answer the question in their response. Entities classified as Unanswered did not provide any response at all.

27. Table 4 summarizes the answers of the 90 respondents to Question No. 3. When asked to prioritize consistency across IBORs, Table 4 shows that a large majority of these respondents (approximately 86%) noted that consistency across IBORs was at least somewhat important. This majority was consistent among both among the respondents who preferred the historical median over a five-year lookback period (96% of these respondents) and among the respondents who preferred the historical trimmed mean over a ten-year lookback period (73% of these respondents).

Table 4: Summary Statistics of Responses to Question No. 3 of the Final Parameters Consultation

Is consistency across IBORs important? Is it critical, very important, somewhat important or not important at all?		
Response	Count	% of Total
Critical	25	28%
Very Important	37	41%
Somewhat Important	15	17%
Not Important	7	8%
Unresponsive	5	6%
Unanswered	1	1%
Totals	**90**	**100%**

Sources and notes: Responses to ISDA Consultation on Final Parameters. When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs. Entities classified as Unresponsive did not directly answer the question in their response. Entities classified as Unanswered did not provide any response at all. Percentages may not add up to 100% due to rounding.

28. Table 5 summarizes the answers of the 90 respondents to Question No. 4. Relatedly, Table 5 shows that a majority of respondents to Question No. 4 (56%) preferred having consistency across IBORs above the implementation of their preferred approach to the spread adjustment. The majority (67%) of the respondents who had selected the historical five-year median found consistency to be more important than their top choice, whereas 27% of these respondents found their top choice to be more important. There was no majority among the respondents who had selected the historical ten-year trimmed mean as their preferred option, with 46% of these respondents finding their top choice to be more important and 42% finding consistency to be more important (12% did not provide a preference). Approximately 32% of all respondents prioritized their preferred approach over consistency of an approach across IBORs. Respondent preferences by region and affiliation for Question No. 4 are summarized in Appendix A.

Table 5: Summary Statistics of Responses to Question No. 4 of the Final Parameters Consultation

Which is more important to you – your top preference or consistency across IBORs (assuming you could not have both)?		
Response	Count	% of Total
Top Preference	29	32%
Consistency	50	56%
Unresponsive	9	10%
Unanswered	2	2%
Totals	**90**	**100%**

Sources and notes: Responses to ISDA Consultation on Final Parameters. When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs. Entities classified as Unresponsive did not directly answer the question in their response. Entities classified as Unanswered did not provide any response at all.

B. Respondents' Comments to Questions No. 1–4

29. Several respondents explained their preference for a historical five-year median approach across benchmarks because it would be more reflective of current and recent market conditions and a more stable, straightforward approach. For example, an Asia-Pacific bank/broker-dealer stated "[we support] option I. Median over five year lookback period from date of announcement/publication of information regarding cessation. [We believe] that the median provides a more representative rate, particularly if there is high volatility during the transition period. Also, a shorter timeframe will more accurately capture market conditions at the time of cessation. The stability the median methodology provides would help to ensure market participants avoid a scenario where potential value transfer increases due to the contribution of extreme market events in the distant past."

30. Similarly, an Asia-Pacific bank/broker-dealer stated "[w]e support Option I, median over five year lookback period. In our response to your consultation last year we had indicated a preference for a shorter period, such as 3 months, in order to minimise potential NPV transfer between parties. However, given the options presented we prefer Option I [median over five year lookback period]. It is important to use a stable method that is not i) too influenced by outliers and ii) overly dependent upon complicating metrics such as trimming. The median rate is likely to be more stable allowing an easier transition prior to the fall-back date."

31. Several other banks/broker-dealers in Europe also commented on the stability and representativeness of a median approach. One stated "[w]e believe option I, median over five year look back period will be more representative of the market conditions as of fallback time and will be a better approach to minimize value transfers. The existing market consensus is consistent with an expectation of a 5yr. median approach. See 3m GBP LIBOR / SONIA basis below." Another European bank/broker-dealer stated "[w]e support option 1 - a median over a five year lookback period. We believe that a five year period is appropriate because recent data is more relevant in establishing the appropriate spread level than data in the more distant past, when bank funding dynamics may have been materially different to today. There are positives and negatives of either a median or mean approach. For example, benefits of a median are that it is more robust to large moves, and may be more stable as cessation is approached. A benefit of the mean is that it more closely reflects expectation. Ultimately we support the 5 year median more because of a preference for the 5 year time horizon than because of a preference for median over mean."

32. In addition to observing that the historical five-year median approach is being more reflective of market conditions, a number of respondents also stated it would provide transparency. For example, an Asia-Pacific bank/broker-dealer stated "…[t]here are more discretionary decisions in calculating a trimmed mean, including any arbitrary decisions on what/how to trim. The problem with deciding on a trimming formula is that skew is introduced. Short lived extreme outliers are not reflective of a 'typical' spread, and using the median is the simplest way of accounting for these. This method should be used for all IBORs to promote consistency. Option 1 is also easier for the end user customer base to understand." A North American government-sponsored enterprise also noted the potential for wider acceptance of a historical five-year median approach: "We would prefer Option I (median over five year lookback period). We believe this is the most straightforward option and requires fewer variables to be debated by market participants." Other respondents commented that the historical five-year median would not include data from the financial crisis. For example, a North American bank/broker-dealer noted: "Option I, Median over five year, is our preferred choice. The goal of using the historic mean/median approach is to obtain a representative rate based upon a reasonable backward looking time horizon. Based upon the stability of the data series the median approach more closely ties with this goal. The Mean over ten year approach at the moment includes the highly volatile Financial Crisis and gives too much weight to other outlier data points."

33. A North American bank/broker-dealer raised transparency as the reason for their choice for median over mean: "[We support] using the median over a 5-Year lookback period. Trimming adds additional uncertainty and will not result in as smooth a transition." Another North American government-sponsored enterprise stated "[w]e support the median over a five year lookback period with no differentiation between IBORs. We prefer this method as the calculation is more transparent, understandable for a wider range of market participants, and should lead to less market friction as the announcement/publication of information regarding cessation approaches."

34. In addition, a North American insurance company elaborated that the historical five-year median approach allowed for consistency across currencies and tenors: "[We prefer] to use the median approach over a five-year lookback period. We prefer using the median approach as it is less sensitive to outliers when compared to the mean approach. We value that we don't need to trim the dataset to determine a representative spread. Upon examining the various distributions of spreads by currency and tenor, it is evident that there are various distributions of the spreads between adjusted RFRs and IBORS, such that any decision to trim the mean would need to be currency and tenor specific. … These profiles would suggest using different approaches for trimming. For this reason, we find the median approach to be applicable consistently across all currencies and tenors, as well as transparent and easily understandable. Secondly, [we prefer] a five-year lookback period over a ten-year lookback period as this should more positively contribute toward liquidity in the RFR/IBOR basis markets."

35. Other respondents noted the availability of reliable data to support their preference of a historical five-year median approach, including a North American bank/broker-dealer who stated "[o]ur strong preference is for Option I (Median over five year lookback period) to apply to all IBORs, as we view this as a relatively simple and straightforward approach that would likely produce a reasonable reflection of current and medium-term market conditions. We also prefer Option I because Option II (Trimmed Mean over ten year lookback) would use data prior to August 22, 2014, which is limited to Primary Dealer data and may not be an accurate proxy for SOFR."

36. Another European bank/broker-dealer emphasized their preference for a shorter time horizon over their preference for a mean or median: "Between the two proposed options, we prefer the 5 year median approach. However we strongly prefer a 5-year mean without trim: The market price is the mean of the risk neutral distribution – not the median or the trimmed mean. For this reason we would prefer the mean without trimming. We would prefer a 5-year period in order to reflect the most recent market conditions."

37. Overall, a small number (or approximately 9% of all respondents) preferred a historical ten-year trimmed mean as their primary choice and expressed concerns with the implementation of the historical five-year median approach. Those that did express concerns generally opposed the five-year lookback period stating that it was not long enough, while others stated that the median approach excluded valuable outlier data points. A North American government-sponsored enterprise was the only respondent who stated that it would be harmed with the implementation of the five-year median approach, stating, "Yes, we would be harmed as the shorter lookback period has a higher percentage of yet to be determined outcomes and introduces a higher degree of variability for the terminal spread adjustment." In another example of a respondent who opposed the historical five-year median, a North American government-sponsored enterprise stated "[w]e oppose Option I - Median over five year lookback period, because the trimmed data used in Option II provides more accurate data and the median approach excludes valuable outlier data points. However, we would ideally prefer to use an untrimmed mean over Option II."

38. Similarly, other entities commented that the five-year lookback period may not be sufficient. One noted that "[t]he option chosen should account for credit costs of LIBOR. These costs are more likely to be reflected in outliers (credit shocks) and long-term economic/credit cycles (5 years is too short of a period to include a full economic/credit cycle). It is harmful to not incorporate key features of credit sensitivity in the spread adjustment, as the lenders would have to factor them in both lending and borrowing decisions. Option 1 does not include those costs, and therefore we oppose it."

39. As previously discussed, when asked to prioritize consistency across IBORs, in response to Questions No. 3 and No. 4 of the Final Parameters Consultation, respondents noted that having a consistent approach across IBORs was important and that they preferred consistency across IBORs above implementation of their preferred approach to the spread adjustment (approximately 56%). Some respondents prioritized consistency, stating that it reduces operational risks, while others stated that consistency provides simplicity and transparency in the derivatives market. For example, a North American bank/broker-dealer stated "[c]onsistency across IBORs is more important than whether Option I or Option II is utilized. We are most concerned with USD LIBOR and the differences between the two choices are expected to be minimal based upon currently observed historical measurements and published forward curves. A consistent approach provides clarity to market participants and reduces operational complexities associated with taking into account approaches that vary depending on the IBOR."

40. Some respondents stated consistency was important to avoid cross-currency issues. Specifically, a bank/broker dealer in Europe stated that approaches across IBORs "[s]hould be consistent so multiple implementations not required. Some derivatives reference IBOR in more than one currency e.g. xccy basis swaps. Inconsistency in historical period length, discontinuation date etc. will cause complexity." Similarly, a North American pension fund stated "[w]e view the consistency across IBORs as very important to avoid creating unnecessary dislocations in the basis market thereby allowing these markets to remain a dependable source of information for end users. Consistency is very important to minimize risks of distortion in cross-currency hedging and limit regulatory arbitrage across jurisdictions."

C. Summary of Respondents' Preferences for Questions 5–9

41. Table 6 summarizes the different answers to Question No. 5 of the Final Parameters Consultation across all 90 respondents. Overall Table 6 shows that 71% of all respondents to Question No. 5 of the Final Parameters Consultation did not believe a transitional period should be included in the spread adjustment as it would cause unnecessary complexities and complications. Some of the respondents that preferred a transitional period also recognized that it could introduce additional complexities, but noted various reasons it should be included despite these added complexities. Respondent preferences by region and affiliation for Question No. 5 are summarized in Appendix A.

Table 6: Summary Statistics of Responses to Question No. 5 of the Final Parameters Consultation

Should the transitional period described above [a one year period where the spread is linearly interpolated between the spread around the time the fallback applies and the long term historical mean/median spread] be included in the spread adjustment?		
Response	Count	% of Total
Yes	19	21%
No	64	71%
Unresponsive	5	6%
Unanswered	2	2%
Totals	**90**	**100%**

Sources and notes: Responses to ISDA Consultation on Final Parameters. When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs. Entities classified as Unresponsive did not directly

answer the question in their response. Entities classified as Unanswered did not provide any response at all.

42. Table 7 summarizes the responses of all 90 respondents to Questions No. 6 of the Final Parameters Consultation, showing that a majority[9] of respondents did not believe outliers should be excluded, of which 69% preferred the historical median over a five-year lookback period. This majority also included approximately 54% of the respondents who preferred the historical trimmed mean over a ten-year lookback period. Respondent preferences by region and affiliation for Question No. 6 are summarized in Appendix A.

Table 7: Summary Statistics of Responses to Question No. 6 of the Final Parameters Consultation

Should outliers be excluded?		
Response	Count	% of Total
Yes	29	32%
No	44	49%
Unresponsive	15	17%
Unanswered	2	2%
Totals	**90**	**100%**

Sources and notes: Responses to ISDA Consultation on Final Parameters. When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs. Entities classified as Unresponsive did not directly answer the question in their response. Entities classified as Unanswered did not provide any response at all.

43. Table 8 summarizes the responses of all 90 respondents to Questions No. 8 and No. 9 of the Final Parameters Consultation, showing that an overwhelming majority of respondents (79%) found no compelling reason to exclude any negative spreads from the calculation of the spread adjustment. Respondents cited that negative spreads are a valid part of the data that reflects real market conditions and not false observations, and some respondents cautioned that excluding negative spreads would bias the spread adjustment higher. A similar strong majority of respondents (86%) found no compelling reason not to implement an overall negative spread adjustment.

[9] For all but four "unresponsive" answers to Question No. 6 of the Final Parameters Consultation, the respondent states that their response was based on their preference for implementing the median approach outlined in Question No. 1. For example, a European bank/broker-dealer states "No specific comments as [we favour] the Median approach." Given respondents' belief that a median approach minimizes the need for the trimming or exclusion of outliers, 11 of the 15 unresponsive answers to Question No. 6 contributed to reaching a majority.

Respondents argued that the spread adjustment calculation should be objective and should reflect this feature of the market. Respondent preferences by region and affiliation for Question No. 8 are summarized in Appendix A.

Table 8: Summary Statistics of Responses to Questions No. 8 and 9 of the Final Parameters Consultation

	Question No. 8: If negative spreads have been historically observed for an IBOR/RFR pair, are there compelling reasons to exclude such observations from the calculation of the spread adjustment?		Question No. 9: Negative spreads can be prevalent for some IBORs. If negative spreads have occurred frequently enough that the spread adjustment is itself negative, are there compelling reasons to not implement a negative spread adjustment?	
Response	Count	% of Total	Count	% of Total
Yes	4	4%	3	3%
No	71	79%	77	86%
Unresponsive	12	13%	5	6%
Unanswered	3	3%	5	6%
Totals	**90**	**100%**	**90**	**100%**

Sources and notes: Responses to ISDA Consultation on Final Parameters. When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs. Entities classified as Unresponsive did not directly answer the question in their response. Entities classified as Unanswered did not provide any response at all. Percentages may not add up to 100% due to rounding.

D. Respondents' Comments to Questions No. 5–9

44. Many respondents to Question No. 5 of the Final Parameters Consultation opposed a transitional period stating that it would create additional complications and complexities in the market. For example a European central counterparty stated that "[we agree] with the observations raised in the 2018 consultation identifying potential complexities with valuation and risk management in regards to the use of a transition period."

45. Similarly, a European non-financial corporation stated "[w]e believe that any transitional period will add unnecessary complication to the spread adjustments. This transitional period can largely be left down to market forces to converge towards the calibrated average rather than codified in the fallback mechanism. Therefore we do not think the transitional period is necessary."

46. A couple of Asia-Pacific bank/broker-dealers also agreed stating "[n]o, it would add unnecessary complications," and similarly "[i]t should not be included. This is because the benefit of the implementation is small compared to the costs. In the point of implementation costs, indices users need to input different spreads for each transactions and cash-flows. Thus, the users may not

be able to complete them in a limited period of fallbacks. On the other hand, the benefit should be small, because we assume that a fair value transfer should not be significant. When the possibility of fallback is getting increase, the market level will approach to the fallback spread."

47. A European bank/broker-dealer agreed and stated that "[w]e do not believe a transitional period should be used. We think this adds complexity to the spread adjustment calculation and will make market pricing of future expectations more difficult. We believe the derivatives market is capable of handling an immediate implementation of the full spread adjustment on day one and do not think this will cause any major issues even if the fallback spread adjustment is different to the prevailing RFR/IBOR basis at time of cessation."

48. Even those few respondents in favor of a transitional period acknowledged the existence of certain associated complexities. Specifically, a European bank/broker-dealer stated that "[y]es, even though we see some potential complexities arising from the inclusion of the transitional period, ultimately we feel that it is a sensible solution that would help to avoid a 'cliff edge' scenario in the event fallbacks needed to be used. Rates differ everyday anyway and a calculation agent has already been appointed so it may not be as complex as initially anticipated …"

49. Similarly, a North American pension fund stated that "[y]es, as per the reasons outlined in the July 2018 Consultation, we think that a transitional period is prudent and should be added. We acknowledge that there is a slight cost of added complexity, but our understanding is that Bloomberg will publish the adjusted number which should help mitigate the potential misunderstandings."

50. Question No. 6 of the Final Parameters Consultation asked respondents whether outliers should be excluded. A majority of both respondents that preferred the historical five-year median and the historical ten-year mean approaches were opposed to excluding outliers. A number of respondents stated that excluding outliers was unnecessary due to their preference for the median approach or a long lookback period. For example, a respondent in Europe stated, "No, if Option I Median over five year lookback period is chosen. In our view, using a median is more robust to outliers so there's less need to exclude them."

51. Another respondent, a North American insurance company stated that there was "[n]o need to exclude outliers. They are part of the market experience. The lookback window is long enough such that it should appropriately weight the value of such outliers." Similarly, a North

American bank/broker-dealer noted, "[We expect] that a median-based approach would naturally exclude most outliers."

52. As part of Question No. 7 to the Final Parameters Consultation respondents were asked to what extent data should be trimmed if outliers were to be excluded. ISDA provided four options in which data could be trimmed but respondents were not limited to choosing one of these options in their response. The majority of respondents (60%) reaffirmed their preference not to exclude outliers or were unresponsive. For example, an Asia-Pacific bank/broker-dealer responded, "This is why option 1 is preferred (median approach) as there is less room for discretionary decisions like the above to impact the calculation. Trimming introduces skew as the exclusion parameters would be artificially set." A European bank/broker-dealer added that "trimming is flawed and should be minimised if used at all. For example, the percentage trimming should be as close to zero as possible." Some respondents explicitly stated that their preference applied in the event that the historical trimmed mean over a ten-year period was selected as the top choice for calculating the spread adjustment. A South American bank/broker-dealer stated "[a]s mentioned above, we believe the calculation would be more appropriate if based on the median over five years (option I). However, if the majority of the respondents choose option II, we believe the top one percent and bottom one percent of the observations should be removed for the calculation."

53. Respondents who selected an option in Question No. 7 preferred one of the four options offered by ISDA for data trimming, should outliers be excluded (28%), among which were no clear majorities A few respondents provided their own preferred option to trim the data (approximately 12%). For example, a European non-financial corporation suggested "… using a symmetric 12.5% trim, such that the middle 75% of obervations [sic] are used." The remaining respondents did not provide a preference (approximately 60%).

54. Respondents who answered Question No. 7 also preferred a symmetric approach to trimming data (58%). For example, a North American bank/broker-dealer expressed that they would like to avoid any bias or skew, stating that "[a]symmetric trimming would seem to benefit one class of market participant over another." European non-financial corporation also states "[w]e believe that trimming should be symmetric..." Only one respondent preferred an asymmetric approach to trimming data and the remainder of respondents did not provide a preference (approximately 68%).

55. An overwhelming majority of respondents to Questions No. 8 and No. 9 were not in favor of excluding or adjusting negative spreads. Instead, they preferred these aspects of the market be objective. For example, a bank/broker-dealer in the Asia-Pacific region stated, "[n]o. Setting any rules to exclude some data or alter calculations introduces skew and is therefore best avoided." Similarly, a European asset manager stated that "[i]f negative spreads are persistent and not caused by temporal spikes in liquidity we would include them in the calculation. As such, only if these observations would be filtered out by procedures such as the ones described in the previous question we would exclude them."

56. A North American Bank/broker-dealer further stated, "No, negative spreads are part of the data and need to be included," and a European Bank/broker-dealer agreed, "No, there are no compelling reasons in our view" to exclude negative spreads. A European bank/broker dealer added that "[n]egative spread[s] should not be excluded as they reflect real market conditions." A North American asset manager also agreed, "No. In our view, these represent part of the historical time series and experience and there are no compelling reasons to remove them."

IV. Preferences Regarding Implementation Choice for the Compounded Setting in Arrears Rate

57. This section summarizes the responses from the 90 respondents to Questions No. 10 through No. 16 of the Final Parameters Consultation. These questions included asking respondents to consider whether an adjustment is necessary to avoid payments occurring on the same date as when fallback rates become known, whether a two-day backward-shift or lockout adjustment is preferred, and which cities should apply for adjustment purposes. Respondents were also asked whether they anticipated operational or transactional issues with backward-shift or lockout adjustments, which products would potentially be problematic and whether a compounded in arrears adjustment would resolve these issue(s). Finally, respondents were asked if a calculation vs. IBOR period is problematic and if a two-day adjustment period is appropriate. Respondent preferences by region and affiliation for Questions No. 11 and 16 are summarized in Appendix B.

A. Summary of Respondents' Preferences for Questions 10–16

58. Overall, a strong majority of respondents to Question No. 10 of the Final Parameters Consultation preferred an adjustment period to facilitate payments (about 70%). Those

respondents that disagreed (approximately 20%) generally stated that an adjustment period would be unnecessary or problematic for a specified product.

59. In response to Question No. 11 regarding the type of adjustment, Table 9 shows that an clear majority of respondents (56%), supported a two-Banking Day backward-shift adjustment, as opposed to a two-day Banking Day lockout (approximately 1%) or some other adjustment (approximately 21%). Respondent preferences by region and affiliation for Questions No. 11 are summarized in Appendix B.

Table 9: Summary Statistics of Responses to Questions No. 10 and No. 11 of the Final Parameters Consultation

	Question No. 10: Is it necessary to apply a backward-shift, lockout or similar adjustment to avoid making payments on the same date as the date on which the fallback rate is known?		Question No. 11: If an adjustment is necessary, do you support using a two-Banking Day backward-shift, a two-Banking Day lockout or a different adjustment?				
Response	**Totals**	**% of Total**	Backward Shift	Lockout	Other	Unresponsive	Unanswered
Yes	**63**	**70%**	38	1	13	11	0
No	**18**	**20%**	8	0	6	3	1
Unresponsive	**4**	**4%**	3	0	0	1	0
Unanswered	**5**	**6%**	1	0	0	0	4
Totals	**90**	**100%**	**50**	**1**	**19**	**15**	**5**

Sources and notes: Responses to ISDA Consultation on Final Parameters. When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs. Entities classified as Unresponsive did not directly answer the question in their response as opposed to Entities classified as Unanswered that left questions blank.

60. Of those respondents that supported implementing an adjustment period, approximately 81% preferred using a method other than universal banking days.[10] Table 10 shows that only three of the 90 respondents that supported an adjustment period stated they would prefer a universal business calendar, for adjustment purposes (Question No. 12).

[10] The Final Parameter Consultation presented as alternatives to the adjustment a method by reference to the city relating to the rate or by reference to Banking Days for which the overnight RFR is published (see footnote 27 of the Final Parameter Consultation, found here: https://www.isda.org/a/Ua0TE/Consultation-on-Parameters-for-Fallback-Adjustments.pdf).

Table 10: Summary Statistics of Responses to Questions No. 10 and No. 12 of the Final Parameters Consultation

	Question No. 10: Is it necessary to apply a backward-shift, lockout or similar adjustment to avoid making payments on the same date as the date on which the fallback rate is known?		Question 12: Which cities should apply for the purposes of the two-Banking Day backward-shift or lockout?			
Response	**Totals**	**% of Total**	Universal Business	Other	Unresponsive	Unanswered
Yes	**63**	**70%**	3	55	4	1
No	**18**	**20%**	0	15	2	1
Unresponsive	**4**	**4%**	0	3	1	0
Unanswered	**5**	**6%**	0	0	0	5
Totals	**90**	**100%**	**3**	**73**	**7**	**7**

Sources and notes: Responses to ISDA Consultation on Final Parameters. When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs. Entities classified as Unresponsive did not directly answer the question in their response. Entities classified as Unanswered did not provide any response at all.

61. When asked if an adjustment period (backward-shift or lockout) would be problematic, very few respondents (approximately 14%) expressed concerns about the two-Banking Day backward-shift adjustment, which was preferred by the majority of respondents in Question No. 11. In addition, Table 11 shows that approximately 47% of respondents stated that neither adjustment period would be problematic (Question No. 13).

Table 11: Summary Statistics of Responses to Questions No. 11 and No. 13 of the Final Parameters Consultation

	Question No. 11: If an adjustment is necessary, do you support using a two-Banking Day backward-shift, a two-Banking Day lockout or a different adjustment?		Question 13: Would either option be problematic or would you be able to transact if either option were implemented for derivatives fallbacks?					
Response	**Totals**	**% of Total**	Both Problematic	Neither Problematic	Backward Shift Only	Lockout Only	Unresponsive	Unanswered
Backward Shift	**50**	**56%**	5	23	0	18	2	2
Lockout	**1**	**1%**	0	0	0	0	1	0
Other	**19**	**21%**	6	8	0	4	0	1
Unresponsive	**15**	**17%**	0	11	1	1	2	0
Unanswered	**5**	**6%**	1	0	0	0	0	4
Totals	**90**	**100%**	**12**	**42**	**1**	**23**	**5**	**7**

Sources and notes: Responses to ISDA Consultation on Final Parameters. When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs. Entities classified as Unresponsive did not directly answer the question in their response. Entities classified as Unanswered did not provide any response at all. Percentages may not add up to 100% due to rounding.

62. In Question No. 14, respondents were also asked to provide information regarding products for which a backward-shift or lockout adjustment period would not work and whether a different type of adjustment to a compounded in arrears rate would address any issues. Only 30 respondents (33%) discussed products they thought may not work if a proposed adjustment period were to be implemented. Of those 30, only one respondent thought that different type of adjustment to a compounded in arrears rate would resolve the purported issues. ISDA notes that this question sought information from market participants that is intended for future use, in connection with certain products but that it does not directly impact the conclusions of the Final Parameters Consultation.

63. Table 12 summarizes responses to Question No. 15, where more respondents stated that they did not think using a calculation period instead of the IBOR period would be problematic (approximately 49%). Those that were opposed to using a calculation period, did so for various reasons, including operational and consistency concerns (approximately 28%).[11]

[11] Question 15 statistics include conditional responses in which respondents answered Yes/No but also expressed concerns.

Table 12: Summary Statistics of Responses to Question No. 15 of the Final Parameters Consultation

Is it problematic to use the Calculation Period instead of the IBOR period?		
Response	Count	% of Total
Yes	21	23%
Yes w/conditions	4	4%
No	37	41%
No w/conditions	7	8%
Unresponsive	11	12%
Unanswered	10	11%
Totals	**90**	**100%**

Sources and notes: Responses to ISDA Consultation on Final Parameters. When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs. Entities classified as Unresponsive did not directly answer the question in their response. Entities classified as Unanswered did not provide any response at all. Percentages may not add up to 100% due to rounding.

64. Finally, Table 13 shows that approximately 49% of respondents agreed that two Banking Days was the correct length of time for purposes of applying an adjustment (Question No. 16). Of the 27 respondents that disagreed with using a two-day adjustment period (approximately 30%), many of them preferred either a one or five day period. Respondent preferences by region and affiliation for Questions No. 16 are summarized in Appendix B.

Table 13: Summary Statistics of Responses to Question No. 16 of the Final Parameters Consultation

Is two Banking Days the correct length of time for a backward shift or lockout?		
Response	Count	% of Total
Yes	44	49%
No	27	30%
Unresponsive	11	12%
Unanswered	8	9%
Totals	**90**	**100%**

Sources and notes: Responses to ISDA Consultation on Final Parameters. When respondents are an association representing multiple members, we count the number of underlying institutions (members) named as participating in the response, in accordance with the 2018 ISDA Consultation FAQs. Entities classified as Unresponsive did not directly answer the question in their response. Entities classified as Unanswered did not provide any response at all.

B. Respondents' Comments to Questions No. 10–16[12]

65. In response to Questions No. 10 to 13 of the Final Parameters Consultation, a majority of respondents stated that an adjustment period, over which the RFR is not observed, was in fact necessary in order to transact pursuant to the compounded in arrears rate as a fallback to IBOR contracts. More specifically, a number of respondents noted that they would be unable to make same-day payments without an adjustment. For example, an Asian-Pacific bank/broker-dealer stated, "Yes [an adjustment] is necessary. We would not be able to transact without one. Since most RFRs are only made public on a T+1 basis, an adjustment is a necessity…."

66. A number of other European banks/broker-dealers also acknowledged an adjustment was necessary, stating, "Yes, this is neccesary [sic]. It would be very challenging to transact without an adjustment." "Yes it is. Making a payment on the same day as the day on which the payment amount is known is not feasible for the industry. Market participants will need more than a day of notice in order to agree on payments with their counterparties. This is especially true given that

[12] Responses to Question No. 14 of the Final Parameters Consultation are not included. ISDA notes the informational nature of this question and plans to continue its review of and discussing with market participants regarding the feedback it received regarding products that may not work using these approaches. Responses to Question No. 14 reflect the idiosyncratic nature of information solicited by this question and have no impact on the majorities established in other questions of the Final Parameters Consultation.

different market participants operate in different time zones, and the payment amounts will become known at different times throughout the day."; and "We would consider a backward-shift as necessary, as for most of the RFRs the last rate is only known the day after the end of the calculation period. Hence, a payment at the last day of the original IBOR period would not be possible…." Similarly, a North American bank/broker-dealer stated that "[y]es, it is necessary to apply an adjustment for the compound setting in arrears approach. It would be difficult for our firm to transact without an adjustment."

67. In addition to not being able to transact using same-day payments, respondents also stated that not having an adjustment period would result in operational risks. For example, a professional services firm in Europe stated that "[w]e must be allowed at least one day to calculate settlement amounts. Same day calculation and settlement will cause (late) settlement issues." An asset manager in Europe also stated that "[y]es. Such adjustment is key so as provide support for operational processes. It would be very difficult to transact without such adjustment." A bank/broker-dealer in Europe stated that "[y]es we see this as operationally necessary." Similarly, a North American government-sponsored enterprise stated, "Yes, we believe it is necessary to apply an adjustment to avoid making payments on the same date as the date on which the fallback rate is known. We believe that many market participants would require this adjustment for operational reasons. We would not be able to transact without an adjustment."

68. A few respondents supported using an adjustment period in order to ensure consistency among products. For example, a bank/broker-dealer in North America stated that "[y]es, it is necessary to apply an adjustment in order to keep payment dates the same, which is critical for many market participants who are hedging cash products, among other things." Similarly, an Asia-Pacific bank/broker-dealer stated, "Yes. There are practical reasons to apply this for the cash market and we prefer swap and cash markets to be aligned as much as possible."

69. In contrast, those respondents that disagreed (20%) with applying an adjustment period, thought that it was unnecessary. For example, a North American asset manager stated, "We do not believe it would be necessary or desirable to apply a backward-shift, lockout or similar adjustment. We would be able to operate and transact without the application of any such adjustment…." A European asset manager also stated, "We don't think it is necessary and we think we can transact without adjustment. This would also make LIBOR/SONIA transactions currently undertaken for economic transition purposes more meaningful."

70. In addition, a professional services firm in Europe stated, "No, none of those adjustment are required for a well-designed fallback…. Note that contrary to what the question implies, the payment may not be done in all the cases on the same date as the date on which the fallback rate is known but in many cases the payment will be required before the rate is known."

71. A majority (56%) of respondents to Question No. 11 of the Final Parameters Consultation preferred a two-Banking Day backward-shift as opposed to a lockout adjustment, if an adjustment were to be applied to the compounded in arrears rate. Respondents generally state that a backward-shift adjustment would be more reflective of the economics of the RFR and consistent with the OIS conventions. Those in favor of a backward-shift adjustment also opposed a lockout adjustment because it would exclude certain market data and potentially cause operational and technical risks. For example, a European bank/broker-dealer stated, "A two day Banking Day backward-shift would be preferable, leaving payment date unchanged and not adding additional technical issue in Systems."

72. In addition an Asia-Pacific bank/broker-dealer commented that "[i]f an adjustment is necessary, a two-Banking Day backward shift is preferred. Using a lockout introduces additional fixing risk during the lockout period which will be difficult to hedge. A lockout adjustment also introduces the risk that a single day of volatility occurring on the lockout date is extended and represented over a longer period of time. [Our] view is that the backward-shift adjustment consistently better represents the underlying market."

73. A European bank/broker-dealer added, "We are in favor of using a two-Banking Day backward-shift. First, we think that the economics will be distorted less. For a swap the observation period is shifted by two day so one is 'wrong' by two days only. With the lockout one gets two banking day 'wrong' at ever observation period. For a 10y swap vs. 3M Libor it can happen 40 times as much where not economically correct fixings are used. Second, the two-banking day backward-shift is easier to implement in our systems."

74. A North American government-sponsored enterprise also stated that "[w]e support a two-Banking Day backward-shift approach. This approach would reflect the economic condition that prevailed over that period and it would be consistent with OIS market convention."

75. A North American pension fund stated, "We are supportive of a two-Banking Day backward-shift. We prefer a backward-shift approach because our own experience has been that

lockout periods can be problematic for some legacy systems. Our valuation system doesn't have native lockout period support. We don't think the convention choice will have a major impact on valuation, but we would prefer the backward-shift regardless if only for consistency with existing OIS convention."

76. Most other respondents preferred some type of delay in payment as opposed to implementing a two-Banking Day backward-shift or lockout adjustment. For example a European bank/broker-dealer said, "If possible, first preference would be for payment dates to be postponed by a minimal number of days rather than adjusting the fixing dates, using a similar mechanism to Delayed Payment in OIS transactions. This is to minimise the mismatch between the original intended IBOR period and the fallback fixing period, which can result in a value transfer. Any assistance ISDA can give to making this "standard practice" via a protocol instead of fixing adjustments would be greatly valued. If that is not possible, we prefer a backward shift, because this is easier to hedge in the market with standard RFR instruments…"

77. Similarly, a North American bank/broker-dealer stated, "We would prefer a payment delay, as it would have the smallest economic impact. By this we mean neither a backward-shift or a lock-out, but simply delaying the settlement by two Business Days following what would otherwise have been the payment date. We note that this would also align will with the current convention for OIS trades." A different North American government-sponsored enterprise stated that "[w]e prefer a different adjustment (Delayed Payment date), as described above. We prefer a cut-off instead of a lookback because it will get the weekends right more often."

78. Another North American bank/broker-dealer acknowledged issues with a payment delay and stated that "[i]n principle, we prefer a pay delay to a backwards shift or a lockout. The observation period should be the same as the IBOR period, and a lockout complicates pricing and hedging. Introducing a pay delay, however, would create a payment mismatch on cross currency swaps where one leg is not an IBOR (e.g. CDOR). This mismatch could introduce credit/daily settlement issues and a solution would need to be devised to ameliorate these issues if a pay delay is imposed."

79. In Question No. 12 respondents were asked to identify which cities should apply, in the event an adjustment to a payment date was necessary. Approximately 81% of respondents to Question No. 12 believed that an option other than the universal banking days should apply. For example, a European bank/broker-dealer states that "[f]or IBOR fallbacks to existing trades, [we

prefer] the option of 'by reference to the city relating to the rate' (i.e., using London and the local currency city). For new trades, [we prefer] the option of 'by reference to Banking Days for which the overnight RFR is published' (i.e., removing London and only using the local currency city). Universal business days may not work as certain currencies have long holidays so could create impact to payments in other currencies. For example JPY holidays applied to USD cash markets may not be desirable." Similarly, a North American bank/broker-dealer states that their "first choice would be to only use cities relevant to the currency. Most of our client trades are NY only for both calculation periods and resets, which match their underlying loans." A North American asset manager also states that in "[their] view, the most straightforward approach would be to define this by reference to the city relating to the rate. This is preferred to the creation of a universal banking calendar which creates added complexity in the transition."

80. There were very few respondents to Question No. 12 that preferred the concept of universal banking days (approximately 3%).

81. In response to Question No. 15 to the Final Parameters Consultation, 49% of all respondents did not find using a Calculation Period as opposed to the IBOR period problematic. Respondents that provided support for their response generally state that a Calculation Period is more favorable for various reasons. For example, an Asia-Pacific bank/broker-dealer stated, "No. The use of IBOR period will be problematic. Please see our response to 2018 consultation for details. Use of Calculation Period will be more economically reasonable, and consistent with standard OIS transactions, than use of IBOR period. Calculation Periods are readily available in booking systems because those are specified in Swaps Confirmations. In contrast, IBOR periods (in particular, the end dates of IBOR periods) are not available in booking systems and are not necessarily well-defined and agreed in the industry. It will be practically difficult to use the IBOR period." Similarly, a North American pension fund stated, "Not that we foresee, if the calculation period end is prior to the payment date."

82. Those respondents that opposed using a Calculation Period (28%) instead of the IBOR period generally thought that doing so would introduce operational complexities that could not otherwise be resolved. For example, a bank/broker-dealer in North America stated that "[i]f the Calculation Period is used rather than the IBOR period then multiple publications will be required for each publication date, with users then having to match the correct publication to the relevant trades. Our alternative proposal allows for single publications whilst using the Calculation Periods."

83. In response to Question No. 16 to the Final Parameters Consultation, about half of the respondents (49%) supported a two-day adjustment period. Those respondents that preferred a different length of time generally supported a longer period or one tailored to specific products. For example, a European bank/broker-dealer stated, "Two days is fine. For mortgages I believe 5 days as used in most FRN is better as it just gives more time between announcement of the interest to be paid and the effective paydate. So for derivatives 2 days are ok but anywhere a principal is concerned it should be a longer period."

84. In addition, an Asia-Pacific bank/broker-dealer also noted, "Given the current market standard for OIS transactions, 2 business days would be the likely standard. However, for cross-border transactions, more than 2 banking days (3 to 5) would be ideal because 2 banking days do not seem enough to confirm rates and amounts with counterparties located at different time zones."

V. Conclusion

85. The Final Parameters Consultation focused on technical questions to settle on the specific methodologies for the adjustments that will be made to derivative fallbacks in the event they are triggered. A thorough review of the feedback from respondents to the Final Parameters Consultation shows that a majority of respondents preferred a historical median approach over a five-year lookback period without including a transitional period, without excluding outliers and without excluding negative spreads. The majority of respondents also preferred to apply a two banking day backward shift adjustment period for operational and payment purposes, and to define the two-day shift by reference to either the city relating to the rate or by reference to banking days for which the respective RFR is published.

86. The questions in the Final Parameters Consultation build on the prior consultations which revealed varied preferences among market participants regarding final implementation details. These varied preferences in earlier consultations are consistent with some questions receiving less than strong majorities across respondents in the Final Parameters Consultation. The topics in the Final Parameters Consultation are meant to work out the details of the approach preferred by a largest possible majority of respondents, with the understanding that some respondents may prefer choices other than the ones selected by the majority. As long as the majority approach does not

appear to hurt or favor the interests of any particular group a less significant majority is considered for final implementation by ISDA.

87. Using the feedback collected from respondents, ISDA expects to implement a historical median spread adjustment over a five-year lookback period without including a transitional period, without excluding outliers and without excluding negative spreads. The spread adjustment will be applied to a compounded in arrears rate with the applicable calendar to be determined and announced by Bloomberg prior to implementation. Respondents supported a two-Banking Day backward shift adjustment period, which is anticipated to apply absent fundamental conflict with the suitability and implementation of the adjusted fallback rates. ISDA also plans to continue its review of and discussing with market participants regarding the feedback it received regarding products that may not work using these approaches.

88. Bloomberg and ISDA will publish the final and full mathematical formulas for the spread adjustment and compounded in arrears rate (with adjustment period) prior to publication by Bloomberg of the adjusted fallback rates and implementation of the fallbacks in the 2006 ISDA Definitions.

VI. Appendix A: Respondent Preferences by Region and Affiliation for Questions No. 4, 5, 6, and 8

89. Table A-1 summarizes the responses of all 90 respondents to Question No. 4 of the Final Parameters Consultation by region. The majority of these 90 respondents (approximately 56%) chose consistency across IBORs to be more important than their top preference for calculating a spread adjustment. These included all of the Asia-Pacific and South American respondents and the slight majority (51%) of European respondents, but a minority (33%) of North American respondents. The plurality of North American respondents (about 48%) preferred their top preference for calculating a spread adjustment, with a minority (35%) of European respondents making this choice.

Table A - 1: Summary Statistics of Responses to Question No. 4 of the Final Parameters Consultation Based on Region

Question No. 4: Which is more important to you – your top preference or consistency across IBORs (assuming you could not have both)?	Region				
Response	Asia-Pacific	Europe	North America	South America	**Totals**
Top Preference	0	13	16	0	**29**
Consistency	19	19	11	1	**50**
Unresponsive	0	5	4	0	**9**
Unanswered	0	0	2	0	**2**
Totals	**19**	**37**	**33**	**1**	**90**

90. Table A-2 summarizes the responses of these 90 respondents to Question No. 4 by affiliation. Consistency across IBORs was preferred by the majority of respondents in the bank/broker-dealer group (68%) and the asset manager group (57%) and for all respondents in the pension fund and non-financial corporation groups. By comparison, the majority of respondents in the other professional services firm (67%), half of the respondents in the other category, and all three insurance companies chose their top preference for calculating a spread adjustment over consistency, as did the minority of asset managers (43%). About 8% of bank/broker-dealer group, 21% of the other respondents and the one local or regional government entity were unresponsive to the question, while 14% of the other group did not answer the question.

Table A - 2: Summary Statistics of Responses to Question No. 4 of the Final Parameters Consultation Based on Affiliation

Question No. 4: Which is more important to you – your top preference or consistency across IBORs (assuming you could not have both)?	**Affiliation**								
Response	Asset Manager	Bank/Broker-dealer	Nonfinancial Corporation	Insurance Company	Local or Regional Government Entity	Pension Fund	Other Professional Services Firm	Other	**Totals**
Top Preference	3	14	0	3	0	0	2	7	**29**
Consistency	4	40	2	0	0	1	1	2	**50**
Unresponsive	0	5	0	0	1	0	0	3	**9**
Unanswered	0	0	0	0	0	0	0	2	**2**
Totals	**7**	**59**	**2**	**3**	**1**	**1**	**3**	**14**	**90**

91. Tables A-3 and A-4 summarize the responses of these 90 respondents to Question No. 5 of the Final Parameters Consultation by region and affiliation, respectively. The majority of respondents in all regions do not believe that the transitional period should be included in the spread adjustment. By affiliation, the majorities of bank/broker-dealers (73%), asset managers (71%), insurance companies (67%), other professional services firms (67%), and other (64%) respondents, as well as both nonfinancial corporations and the one local or regional government entity do not favor a transitional period.

Table A - 3: Summary Statistics of Responses to Question No. 5 of the Final Parameters Consultation Based on Region

Question No. 5: Should the transitional period described above [a one year period where the spread is linearly interpolated between the spread around the time the fallback applies and the long term historical mean/median spread] be included in the spread adjustment?	**Region**				
Response	Asia-Pacific	Europe	North America	South America	**Totals**
Yes	1	9	9	0	**19**
No	17	24	22	1	**64**
Unresponsive	1	3	1	0	**5**
Unanswered	0	1	1	0	**2**
Totals	**19**	**37**	**33**	**1**	**90**

92. Tables A-5 and A-6 summarize the responses of the 90 respondents to Question No. 6 of the Final Parameters Consultation by region and affiliation, respectively. Of those answering the question, the majority of European (54%) and North American (70%) respondents do not prefer the exclusion of outliers. By comparison, of those answering the question, the majority of Asia-Pacific respondents (88%) and the one South American respondent favor the exclusion of outliers. Likewise, of those answering the question, the majority of bank/broker-dealers (53%), other professional services firms (67%), and other respondents (92%), as well as all insurance companies and the one local or regional government entity do not favor excluding outliers, whereas the majority of asset managers (67%) and the one pension fund do.

Table A - 4: Summary Statistics of Responses to Question No. 5 of the Final Parameters Consultation Based on Affiliation

Question No. 5: Should the transitional period described above [a one year period where the spread is linearly interpolated between the spread around the time the fallback applies and the long term historical mean/median spread] be included in the spread adjustment?	Affiliation								
Response	Asset Manager	Bank/Broker-dealer	Nonfinancial Corporation	Insurance Company	Local or Regional Government Entity	Pension Fund	Other Professional Services Firm	Other	**Totals**
Yes	2	10	0	1	0	1	1	4	**19**
No	5	43	2	2	1	0	2	9	**64**
Unresponsive	0	5	0	0	0	0	0	0	**5**
Unanswered	0	1	0	0	0	0	0	1	**2**
Totals	**7**	**59**	**2**	**3**	**1**	**1**	**3**	**14**	**90**

Table A - 5: Summary Statistics of Responses to Question No. 6 of the Final Parameters Consultation Based on Region

Question No. 6: Should outliers be excluded?	Region				
Response	Asia-Pacific	Europe	North America	South America	**Totals**
Yes	7	14	7	1	**29**
No	1	20	23	0	**44**
Unresponsive	11	2	2	0	**15**
Unanswered	0	1	1	0	**2**
Totals	**19**	**37**	**33**	**1**	**90**

Table A - 6: Summary Statistics of Responses to Question No. 6 of the Final Parameters Consultation Based on Affiliation

Question No. 6: Should outliers be excluded?	Affiliation								
Response	Asset Manager	Bank/Broker-dealer	Nonfinancial Corporation	Insurance Company	Local or Regional Government Entity	Pension Fund	Other Professional Services Firm	Other	**Totals**
Yes	4	21	1	0	0	1	1	1	**29**
No	2	24	1	3	1	0	2	11	**44**
Unresponsive	1	13	0	0	0	0	0	1	**15**
Unanswered	0	1	0	0	0	0	0	1	**2**
Totals	**7**	**59**	**2**	**3**	**1**	**1**	**3**	**14**	**90**

93. Tables A-7 and A-8 summarize the responses of the 90 respondents to Question No. 8 of the Final Parameters Consultation by region and affiliation, respectively. The vast majority of respondents in each region do not favor excluding negative spreads from the calculation of the spread adjustment, including Europe (92%), North America (82%), all Asia-Pacific respondents who answered the question, and the South American respondent. Likewise, the majority of every affiliation does not favor excluding negative spreads.

Table A - 7: Summary Statistics of Responses to Question No. 8 of the Final Parameters Consultation Based on Region

Question No. 8: If negative spreads have been historically observed for an IBOR/RFR pair, are there compelling reasons to exclude such observations from the calculation of the spread adjustment?	Region				
Response	Asia-Pacific	Europe	North America	South America	**Totals**
Yes	0	1	3	0	**4**
No	9	34	27	1	**71**
Unresponsive	10	1	1	0	**12**
Unanswered	0	1	2	0	**3**
Totals	**19**	**37**	**33**	**1**	**90**

Table A - 8: Summary Statistics of Responses to Question No. 8 of the Final Parameters Consultation Based on Affiliation

Question No. 8: If negative spreads have been historically observed for an IBOR/RFR pair, are there compelling reasons to exclude such observations from the calculation of the spread adjustment?	Affiliation								
Response	Asset Manager	Bank/Broker-dealer	Nonfinancial Corporation	Insurance Company	Local or Regional Government Entity	Pension Fund	Other Professional Services Firm	Other	**Totals**
Yes	0	2	0	0	0	0	1	1	**4**
No	6	45	2	3	1	1	2	11	**71**
Unresponsive	0	11	0	0	0	0	0	1	**12**
Unanswered	1	1	0	0	0	0	0	1	**3**
Totals	**7**	**59**	**2**	**3**	**1**	**1**	**3**	**14**	**90**

VII. Appendix B: Respondent Preferences by Region and Affiliation for Questions No. 11 and 16

94. Tables B-1 and B-2 summarize the responses of the 90 respondents to Question No. 11 of the Final Parameters Consultation by region and affiliation, respectively. Of those answering the question, the majority of respondents in Europe (79%), North America (59%) and the Asia-Pacific region (78%) favor a two-Banking Day backward shift adjustment, with the next-most preferred option being to use another method; using a lockout received the support of only one European respondent. By affiliation, half or more of each respondent group that answered the question preferred using a backward shift, particularly so in the case of banks/broker-dealers (67%), asset managers (83%), other professional services firms (67%) and the individual local or regional government entity and pension fund respondents.

Table B - 1: Summary Statistics of Responses to Question No. 11 of the Final Parameters Consultation Based on Region

Question No. 11: If an adjustment is necessary, do you support using a two-Banking Day backward-shift, a two-Banking Day lockout or a different adjustment?	Region				
Response	Asia-Pacific	Europe	North America	South America	**Totals**
Backward Shift	7	27	16	0	**50**
Lockout	0	1	0	0	**1**
Other	2	6	11	0	**19**
Unresponsive	10	1	4	0	**15**
Unanswered	0	2	2	1	**5**
Totals	**19**	**37**	**33**	**1**	**90**

Table B - 2: Summary Statistics of Responses to Question No. 11 of the Final Parameters Consultation Based on Affiliation

Question No. 11: If an adjustment is necessary, do you support using a two-Banking Day backward-shift, a two-Banking Day lockout or a different adjustment?	Affiliation								
Response	Asset Manager	Bank/Broker-dealer	Nonfinancial Corporation	Insurance Company	Local or Regional Government Entity	Pension Fund	Other Professional Services Firm	Other	**Totals**
Backward Shift	5	28	1	1	1	1	2	11	**50**
Lockout	0	1	0	0	0	0	0	0	**1**
Other	1	13	1	1	0	0	1	2	**19**
Unresponsive	0	14	0	1	0	0	0	0	**15**
Unanswered	1	3	0	0	0	0	0	1	**5**
Totals	**7**	**59**	**2**	**3**	**1**	**1**	**3**	**14**	**90**

95. Tables B-3 and B-4 summarize the responses of the 90 respondents to Question No. 16 of the Final Parameters Consultation by region and affiliation, respectively. Of those answering the question, the European (69%), North American (84%) and South American respondents prefer a Two-Banking Day backward shift or lockout period, whereas 79% of the Asia-Pacific respondents do not. By affiliation, the majority of banks/broker-dealers that answered the question (62%) favored a Two-Banking Day backward shift or lockout period, as did a majority of asset managers (75%), insurance companies (100%), pension funds (100%) and other respondents (64%). By comparison, the local or regional government entity and two other professional services firms did not.

Table B - 3: Summary Statistics of Responses to Question No. 16 of the Final Parameters Consultation Based on Region

Question No. 16: Is two Banking Days the correct length of time for a backward shift or lockout?	**Region**				
Response	Asia-Pacific	Europe	North America	South America	**Totals**
Yes	4	18	21	1	**44**
No	15	8	4	0	**27**
Unresponsive	0	5	6	0	**11**
Unanswered	0	6	2	0	**8**
Totals	**19**	**37**	**33**	**1**	**90**

Table B - 4: Summary Statistics of Responses to Question No. 16 of the Final Parameters Consultation Based on Affiliation

Question No. 16: Is two Banking Days the correct length of time for a backward shift or lockout?	**Affiliation**								
Response	Asset Manager	Bank/Broker-dealer	Nonfinancial Corporation	Insurance Company	Local or Regional Government Entity	Pension Fund	Other Professional Services Firm	Other	**Totals**
Yes	3	31	0	2	0	1	0	7	**44**
No	1	19	0	0	1	0	2	4	**27**
Unresponsive	2	5	1	1	0	0	1	1	**11**
Unanswered	1	4	1	0	0	0	0	2	**8**
Totals	**7**	**59**	**2**	**3**	**1**	**1**	**3**	**14**	**90**

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