**General**

Bloomberg has provided graphs that roughly illustrate the four approaches to adjusted RFRs and three spread adjustment methodologies described in Annexes A and B, respectively, to the ISDA consultation on certain aspects of fallbacks for derivatives. For GBP, JPY, and AUD, the data for both 1-month and 6-month IBOR tenors, and for the overnight RFRs, starts from year 2000 and goes through May 31st, 2018. For CHF, the data starts from year 2009 and goes through May 31st, 2018.

The graphs roughly illustrate the following subset of possible adjusted RFR and spread adjustment pairs:

- Compounded Setting in Arrears Rate with Forward Approach
- Compounded Setting in Arrears Rate with Historical Mean/Median Approach
- Spot Overnight Rate with Spot-Spread Approach
- *For comparative purposes only:* Compounded Setting in Arrears Rate with Spot-Spread Approach

This subset of all possible pairs should provide respondents with information to analyze the remaining possible pairs.

*Please note that the examples below are rough illustrations for informational purposes. Spread levels implied by these methodologies are sensitive to the parameters chosen (e.g. period over which historical average is taken) and may take a range of values – the spreads shown are illustrative examples. Actual build out and implementation of the selected approach may yield different values. However, the graphs below should provide a good sense of how the approaches would function.*
Contents

Adjusted RFRs

- Graphs 1 through 8 illustrate the full history of SORf, CORf, ARRf, and ADRf for 1-month and 6-month GBP, JPY, CHF and AUD, going back to 2000 (or 2009 for CHF).

- For a more detailed view, the full history for each currency is broken into five shorter periods (or three shorter periods for CHF) in graphs 9 through 16.

Spread Adjustments

- For all four currencies, Graphs 17 through 33 illustrate the forwards computed from the IBOR swap and overnight-index-swap (OIS) curves, out to 60 years, and their spreads, in the 1-month, 3-month, 6-month and combined IBOR tenors (and 12-month IBOR tenor for GBP).

- For all four currencies in the 1-month and 6-month IBOR tenors, Graphs 34 through 49 illustrate an average (mean) spread over the past five years, with linear interpolation/extrapolation beyond May31st, 2018 over the next year (i.e., the "transitional period"), and beyond that, constant extrapolation to the mean. These are all based on the compounded setting in arrears rate.

- For all four currencies in the 1-month and 6-month IBOR tenors, Graphs 50 through 81 illustrate the spot-spread approach over the past 5 years, based upon 10-day, 5-day, and 1-day (i.e., "spot") moving averages. Graphs 50 through 65 are based on the spot overnight rate. Graphs 66 through 81 are based on the compounded setting in arrears rate.
Adjusted RFRs

Graphs 1 through 8 illustrate the full history of SORf, CORf, ARRF, and ADRf for 1-month and 6-month GBP, JPY, CHF and AUD, going back to 2000 (or 2009 for CHF).

Graph 1

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<tr>
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<th>ARRF</th>
<th>ADRf</th>
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<td>0.16%</td>
<td>0.21%</td>
<td>0.21%</td>
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<td>6.97%</td>
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<tr>
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<td>2.191%</td>
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Graph 2

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<th>ADRf</th>
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<td>0.16%</td>
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</tr>
<tr>
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GBP 6M Adjusted RFR Long History
Graph 3

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JPY 1M Adjusted RFR Long History
Graph 4

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JPY 6M Adjusted RFR Long History

- SORf
- CORf
- ARRf
- ADRf
Graph 5

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<th>ADRf</th>
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<td>ADRf</td>
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<td>0.06%</td>
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CHF 6M Adjusted RFR Long History

Rates

Date

-3/22/2010 - 3/22/2016

SORf CORf ARRF ADRf
Graph 7

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Graph 8

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AUD 6M Adjusted RFR Long History
For a more detailed view, the full history for each currency is broken into five shorter periods (or three shorter periods for CHF) in graphs 9 through 16.

1-month GBP

Graph 9-A

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Graph 9-B

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<td>2.2276%</td>
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GBP 1M Rates During-crisis
Graph 9-C

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<th>ARRF</th>
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GBP 1M Rates Post-crisis

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### GBP 1M Rates 2012-2015

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<td>0.45%</td>
<td>0.0326%</td>
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Graph 9-E

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6-month GBP

Graph 10-A

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GBP 6M Rates Pre-crisis
Graph 10-B

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GBP 6M Rates During-crisis

- SORf
- CORf
- ARRF
- ADRf
Graph 10-C

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Graph 10-D

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GBP 6M Rates 2012-2015

- SORF
- CORf
- ARRF
- ADRf
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<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>0.16%</td>
<td>0.16%</td>
<td>0.21%</td>
<td>0.21%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.47%</td>
<td>0.47%</td>
<td>0.47%</td>
<td>0.47%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>0.31%</td>
<td>0.31%</td>
<td>0.31%</td>
<td>0.32%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.1214%</td>
<td>0.1218%</td>
<td>0.0976%</td>
<td>0.1122%</td>
</tr>
</tbody>
</table>

**Graph 10-E**

GBP 6M Rates Recent

- **Spread (bps)**
- **Date**
  - 12/21/2015
  - 3/21/2016
  - 6/21/2016
  - 9/21/2016
  - 12/21/2016
  - 3/21/2017
  - 6/21/2017
  - 9/21/2017

- **Legend**
  - SORF
  - CORf
  - ARRF
  - ADRf
1-month JPY

Graph 11-A

<table>
<thead>
<tr>
<th></th>
<th>SORf</th>
<th>CORf</th>
<th>ARRf</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.72%</td>
<td>0.72%</td>
<td>0.53%</td>
<td>0.53%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>0.22%</td>
<td>0.22%</td>
<td>0.23%</td>
<td>0.21%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.2082%</td>
<td>0.2083%</td>
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![JPY 1M Rates Pre-crisis Graph](image-url)
Graph 11-B

<table>
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<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
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<td>0.09%</td>
<td>0.10%</td>
<td>0.10%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.68%</td>
<td>0.68%</td>
<td>0.53%</td>
<td>0.53%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>0.34%</td>
<td>0.34%</td>
<td>0.33%</td>
<td>0.35%</td>
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<tr>
<td>ST DEV</td>
<td>0.1896%</td>
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JPY 1M Rates During-crisis
### Graph 11-C

<table>
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<th>ARRF</th>
<th>ADRf</th>
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<tbody>
<tr>
<td>MIN</td>
<td>0.06%</td>
<td>0.06%</td>
<td>0.06%</td>
<td>0.06%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.11%</td>
<td>0.11%</td>
<td>0.10%</td>
<td>0.11%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>0.09%</td>
<td>0.09%</td>
<td>0.09%</td>
<td>0.09%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.0117%</td>
<td>0.0117%</td>
<td>0.0104%</td>
<td>0.0109%</td>
</tr>
</tbody>
</table>

**JPY 1M Rates Post-crisis**

- Date: 11/12/2009 to 11/12/2011
- Spread (bps): 0.00% to 0.12%
- Graph showing JPY 1M rates post-crisis with various markers for SOR, COR, ARRF, and ADR.
<table>
<thead>
<tr>
<th></th>
<th>SORf</th>
<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>0.06%</td>
<td>0.06%</td>
<td>0.07%</td>
<td>0.07%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.11%</td>
<td>0.11%</td>
<td>0.09%</td>
<td>0.09%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>0.08%</td>
<td>0.08%</td>
<td>0.08%</td>
<td>0.08%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.0073%</td>
<td>0.0073%</td>
<td>0.0055%</td>
<td>0.0054%</td>
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</tbody>
</table>
Graph 11-E

<table>
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<tr>
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<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>-0.08%</td>
<td>-0.08%</td>
<td>-0.07%</td>
<td>-0.07%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.09%</td>
<td>0.09%</td>
<td>0.07%</td>
<td>0.08%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>-0.04%</td>
<td>-0.04%</td>
<td>-0.04%</td>
<td>-0.03%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.0340%</td>
<td>0.0340%</td>
<td>0.0281%</td>
<td>0.0357%</td>
</tr>
</tbody>
</table>

JPY 1M Rates Recent

Date

Spread (bps)

SORF  CORf  ARRF  ADRf
6-month JPY

Graph 12-A

<table>
<thead>
<tr>
<th></th>
<th>SORf</th>
<th>CORf</th>
<th>ARRf</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.72%</td>
<td>0.72%</td>
<td>0.51%</td>
<td>0.51%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>0.22%</td>
<td>0.22%</td>
<td>0.29%</td>
<td>0.16%</td>
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<tr>
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<td>0.2082%</td>
<td>0.2088%</td>
<td>0.1956%</td>
<td>0.1776%</td>
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Graph 12-B

<table>
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<th>CORf</th>
<th>ARLF</th>
<th>ADRf</th>
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</thead>
<tbody>
<tr>
<td>MIN</td>
<td>0.09%</td>
<td>0.09%</td>
<td>0.10%</td>
<td>0.10%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.68%</td>
<td>0.68%</td>
<td>0.51%</td>
<td>0.51%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>0.34%</td>
<td>0.34%</td>
<td>0.29%</td>
<td>0.39%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.1896%</td>
<td>0.1902%</td>
<td>0.1800%</td>
<td>0.1612%</td>
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Graph 12-C

<table>
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<th>CORf</th>
<th>ARRf</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>0.06%</td>
<td>0.06%</td>
<td>0.07%</td>
<td>0.07%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.11%</td>
<td>0.11%</td>
<td>0.10%</td>
<td>0.10%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>0.09%</td>
<td>0.09%</td>
<td>0.08%</td>
<td>0.09%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.0117%</td>
<td>0.0117%</td>
<td>0.0081%</td>
<td>0.0102%</td>
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</tbody>
</table>

**JPY 6M Rates Post-crisis**

Date


Spread (bps)

0.00%  0.02%  0.04%  0.06%  0.08%  0.10%  0.12%
Graph 12-D

<table>
<thead>
<tr>
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<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>0.06%</td>
<td>0.06%</td>
<td>0.07%</td>
<td>0.07%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.11%</td>
<td>0.11%</td>
<td>0.08%</td>
<td>0.08%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>0.08%</td>
<td>0.08%</td>
<td>0.08%</td>
<td>0.08%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.0073%</td>
<td>0.0073%</td>
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<td>0.0036%</td>
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JPY 6M Rates 2012-2015
Graph 12-E

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<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
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</thead>
<tbody>
<tr>
<td>MIN</td>
<td>-0.08%</td>
<td>-0.08%</td>
<td>-0.06%</td>
<td>-0.05%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.09%</td>
<td>0.09%</td>
<td>0.00%</td>
<td>0.08%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>-0.04%</td>
<td>-0.04%</td>
<td>-0.05%</td>
<td>-0.02%</td>
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<tr>
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<td>0.0340%</td>
<td>0.0344%</td>
<td>0.0086%</td>
<td>0.0439%</td>
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</table>
1-month CHF

Graph 13-A

<table>
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<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
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</thead>
<tbody>
<tr>
<td>MIN</td>
<td>-0.07%</td>
<td>-0.07%</td>
<td>-0.01%</td>
<td>-0.01%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.32%</td>
<td>0.32%</td>
<td>0.08%</td>
<td>0.08%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>0.03%</td>
<td>0.03%</td>
<td>0.03%</td>
<td>0.03%</td>
</tr>
<tr>
<td>ST DEV</td>
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<td>0.0185%</td>
<td>0.0181%</td>
</tr>
</tbody>
</table>

CHF 1M Rates Post-crisis

Date

Spread (bps)

-0.10% to 0.35%

SORF, CORF, ARRF, ADRF
Graph 13-B

<table>
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<tr>
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<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>-0.10%</td>
<td>-0.10%</td>
<td>-0.04%</td>
<td>-0.04%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.04%</td>
<td>0.04%</td>
<td>0.02%</td>
<td>0.02%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>-0.01%</td>
<td>-0.01%</td>
<td>-0.01%</td>
<td>-0.01%</td>
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<tr>
<td>ST DEV</td>
<td>0.0226%</td>
<td>0.0226%</td>
<td>0.0115%</td>
<td>0.0128%</td>
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</table>

CHF 1M Rates 2012-2015
### Table 13-C

<table>
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<th>CORf</th>
<th>ARRf</th>
<th>ADRf</th>
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</thead>
<tbody>
<tr>
<td>MIN</td>
<td>-0.78%</td>
<td>-0.78%</td>
<td>-0.75%</td>
<td>-0.75%</td>
</tr>
<tr>
<td>MAX</td>
<td>-0.72%</td>
<td>-0.72%</td>
<td>-0.73%</td>
<td>-0.73%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>-0.74%</td>
<td>-0.74%</td>
<td>-0.74%</td>
<td>-0.74%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.0062%</td>
<td>0.0062%</td>
<td>0.0047%</td>
<td>0.0049%</td>
</tr>
</tbody>
</table>

#### Graph 13-C

**CHF 1M Rates Recent**

Date: 3/21/2015

- Spread (bps)
- Date

- SORF
- CORF
- ARRF
- ADRf
6 month CHF

Graph 14-A

<table>
<thead>
<tr>
<th></th>
<th>SORf</th>
<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
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</thead>
<tbody>
<tr>
<td>MIN</td>
<td>-0.07%</td>
<td>-0.07%</td>
<td>0.00%</td>
<td>0.02%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.32%</td>
<td>0.32%</td>
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<td>0.06%</td>
</tr>
<tr>
<td>AVERAGE</td>
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<td>0.03%</td>
<td>0.03%</td>
<td>0.04%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.0273%</td>
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<td>0.0168%</td>
<td>0.0119%</td>
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CHF 6M Rates Post-crisis

Date

Spread (bps)
### Graph 14-B

<table>
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<tr>
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<th>SORf</th>
<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
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</thead>
<tbody>
<tr>
<td>MIN</td>
<td>-0.10%</td>
<td>-0.10%</td>
<td>-0.03%</td>
<td>-0.03%</td>
</tr>
<tr>
<td>MAX</td>
<td>0.04%</td>
<td>0.04%</td>
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<td>0.01%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>-0.01%</td>
<td>-0.01%</td>
<td>-0.01%</td>
<td>-0.01%</td>
</tr>
<tr>
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<td>0.0226%</td>
<td>0.0069%</td>
<td>0.0111%</td>
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![CHF 6M Rates 2012-2015](image-url)
**Graph 14-C**

<table>
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<th>CORf</th>
<th>ARRf</th>
<th>ADRf</th>
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<td>-0.78%</td>
<td>-0.78%</td>
<td>-0.74%</td>
<td>-0.74%</td>
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<tr>
<td>MAX</td>
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<td>-0.72%</td>
<td>-0.73%</td>
<td>-0.72%</td>
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<td>-0.74%</td>
<td>-0.73%</td>
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<td>0.0020%</td>
<td>0.0037%</td>
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![CHF 6M Rates Recent Graph](image-url)
1-month AUD

Graph 15-A

<table>
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<th>CORf</th>
<th>ARRf</th>
<th>ADRf</th>
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</thead>
<tbody>
<tr>
<td>MIN</td>
<td>5.50%</td>
<td>5.52%</td>
<td>5.51%</td>
<td>5.54%</td>
</tr>
<tr>
<td>MAX</td>
<td>6.50%</td>
<td>6.54%</td>
<td>6.52%</td>
<td>6.45%</td>
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<td>5.94%</td>
<td>5.93%</td>
</tr>
<tr>
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<td>0.3334%</td>
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</table>
Graph 15-B

<table>
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<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
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<td>3.01%</td>
<td>3.00%</td>
<td>3.01%</td>
</tr>
<tr>
<td>MAX</td>
<td>7.25%</td>
<td>7.30%</td>
<td>7.27%</td>
<td>7.32%</td>
</tr>
<tr>
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<td>5.52%</td>
<td>5.55%</td>
<td>5.46%</td>
<td>5.64%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>1.7590%</td>
<td>1.7744%</td>
<td>1.7878%</td>
<td>1.7384%</td>
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</table>

AUD 1M Rates During-crisis

Date


Spread (bps)
Graph 15-C

<table>
<thead>
<tr>
<th></th>
<th>SORf</th>
<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>3.50%</td>
<td>3.51%</td>
<td>3.60%</td>
<td>3.33%</td>
</tr>
<tr>
<td>MAX</td>
<td>4.75%</td>
<td>4.77%</td>
<td>4.76%</td>
<td>4.78%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>4.46%</td>
<td>4.48%</td>
<td>4.50%</td>
<td>4.46%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.3811%</td>
<td>0.3839%</td>
<td>0.3557%</td>
<td>0.4137%</td>
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</table>

AUD 1M Rates Post-crisis

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<tbody>
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<tr>
<td>2/12/2010</td>
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</tr>
<tr>
<td>5/12/2010</td>
<td>3.60%</td>
</tr>
<tr>
<td>8/12/2010</td>
<td>3.33%</td>
</tr>
<tr>
<td>11/12/2010</td>
<td>3.50%</td>
</tr>
<tr>
<td>2/12/2011</td>
<td>3.50%</td>
</tr>
<tr>
<td>5/12/2011</td>
<td>3.50%</td>
</tr>
<tr>
<td>8/12/2011</td>
<td>3.50%</td>
</tr>
</tbody>
</table>

Legend:
- SORF
- CORf
- ARRF
- ADRf
Graph 15-D

<table>
<thead>
<tr>
<th></th>
<th>SORf</th>
<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>2.50%</td>
<td>2.51%</td>
<td>2.50%</td>
<td>2.51%</td>
</tr>
<tr>
<td>MAX</td>
<td>4.50%</td>
<td>4.52%</td>
<td>4.30%</td>
<td>4.53%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>3.31%</td>
<td>3.32%</td>
<td>3.27%</td>
<td>3.37%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.6052%</td>
<td>0.6087%</td>
<td>0.5955%</td>
<td>0.6195%</td>
</tr>
</tbody>
</table>

AUD 1M Rates 2012-2015

Spread (bps)

Date


SORF  CORF  ARRF  ADRF
## Graph 15-E

<table>
<thead>
<tr>
<th></th>
<th>SORf</th>
<th>CORf</th>
<th>ARRf</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>1.50%</td>
<td>1.50%</td>
<td>1.50%</td>
<td>1.50%</td>
</tr>
<tr>
<td>MAX</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.01%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>1.62%</td>
<td>1.62%</td>
<td>1.61%</td>
<td>1.64%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.1950%</td>
<td>0.1955%</td>
<td>0.1860%</td>
<td>0.2007%</td>
</tr>
</tbody>
</table>

**AUD 1M Rates Recent**

![Graph showing AUD 1M Rates Recent]
6-month AUD

Graph 16-A

<table>
<thead>
<tr>
<th></th>
<th>SORf</th>
<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>5.50%</td>
<td>5.65%</td>
<td>5.57%</td>
<td>5.73%</td>
</tr>
<tr>
<td>MAX</td>
<td>6.50%</td>
<td>6.72%</td>
<td>6.79%</td>
<td>6.58%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>5.91%</td>
<td>6.08%</td>
<td>6.13%</td>
<td>6.06%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.3371%</td>
<td>0.3578%</td>
<td>0.3603%</td>
<td>0.3350%</td>
</tr>
</tbody>
</table>
Graph 16-B

<table>
<thead>
<tr>
<th></th>
<th>SORf</th>
<th>CORf</th>
<th>ARRf</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>3.00%</td>
<td>3.04%</td>
<td>3.02%</td>
<td>3.12%</td>
</tr>
<tr>
<td>MAX</td>
<td>7.25%</td>
<td>7.52%</td>
<td>7.38%</td>
<td>7.65%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>5.52%</td>
<td>5.69%</td>
<td>5.17%</td>
<td>6.22%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>1.7590%</td>
<td>1.8513%</td>
<td>1.7778%</td>
<td>1.4878%</td>
</tr>
</tbody>
</table>

AUD 6M Rates During-crisis

[Graph showing AUD 6M Rates with dates from 9/4/2007 to 6/4/2009 and spread (bps) from 0.00% to 9.00%]
Graph 16-C

<table>
<thead>
<tr>
<th></th>
<th>SORf</th>
<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>3.50%</td>
<td>3.56%</td>
<td>3.91%</td>
<td>3.13%</td>
</tr>
<tr>
<td>MAX</td>
<td>4.75%</td>
<td>4.87%</td>
<td>4.81%</td>
<td>4.92%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>4.46%</td>
<td>4.57%</td>
<td>4.60%</td>
<td>4.39%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.3811%</td>
<td>0.3977%</td>
<td>0.2252%</td>
<td>0.5776%</td>
</tr>
</tbody>
</table>

AUD 6M Rates Post-crisis

- SORF
- CORf
- ARRF
- ADRf

Date


Spread (bps)
Graph 16-D

<table>
<thead>
<tr>
<th></th>
<th>SORf</th>
<th>CORf</th>
<th>ARRf</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>2.50%</td>
<td>2.53%</td>
<td>2.52%</td>
<td>2.66%</td>
</tr>
<tr>
<td>MAX</td>
<td>4.50%</td>
<td>4.60%</td>
<td>4.21%</td>
<td>4.88%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>3.31%</td>
<td>3.36%</td>
<td>3.11%</td>
<td>3.68%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.6052%</td>
<td>0.6263%</td>
<td>0.5091%</td>
<td>0.6858%</td>
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</table>

AUD 6M Rates 2012-2015
Graph 16-E

<table>
<thead>
<tr>
<th></th>
<th>SORf</th>
<th>CORf</th>
<th>ARRF</th>
<th>ADRf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>1.50%</td>
<td>1.51%</td>
<td>1.51%</td>
<td>1.52%</td>
</tr>
<tr>
<td>MAX</td>
<td>2.00%</td>
<td>2.02%</td>
<td>1.94%</td>
<td>2.03%</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>1.62%</td>
<td>1.63%</td>
<td>1.57%</td>
<td>1.71%</td>
</tr>
<tr>
<td>ST DEV</td>
<td>0.1950%</td>
<td>0.1984%</td>
<td>0.1216%</td>
<td>0.2164%</td>
</tr>
</tbody>
</table>
Spread Adjustments

Forward Approach

As this is a "forward looking" method, the input market data is based upon the market swap quotes from only one day, May 31st, 2018. Maturities and curve construction varied across the four currencies, with the longest input maturity at 20 to 30 years.

The graphs are based upon forward swap (or FRA) rates, obtained (calibrated) via "dual curve stripping" of the input swap curves, using standard Bloomberg interpolation/extrapolation methods (extrapolation beyond the final input maturity is based upon "constant forward" extrapolation).

For more information on swap curve construction, dual curve stripping, and interpolation/extrapolation methods, please see OIS <go> on a Bloomberg Terminal.

For all four currencies, Graphs 17 through 33 illustrate the forwards computed from the IBOR swap and overnight-index-swap (OIS) curves, out to 60 years, and their spreads, in the 1-month, 3-month, 6-month and combined IBOR tenors (and 12-month IBOR tenor for GBP).

**NOTE1:** The forward credit spreads shown have multiple points of inflection (i.e., they vary back and forth between convex and concave shape, etc.). This could be improved with joint curve calibration/stripping. However for the purpose of this consultation, these graphs should suffice as a reasonable, approximate representation of forwards spreads.

**NOTE2:** The OIS forwards that are projected from this calibration of OIS market quotes, are (implicitly) consistent with the compounded setting in arrears rate, as described in Annex A.

Please note that the examples below are rough illustrations for informational purposes. Spread levels implied by these methodologies are sensitive to the parameters chosen (e.g. period over which historical average is taken) and may take a range of values – the spreads shown are illustrative examples. Actual build out and implementation of the selected approach may yield different values. However, the graphs below should provide a good sense of how the approaches would function.
GBP

Graph 17

GBP 1M Forward Rates and Spreads

Years

Rates

Spread (bps)

GBP.1M
OIS
Diff
Graph 18

GBP 3M Forward Rates and Spreads

Years

Rates

Spread (bps)

GBP.3M
OIS
Diff
Graph 19

GBP 6M Forward Rates and Spreads

Graph showing GBP 6M Forward Rates and Spreads with three curves representing different rates:
- GBP 6M
- OIS
- Diff

The curves are plotted against years on the x-axis and rates and spreads (bps) on the y-axis.
Graph 20

GPB 12M Forward Rates and Spreads

Rates

Spread (bps)

Years
Graph 21

GBP Forward Spreads

Years

bps

0 10 20 30 40 50 60

0 10 20 30 40 50 60

1mo 3mo 6mo 12mo
JPY

Graph 22

JPY 1M Forward Rates and Spread

Years

Rates

Spread (bps)

JPY 1M
OIS
Spread
Graph 24

JPY 6M Forward Rates and Spread

Years

Rates

Spread (bps)

JPY 6M Forward Rates and Spread

- JPY 6M
- OIS
- Spread
Graph 25

JPY Forward Spreads

Years
0 10 20 30 40 50 60 70

Spread (bps)
0 2 4 6 8 10 12 14 16 18

1mo 3mo 6mo
CHF

Graph 26

CHF 1M Forward Rates and Spreads

Rates

Spread (bps)

Years

CHF.1M OIS Spread
CHF 3M Forward Rates and Spreads

Graph 27

- CHF.3M
- OIS
- Spread
Graph 28

CHF 6M Forward Rates and Spreads

- Rates
- Spread (bps)

Axis Title

CHF.6M  OIS  Spread
Graph 29

CHF Forward Spreads

- Spread (bps)
- Years

1mo, 3mo, 6mo
AUD

Graph 30
AUD 3M Forward Rates and Spreads

Graph 31
Graph 33

AUD Forward Spreads

spread (bps)

<table>
<thead>
<tr>
<th>Years</th>
<th>1mo</th>
<th>3mo</th>
<th>6mo</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>40</td>
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<td>50</td>
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<td>60</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- Blue: 1mo
- Orange: 3mo
- Gray: 6mo
Historical Mean/Median Approach

For all four currencies in the 1-month and 6-month IBOR tenors, Graphs 34 through 49 illustrate an average (mean) spread over the past five years, with linear interpolation/extrapolation beyond May31st, 2018 over the next year (i.e., the "transitional period"), and beyond that, constant extrapolation to the mean. These are all based on the compounded setting in arrears rate.

Please note that the examples below are rough illustrations for informational purposes. Spread levels implied by these methodologies are sensitive to the parameters chosen (e.g. period over which historical average is taken) and may take a range of values – the spreads shown are illustrative examples. Actual build out and implementation of the selected approach may yield different values. However, the graphs below should provide a good sense of how the approaches would function.
GBP

Graph 34

GBP 1M Credit Spread (Method 2) with ARRf; Long History View
Graph 35

GBP 1M Credit Spread (Method 2) with ARRf; Short History View

Spread (bps)

Date


Future  Past
Graph 36

GBP 6M Credit Spread (Method 2) with ARRf; Long History View

<table>
<thead>
<tr>
<th>Date</th>
<th>Spread (bps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/1/2012</td>
<td></td>
</tr>
<tr>
<td>8/14/2013</td>
<td></td>
</tr>
<tr>
<td>12/27/2014</td>
<td></td>
</tr>
<tr>
<td>5/10/2016</td>
<td></td>
</tr>
<tr>
<td>9/22/2017</td>
<td></td>
</tr>
<tr>
<td>2/4/2019</td>
<td></td>
</tr>
<tr>
<td>6/18/2020</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- Blue: Future
- Orange: Past
Graph 37

GBP 6M Credit Spread (Method 2) with ARRf; Short History View
JPY

Graph 38

JPY 1M Credit Spread (Method 2) with ARF; Long History View

Date

Spread (bps)


Future Past
Graph 39

JPY 1M Credit Spread (Method 2) with ARRf; Short History View

Date

Future  Past
Graph 40

JPY 6M Credit Spread (Method 2) with ARRf; Long History View
Graph 41

JPY 6M Credit Spread (Method 2) with ARRf; Short History View

Spread (bps)

Date


Future  Past
CHF

Graph 42

CHF 1M Credit Spread (Method 2) with ARRf; Long History View

Date

Future Past
Graph 43

CHF 1M Credit Spread (Method 2) with ARRf; Short History View

Spread (bps) vs. Date

Future Past

Graph 45

CHF 6M Credit Spread (Method 2) with ARF; Short History View

Date

Spread (bps)
0.00 2.00 4.00 6.00 8.00 10.00 12.00

Future
Past
AUD

Graph 46

AUD 1M Credit Spread (Method 2) with ARRf; Long History View

Date

Spread (bps)


Future Past
Graph 47

AUD 1M Credit Spread (Method 2) with ARRf; Short History View

Date

Spread (bps)


Future
Past

0.00 5.00 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00
Graph 48

AUD 6M Credit Spread (Method 2) with ARRf; Long History View

Date
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00

Spread (bps)

Future
Past
Graph 49

AUD 6M Credit Spread (Method 2) with ARF; Short History View

Date

Spread (bps)
0.00 10.00 20.00 30.00 40.00 50.00 60.00

Future Past
Spot-Spread Approach

For all four currencies in the 1-month and 6-month IBOR tenors, Graphs 50 through 81 illustrate the spot-spread approach over the past 5 years, based upon 10-day, 5-day, and 1-day (i.e., "spot") moving averages.

Graphs 50 through 65 are based on the spot overnight rate.

Graphs 66 through 81 are based on the compounded setting in arrears rate. Please note that ISDA does not contemplate implementing the compounded setting in arrears rate with the spot-spread approach. Therefore these graphs are provided only for purposes of comparing the spot-spread approach to the historical mean/median approach and the forward approach (both of which are illustrated above based on the compounded in arrears rate).

Please note that the examples below are rough illustrations for informational purposes. Spread levels implied by these methodologies are sensitive to the parameters chosen (e.g. period over which historical average is taken) and may take a range of values – the spreads shown are illustrative examples. Actual build out and implementation of the selected approach may yield different values. However, the graphs below should provide a good sense of how the approaches would function.
GBP

Graph 50

GBP 1M Credit Spread (Method 3) with SORf Long History View

Date

Spread (bps)

-10.00
-5.00
0.00
5.00
10.00
15.00
20.00
25.00

27-Jun-13
21-Sep-13
27-Dec-13
27-Mar-14
27-Jun-14
27-Sep-14
27-Dec-14
27-Mar-15
27-Jun-15
27-Sep-15
27-Dec-15
27-Mar-16
27-Jun-16
27-Sep-16
27-Dec-16
27-Mar-17
27-Jun-17
27-Sep-17
27-Dec-17
27-Mar-18

5day moving avg
10day moving avg
Spot
Graph 51

GBP 1M Credit Spread (Method 3) with SORf Short History View

Date
12-Jun-17  12-Jul-17  12-Aug-17  12-Sep-17  12-Oct-17  12-Nov-17  12-Dec-17  12-Jan-18  12-Feb-18  12-Mar-18  12-Apr-18  12-May-18

Spread [bps]
0.00  5.00  10.00  15.00  20.00  25.00

- 5day moving avg
- 10day moving avg
- Spot
Graph 52

GBP 6M Credit Spread (Method 3) with SORf Long History View

Date

Spread (bps)

5day moving avg
10day moving avg
Spot
Graph 53

GBP 6M Credit Spread (Method 3) with SORf Short History View

Date
12-Jun-17, 12-Jul-17, 12-Aug-17, 12-Sep-17, 12-Oct-17, 12-Nov-17, 12-Dec-17, 12-Jan-18, 12-Feb-18, 12-Mar-18, 12-Apr-18, 12-May-18

Spread [bps]
0.00, 5.00, 10.00, 15.00, 20.00, 25.00, 30.00, 35.00, 40.00, 45.00, 50.00

- 5day moving avg
- 10day moving avg
- Spot
Graph 54

JPY 1M Credit Spread (Method 3) with SORf Long History View

Date


Spread (bps)

-10.00  -8.00  -6.00  -4.00  -2.00  0.00  2.00  4.00  6.00  8.00  10.00

5day moving avg  10day moving avg  Spot
Graph 55

JPY 1M Credit Spread (Method 3) with SORf Short History View

Date
22-Dec-17  22-Jan-18  22-Feb-18  22-Mar-18  22-Apr-18  22-May-18

Spread (bps)
-5.00 -4.00 -3.00 -2.00 -1.00 0.00 1.00 2.00 3.00 4.00

5day moving avg  10day moving avg  Spot
Graph 56

JPY 6M Credit Spread (Method 3) with SORf Long History View

Date

Spread (bps)

-10.00 -5.00 0.00 5.00 10.00 15.00 20.00


5day moving avg 10day moving avg Spot
Graph 57

JPY 6M Credit Spread (Method 3) with SORf Short History View

Date
22-Dec-17 22-Jan-18 22-Feb-18 22-Mar-18 22-Apr-18 22-May-18

Spread (bps)

5day moving avg 10day moving avg Spot
Graph 58
Graph 59

CHF 1M Credit Spread (Method 3) with SORf Short History View

Date

Spread (bps)

5day moving avg  10day moving avg  Spot
Graph 60

CHF 6M Credit Spread (Method 3) with SORf Long History View

Date

Spread (bps)

5day moving avg  10day moving avg  Spot
<table>
<thead>
<tr>
<th>Date</th>
<th>Spread (bps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-Sep-17</td>
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<tr>
<td>13-Oct-17</td>
<td></td>
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<tr>
<td>13-Nov-17</td>
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</tr>
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<td>13-Dec-17</td>
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<td>13-Feb-18</td>
<td></td>
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<td>13-Mar-18</td>
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</tr>
<tr>
<td>13-Apr-18</td>
<td></td>
</tr>
<tr>
<td>13-May-18</td>
<td></td>
</tr>
</tbody>
</table>

CHF 6M Credit Spread (Method 3) with SORf Short History View

Graph 61
AUD

Graph 62

AUD 1M Credit Spread (Method 3) with SORf Long History View
Graph 63

AUD 1M Credit Spread (Method 3) with SORf Short History View

Date

7 Mar-17 7 Apr-17 7 May-17 7 Jun-17 7 Jul-17 7 Aug-17 7 Sep-17 7 Oct-17 7 Nov-17 7 Dec-17 7 Jan-18 7 Feb-18 7 Mar-18 7 Apr-18 7 May-18

Spread (bps)

0.00 5.00 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00

5day moving avg 10day moving avg Spot
Graph 64

AUD 6M Credit Spread (Method 3) with SORf Long History View

Spread (bps) vs Date

-40.00 -20.00 0.00 20.00 40.00 60.00 80.00

5day moving avg 10day moving avg Spot

Dates:
- 2-Apr-13
- 2-Jul-13
- 2-Oct-13
- 2-Jan-14
- 2-Apr-14
- 2-Jul-14
- 2-Oct-14
- 2-Jan-15
- 2-Apr-15
- 2-Jul-15
- 2-Oct-15
- 2-Jan-16
- 2-Apr-16
- 2-Jul-16
- 2-Oct-16
- 2-Jan-17
- 2-Apr-17
- 2-Jul-17
- 2-Oct-17
- 2-Jan-18
- 2-Apr-18
Graph 65

AUD 6M Credit Spread (Method 3) with SORf Short History View

Date

Spread (bps)

5day moving avg  10day moving avg  Spot
GBP

Graph 66

GBP 1M Credit Spread (Method 3) with ARFa Long History View

Date

Spread (bps)


-10.00 -5.00 0.00 5.00 10.00 15.00 20.00

5 day moving avg 10 day moving avg Spot
Graph 67

GBP 1M Credit Spread (Method 3) with ARRf Short History View

Date:
- 12-Jun-17
- 12-Jul-17
- 12-Aug-17
- 12-Sep-17
- 12-Oct-17
- 12-Nov-17
- 12-Dec-17
- 12-Jan-18
- 12-Feb-18
- 12-Mar-18
- 12-Apr-18
- 12-May-18

Spread (bps):
- 10.00
- 8.00
- 6.00
- 4.00
- 2.00
- 0.00
- -2.00
- -4.00
- -6.00
- -8.00

Graph lines:
- 5day moving avg
- 10day moving avg
- Spot
GBP 6M Credit Spread (Method 3) with ARRf Long History View

Date

Spread (bps)

5day moving avg
10day moving avg
Spot
JPY

Graph 70

JPY 1M Credit Spread (Method 3) with ARRf Long History View

Date

Spread (bps)

Spot

5day moving avg

10day moving avg
Graph 71

JPY 1M Credit Spread (Method 3) with ARRf Short History View

<table>
<thead>
<tr>
<th>Date</th>
<th>Spread (bps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22-Dec-17</td>
<td>2.00</td>
</tr>
<tr>
<td>22-Jan-18</td>
<td>1.00</td>
</tr>
<tr>
<td>22-Feb-18</td>
<td>0.00</td>
</tr>
<tr>
<td>22-Mar-18</td>
<td>-1.00</td>
</tr>
<tr>
<td>22-Apr-18</td>
<td>-2.00</td>
</tr>
<tr>
<td>22-May-18</td>
<td>-3.00</td>
</tr>
</tbody>
</table>

Legend:
- 5day moving avg
- 10day moving avg
- Spot
JPY 6M Credit Spread (Method 3) with ARRf Long History View

Date

22-Nov-13 18.00
22-Feb-14 16.00
22-May-14 14.00
22-Aug-14 12.00
22-Nov-14 10.00
22-Feb-15 8.00
22-May-15 6.00
22-Aug-15 4.00
22-Nov-15 2.00
22-Feb-16 0.00
22-May-16
22-Aug-16
22-Nov-16
22-Feb-17
22-May-17
22-Aug-17
22-Nov-17
22-Feb-18
22-May-18

Spread (bps)

5 day moving avg
10 day moving avg
Spot
Graph 73

JPY 6M Credit Spread (Method 3) with ARRf Short History View

Date
22-Dec-17  22-Jan-18  22-Feb-18  22-Mar-18  22-Apr-18  22-May-18

Spread (bps)
0.00  1.00  2.00  3.00  4.00  5.00  6.00  7.00  8.00

5day moving avg  10day moving avg  Spot
CHF

Graph 74

CHF 1M Credit Spread (Method 3) with ARF Long History View
Graph 75
Graph 76

CHF 6M Credit Spread (Method 3) with ARRf Long History View

Date

Spread (bps)

5day moving avg
10day moving avg
Spot

Graph 77
AUD
Graph 78

AUD 1M Credit Spread (Method 3) with ARRf Long History View

Spread (bps)


Date

5day moving avg  10day moving avg  Spot