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EIOPA Discussion Paper
IBOR transitions

Following the new EU Benchmark Regulation (EU BMR), this EIOPA Discussion Paper addresses for the first time the subject of the ongoing changes to the new benchmark rates (or IBOR transitions).

IBOR transitions are a big challenge for both the regulators and the industry since they will primarily affect: (a) Liability valuations (b) Derivative valuations as well as (c) the structure of numerous (existing and new) financial and insurance products.

The focus of this paper is to primarily address the issues identified within the EIOPA Risk free rate (RFR) environment. We are building on the existing RFR methodology and we propose options and solutions for consideration.

In particular, we highlight the potential impact of the IBOR transitions on the definition and the use of the Credit Rate Adjustment (CRA) currently applied on the RFR term structures. Furthermore, we propose options and a coherent approach for dealing with the new term structures calculated with the new benchmark rates for all currencies.

I. Introduction

1. In 1 January 2018, the new EU Benchmark Regulation (EU BMR) came into force. The EU BMR requires financial benchmarks to be transparent and to measure the underlying economic reality in a representative way. This requires the use of clear methodologies, based on reliable, appropriate, available and accurate market trade data when constructing financial benchmarks. As a result, in several key jurisdictions alternative risk-free reference rates (ARRs) were developed.

2. For the euro area rates, EONIA (Euro Over-Night Index Average) ceased to exist on the 30th September 2019. From 2 October 2019 until 31 January 2021, two rates are available: The €STR (Euro Short Term Rate) and the recalibrated EONIA (€STR plus a fixed spread of 8.5 bps). On 31 December 2021, the recalibrated EONIA will cease to exist and as of 3 January 2022 only €STR will be available.

3. In other jurisdictions, other ARRs were also developed such as the Secured Overnight Financing Rate (SOFR) in the USA, the Swiss Average Rate Overnight (SARON) in Switzerland and the Tokyo Overnight Average Rate (TONAR) in Japan and the Sterling Over Night Index Average (SONIA) in the UK.

4. At this point, we need to highlight the fact that in some cases it has been decided that old rates will cease to exist whereas in some other cases old rates would need to be replaced by new ones, which would fulfil the new criteria. The approach and the rate of change varies across jurisdictions. EIOPA seeks to adopt a common approach across the EU to the transition to the new rates.

5. The transition is a big challenge for both the regulators and the industry. New rates have differences between each other and the timing of the change for each jurisdiction may vary which will imposes an additional challenge. Overall, the impact of the IBOR transitions in all currencies will be directly reflected on: (a) Liability valuations, (b) ALM calculations and derivative valuations, (c) the structure of numerous (existing and new) financial and insurance products, which will refer to the new rates. Recalibration of existing products and revaluations are expected to take place.

6. The focus of this discussion paper is to address the issues identified in the EIOPA RFR methodology and on the EIOPA RFR production and to propose solutions and options for consideration. The proposed approaches are generic and can be applied to all currencies.

7. It has to be noted that IBOR transitions is a market driven change. EIOPA's RFR methodology seeks to reflect current market conditions rather than leading them in order to continue producing consistent RFR term structures. According to EIOPA's RFR methodology, EIOPA's approach is designed to secure the following objectives: (a) Replicability of the methodology by undertakings (b) Market consistency of the RFR term structures produced (c) Stability for insurance undertakings and (d) Interests of policyholders[1]. All four criteria along with the criterion of the feasibility of the implementation within the RFR framework have been considered thoroughly.

[1] Also available in, EIOPA-BoS-19/408 - Technical documentation of the methodology to derive EIOPA's risk-free interest rate term structures, page 7

8. Additional issues related to the IBOR transitions, which emerge outside the RFR environment and may affect directly or indirectly the insurance industry and the policyholders are not covered in this paper.

II. Impact on RFR Methodology

a) How IBOR rates affect the RFR methodology

9. There are two types of benchmark rates: (a) Interbank Offered Rates (IBORs) and (b) Over-Night Index Average rates (OIS). Interest rate swap instruments currently used for the inter- and extrapolation of the RFR term-structures have floating legs which are solely based on IBOR benchmark rates.

10. Given that in some cases it is expected that IBOR rates will disappear and be replaced by OIS rates, the calculation of the Credit Risk Adjustment (CRA) is also expected to be affected.

11. In 2020, the Deep Liquid and Transparent (DLT) methodology will also need to take into account the existence of the new rates[2].The DLT methodology is applied to all input instruments before they can be included in the EIOPA RFR production. IBOR transitions will have an additional impact on the overall assessment.

b) Impact of the IBOR transitions on the CRA

12. Interbank offered rates (IBORs) embed credit risk. In order to adjust for this credit risk, EIOPA has to apply the CRA. The calculation of the credit risk adjustment (CRA) has been developed in accordance with recital 20 and Article 45 of the Delegated Regulation (see Annex) which states:

13. *"…The adjustment shall be determined on the basis of the difference between rates capturing the credit risk reflected in the floating rate of interest rate swaps and overnight indexed swap rates of the same maturity, where both rates are available from deep, liquid and transparent financial markets…."*

14. Within some jurisdictions, it has been decided that the specific IBOR based swap instruments will cease to exist and markets will adopt new OIS based swap instruments. OIS rates are considered to be risk free. Therefore, when the floating rate of the interest rate swap is changed from IBOR to OIS, based on the definition of the CRA, the spread of the two rates becomes zero and hence no credit risk adjustment is needed. The impact of continuing to apply the credit risk adjustment on the new OIS based term structures would be at least 10 basis points and its application would result in lower and market inconsistent RFR term structures.

15. However, article 44 (See Annex) allows for non-application of the CRA when interest rate swaps do not reflect a premium for credit risk. Consequently, article 45 (See Annex) which is a technical provision for the the determination of the CRA, does not apply if the adjustment is not needed because of the absence of credit risk.

[2] This task is always performed in the first step of the DLT assessment.

16. As are result, we currently see two possible options in order to address the CRA issue within the RFR methodology:

Option (1): Do not perform any change and continue applying a minimum 10 bps to the RFR term structure.

Option (2): Leave the corridor '10 to 35 bps' unchanged for IBOR based swaps and set the CRA to zero for the fully OIS based swaps.

17. EIOPA supports option 2. Before the new OIS based instruments can be included within the RFR production this issue would need to be addressed and the methodology needs to be adjusted.

Questions to stakeholders:

Q1. Do you agree with the overall approach regarding the Credit Risk Adjustment?

Q2. Do you consider OIS based swaps to have a non-negligible[3] credit risk? If yes, what is your recommendation for calculating this risk?

Q3.Which is your preferred option for treatment of the credit risk adjustment?

Q4. Is there any alternative option you believe EIOPA would need to consider regarding the treatment of the CRA?

c) Impact on the DLT approach

18. Continuous monitoring of market volumes is taking place in order to determine if and to what extent the new OIS instruments satisfy the Deep Liquid and Transparent criteria (DLT) for all maturities up to Last Liquid Point (LLP). The DLT test is an additional prerequisite for the new instruments before they can be included in the RFR term structure production.

19. EIOPA has already set up a powerful monitoring tool for the traded volumes of the swaps based on the new and the old rates (both IBOR and OIS). Currently we are in a position to monitor approximately 95% of the relevant swaps trades.

20. The assessment of depth and liquidity of the swap market is carried out on the basis of swap trade data, in particular the number and notional amount of trades. In order to ensure an assessment that is consistent across currencies the applied criteria in terms of thresholds are objective and clearly specified[4].

[3] Negligible is defined as below one basis point.

[4] These thresholds are the same that ESMA proposed for assessing liquidity for the purpose of MiFiD 2 (see page 92 of the draft RTS on transparency requirements for trading venues and investment firms in respect of bonds, structured finance products, emission allowances and derivatives: https://www.esma.europa.eu/sites/default/files/library/2015/11/2015-esma-1464_annex_i_-_draft_rts_and_its_on_mifid_ii_and_mifir.pdf).

21. The starting point for the assessment are the following initial thresholds for depth and liquidity per tenor:

- the average daily notional amount traded is at least EUR 50 000 000,
- the average daily number of trades is at least 10.

22. Only single-currency fixed-to-floating swaps are considered for assessing the criteria. The assessment is made separately for each currency and tenor.

23. Currently none of the new OIS based curves can be considered DLT according to EIOPA's criteria. In many cases individual tenors are observed to be liquid. However, in order for the curve to be considered DLT and enter into the EIOPA RFR production the majority of DLT points (including especially the LLP and the first liquid point) for each curve must be liquid. Currently this is not the case for any of the currencies. However, EIOPA believes that this can change rapidly within the next six to nine months.

III. Impact on RFR Production

24. Due to the IBOR transition, the existing interest rate swap (IRS) products will become less liquid due to being (gradually) transformed into new/reformed IRS products. This will change the available tenors of IRS for the construction of the relevant risk-free rate term structures. The transition to new IRS products presents a challenge for the RFR production.

25. Once the DLT status of the RFR term structure based on the new swaps has been determined, the new instruments would need to enter in production.

26. During the 'transition' period from the old to the new swap instruments there are likely to be two liquid term structures (the old and the new), for an unknown period of time. Three options on the way this issue can be addressed are described below. Please note that, the proposed options are generic and can be applied to all the interest rate swaps instruments.

Option 1

27. Replace the whole old curve of a specific currency with the new one once the total volume of the swaps traded under the new rate reach a specific pre-defined threshold (e.g. 55%, 65% or 75% of total) for all deep, liquid and transparent (DLT) points of the term structure. The transition would occur instantly for each individual currency but at different times for different currencies. A sufficiently long notice period will need to be communicated.

28. Main advantage: Clear and easy implementation from the technical side. On EIOPA side, it requires a one-off preparation for each currency. However, EIOPA will need to communicate volumes and thresholds in advance. Once the predefined volume is reached, the change to the new curve can be announced with a notice period.

29. Main disadvantage: A sudden switch from one curve to the other used for the calculation of the RFR structures will cause breaks in the RFR term structure which will cause instability.

Options 2 and 3

30. Gradually replace the curves of a specific currency based on the old rate with a combination of instruments of old and new rates. The transition will occur progressively for each currency subject to the volumes traded and data availability.

31. The gradual replacement of the curves would start when the current Last Liquid Point (LLP) of the IBOR based curve would become also available for the OIS based curve. The combination of old and new rates can take different forms.

32. EIOPA has investigated two possibilities on how this may occur. In both cases, the volumes and trades of IBOR and OIS instruments are combined and the thresholds of the DLT methodology are applied. Based on the resulting DLT points, term structures for both instruments are independently created according to the RFR methodology. The two options (2 and 3) refer to two possible ways the two term structures can be blended.

33. *Option 2 - Total volume based approach*: The ratio of the total volume of all DLT points for OIS instruments to the total volume of all DLT points for both instruments is calculated and applied as a weight to the tenors of the curve. i.e. if the ratio amounts to 25%, each tenor of the final curve is the result of 25% of the OIS based RFR and 75% of the IBOR based RFR.

34. *Option 3 - Tenor bucket volume approach*: The whole curve is divided into buckets of 10 tenors, i.e. 1-10Y, 11-20Y, etc. The ratio of the total volume of all DLT points in one bucket for OIS instruments to the total volume of all DLT points in one bucket for both instruments is calculated and applied as a weight to the tenors of the curve for this specific bucket. i.e. if the ratio for the bucket 1-10Y amounts to 25% and the ratio for the bucket 11-20Y amounts to 20%, the final curve within the bucket 1-10Y is the result of 25% of the OIS based RFR and 75% of the IBOR based RFR. The final curve within the bucket 11-20Y would use 20% for the OIS based RFR respectively.

35. *Main advantage*: Data breaks will be avoided in the production of the RFR term structures. Options 2 and 3 will provide significantly more stability than option 1. More stability is also expected under Option 2 due to the application of a single weight to the RFR curve as a whole.

36. *Main disadvantages*: The technical implementation is more complicated and communication not so straightforward since the RFR production would be based on new / unknown parameters (different unpublished volumes for each curve). EIOPA will publish the weights at regular intervals. Market monitoring will have to be intensive. Finally, replicability by the industry can become more demanding especially for smaller undertakings.

Table 1: Summary of the proposed options		
	Option 1	**Options 2 and 3**
Description	Replace the whole curve of a specific currency with the new one once the total volume of the instruments traded under the new rate reaches a specific pre-defined threshold.	Gradually replace the curves of a specific currency based on the old rate with a combination of instruments of old and new rates.
Concept	One-off change for every currency	Create a new term structure based on a weighted average of tenors for each currency. 2 options have been investigated: ***Option (2) Total Volume based approach*** ***Option (3) Tenor bucket volume approach***
Advantages	Clear/Easy communication	Data breaks in the RFR structure will be avoided especially under Option (2)
Disadvantages	Possible breaks in the RFR term structure / instability	Relatively complex but feasible technical implementation.
Replicability	Possible but not straightforward. EIOPA will need to publish the methodology, traded volumes and the thresholds.	Possible but not straightforward. EIOPA will need to communicate the methodology. The continuous publication of changing volumes and weights will need to take place.
Market consistency	Market consistent	Market consistent
Stability for insurers	Breaks in the term structure will create instability.	Under Option 2, the transition will take place in the smoothest possible way. Breaks in the term structure cannot be totally excluded under Option 3 since this approach may result in a skewed term structure.
Implementation within RFR Production	Relatively simple	Technically more complex but feasible.

37. Based on the monitoring and the discussions performed so far, EIOPA recommends Option 2 for implementation within the RFR production. Out of the three options considered, it is the option which ensures the maximum level of stability for the insurance sector.

38. Furthermore, given that EIOPA's RFR methodology seeks to reflect current market conditions rather than leading them in order to produce consistent RFR term structures, option 2 is the option which in our opinion will ensure that the shift to the new OIS term structure will take place in a smooth gradual way based purely on observed market volumes.

39. Finally, it is possible that, at the end of the transition for a specific currency/rate, the market for swaps would stabilise to a range of e.g. 15-25% on the old IBOR rate and around the area of 75-85% on the new OIS rates. Under this hypothetical scenario, we believe it is essential to propose a threshold or trigger for a complete switch to the new OIS based curve. Our proposal for that trigger is set at 85% of the total volume traded.

Questions to stakeholders:

Q5. Do you agree with the overall approach regarding the blending of the new and old RFR term structure?

Q6. Do you agree with the proposal of EIOPA implementing option 2?

Q7. Do you think there can be another alternative EIOPA needs to consider regarding the blending of the curves? Please provide an explanation.

Q8. Do you agree with the proposal of EIOPA to set a trigger at 85% of the total volume traded, prior to a complete shift to the new OIS term structure?

IV. Next steps

40. Stakeholders are invited to provide EIOPA with their feedback by Thursday the 30th of April 2020.

41. Based on this feedback, EIOPA will produce a consultation paper, which will include specific policy recommendations on the subject of IBOR transitions.

Annex I – Current wording of articles of the Delegated Regulation referring to the Credit Risk Adjustment (CRA)

Article 44

Relevant financial instruments to derive the basic risk-free interest rates

1. For each currency and maturity, the basic risk-free interest rates shall be derived on the basis of interest rate swap rates for interest rates of that currency, adjusted to take account of credit risk.

2. For each currency, for maturities where interest rate swap rates are not available from deep, liquid and transparent financial markets the rates of government bonds issued in that currency, adjusted to take account of the credit risk of the government bonds, shall be used to derive the basic risk free-interest rates, provided that, such government bond rates are available from deep, liquid and transparent financial markets.

Article 45

Adjustment to swap rates for credit risk

The adjustment for credit risk referred to in Article 44(1) shall be determined in a transparent, prudent, reliable and objective manner that is consistent over time. The adjustment shall be determined on the basis of the difference between rates capturing the credit risk reflected in the floating rate of interest rate swaps and overnight indexed swap rates of the same maturity, where both rates are available from deep, liquid and transparent financial markets. The calculation of the adjustment shall be based on 50 percent of the average of that difference over a time period of one year. **The adjustment shall not be lower than 10 basis points and not higher than 35 basis points.**