IBOR transition

Discontinuation of LIBOR/IBORs –

The ICSDs' recommendations for a smooth transition

February 2021

Clearstream Banking S.A.

Euroclear Bank SA/NV

Contents

1. Introduction

1.1. Market context

The financial industry is working on the transition[1] from Interbank Offered Rates (IBORs) to new benchmark rates, also known as Alternative Reference Rates (ARRs) or Risk-Free Rates (RFRs), impacting a broad range of financial products and contracts.

The major impact for the International Central Securities Depositories (ICSDs), Clearstream Banking S.A. (Clearstream Banking Luxembourg) and Euroclear Bank SA/NV (Euroclear Bank), will be on asset servicing and, more concretely, interest payments for floating rate notes/securitisations.

The discontinuation of the London Interbank Offered Rate (LIBOR) is scheduled for the end of 2021 (potentially end of June 2023 for USD LIBOR[2]) and the reform and/or discontinuation of the other IBORs may take place around the same time[3]. As a result, the securities that use IBORs as benchmark rates with a tenor beyond 2021 may require a new reference rate.

Currently, the market is in a transition period and some of the newly-issued securities already refer to ARRs/RFRs. However, a significant number of securities still use IBORs, typically LIBOR or EURIBOR, to calculate the interest rate per payment, as defined in the Terms and Conditions of the security. For those securities, it is essential that the Terms and Conditions of the security include fallback provisions to cope with both a permanent and a temporary discontinuation of the IBOR benchmark rate.

1.2. Purpose of this document

This is a joint recommendation paper, co-written by the two ICSDs, Clearstream Banking Luxembourg and Euroclear Bank.

In this recommendation paper, the ICSDs would like to:

- clarify their role in interest payments on floating rate notes/securitisations and the operational considerations that need to be taken into account when moving to the new ARR/RFR models
- share their recommendations for a smooth transition from IBORs to ARRs/RFRs from an operational perspective for:
  - the migration of the existing securities, which will result in a significant increase in the volumes of corporate actions within a short timeframe (see section 3 for details)
  - the timing of the rate fixing – how it may impact the timeliness of information announcements and payments
  - the need to avoid ambiguities – it is important to have clear definitions related to the interest payment, such as how to define the record date, the fixing date/the observation period, the payment date, and the method to calculate the interest rate, in the Terms and Conditions of the security

[1] Background information can be found on the FCA and FSB websites.

[2] On 30 November 2020, ICE Benchmark Administration (IBA) announced that it will consult on its intention to cease the publication of:

- one-week and two-month USD LIBOR immediately following the publication on 31 December 2021
- overnight and one-, three-, six- and twelve-month USD LIBOR immediately following the publication on 30 June 2023

The final discontinuation date is still to be determined.

[3] The Euro Interbank Offered Rate (EURIBOR) is currently not expected to discontinue at the same time. However, the working group on euro RFRs is having public consultations on €STR-based fallback rates.

- highlight the impact of the IBOR transition on withholding tax and on the floating repo service (triparty)
- stimulate the dialogue between the different stakeholders in the market who will have to adapt to the IBOR transition, as it will probably require a significant effort and change management by all market players, including investors

This recommendation paper mainly focuses on Eurobonds[4], for which Euroclear Bank and Clearstream Banking Luxembourg act as Issuer ICSDs. Currently, there are more than 4,300 Eurobonds with a tenor beyond 2021 referencing LIBOR as the benchmark rate.

For certain domestic securities held on the books of the ICSDs, there might also be an impact, which will depend on the market practice or the domestic jurisdiction. The ICSDs will closely monitor the situation in the domestic markets and inform their clients accordingly via either an online communication (Euroclear Bank Newsflash/Clearstream Banking Luxembourg announcement) or a corporate action notification.

1.3. Target audience

This recommendation paper might be of interest for:

- issuers
- issuer's agents
- issuer's legal counsel assisting market participants with the preparation or the amendment of documents, such as the Terms and Conditions of the security (e.g. Prospectus, Final Terms, Pricing Supplement, etc.)
- arrangers (e.g. lead managers)
- Common Depositories and Common Service Providers
- the ICSDs' clients (Network, Corporate Actions, Income, Cash Management, Client Relationship Management and Client Service) and their underlying clients (investors)

1.4. List of reference documents and websites

How the IBOR transition will impact each individual security depends on the decision taken by the issuer, which will probably reflect the development in the market. For more information, please refer to the websites of the market associations, benchmark rate administrator, the relevant working groups per currency and the jurisdictions of the security, depending on the governing law, currency, country of the issuer, etc.

[4] Eurobonds are primarily deposited with Common Depositories/Common Safekeepers.

1.4.1. Market associations, benchmark rate administrator and jurisdictions (non-exhaustive list)

Name	Full name
AFME	Association for Financial Markets in Europe
EC	European Commission
FCA	UK's Financial Conduct Authority
FSB	Financial Stability Board
GFMA	Global Financial Markets Association
IBA	ICE Benchmark Administration
ICMA	International Capital Market Association
ICMSA	International Capital Market Services Association
ISDA	International Swaps and Derivatives Association
LMA	Loan Market Association

Note: for a list of **working groups per currency**, please refer to Annexes 1 and 2.

1.4.2. Recent ICMSA bulletins

Publication date	Reference number	Title
23/01/2020	200120/47	Benchmark replacement and fallback provisions
06/03/2020	200305/49	The discontinuation of LIBOR/IBORS – different approaches for transition under English law trust deeds and New York law indentures
12/06/2020	200610/50	The discontinuation of LIBOR/IBORS – timeline of a consent solicitation
20/01/2021	210118/54	The discontinuation of LIBOR/IBORS – implications for English-law note trustees and agency roles – Update – Legacy Transactions
20/01/2021	210118/55	The discontinuation of LIBOR/IBORS – operational and procedural considerations for Consent Solicitations and Written Resolutions

Note: additional bulletins may be released by ICMSA in the future. They will be available via the ICMSA link mentioned in section 1.4.1. 'Market associations, benchmark rate administrator and jurisdictions (non-exhaustive list)'.

2. Impact on the ICSDs' role in interest payments on floating rate notes/securitisations

The role of the ICSDs in interest payments on floating rate notes/securitisations is to:

- collect information on the payable rate, update the corporate action details and notify the relevant holders
- collect payments, reconcile and credit the cash proceeds to the relevant holders

This means that the change in the benchmark rate will not impact the ICSDs in their key role, as the ICSDs do not take part in the calculation/determination of the interest rate[5]. This is done by the issuer's agents.

However, the ICSDs' processes will be impacted due to:

- the migration of the existing securities to a new reference rate
- the change in the timing for rate fixing
- the increased complexity of the calculation method

In conclusion, the core services of the ICSDs for interest payments will not change. However, both ICSDs will need to adapt to a major change in the timing of the rate fixing for each interest payment.

[5] We use the term 'rate fixing' in this document to refer to the process to calculate/determine the interest rate by the issuer and its agents. More detailed information on rate fixing is available in section 4 of this document.

3. IBOR transition to the new reference rate for new and existing securities

There are still several uncertainties about where the journey of the IBOR transition for various currencies will lead:

- Will there be a forward-looking term rate, which meets IOSCO standards, for some of the currencies?

- Will the regulators impose changes to try to ease the migration? If so, when and how?

- Will there be a synthetic LIBOR to support the tough legacy contracts[6], which are difficult to proactively migrate to the new reference rate? Will it cover the migration of existing floating rate notes/securitisations to a new reference rate?

For newly-issued securities, the ICSDs recommend that issuers, in line with the guidelines by the relevant regulators, either:

- start using the ARRs/RFRs, especially for securities with a tenor beyond 2021, to avoid increasing the migration volumes already identified. When the ARRs/RFRs are used as the benchmark rate, the impact on interest payments and pro-rata temporis taxation, described in section 4 and section 5 in this recommendation paper, should also be taken into account

- include fallback provisions in the Terms and Conditions of the security to cope with both a permanent and a temporary discontinuation of the benchmark rate

For existing securities referencing IBORs, the ICSDs expect a significant increase in the volumes of the following corporate actions (both of which involve a change in the Terms and Conditions of the securities):

- a change of a benchmark rate by the issuer without solicitation of holders' consent.

- a change of a benchmark rate by the issuer with solicitation of holders' consent

The ICSDs' biggest concern is the potential high volumes of these corporate actions that will need to be handled within a short timeframe before the end of 2021[7], which is the expected discontinuation deadline for the IBORs. Both ICSDs highly recommend that issuers initiate a benchmark rate review process in respect of their outstanding capital markets securities as soon as possible, as it is likely to be time consuming. Ideally, any proposal by an issuer should be communicated to the noteholders no later than the end of July 2021, if the relevant benchmark rate is to be discontinued at the end of 2021. This will give the noteholders enough time to review the proposals and to react to the consent event. The closer it gets to the end of the transition period, the more difficult it will be to complete the migration in time. In addition, the ICSDs recommend issuers to avoid specific features in the consent solicitation event such as additional paper forms (e.g. for voting purposes) or disclosure requests about the identity of the final beneficial owner as this may delay the process.

Please refer to section 3.1 and 3.2 for more information on the migration of existing securities.

[6] For more information on tough legacy contracts, please refer to 'Paper on the identification of Tough Legacy Issues', which was released in May 2020 by the Working Group on Sterling Risk-Free Reference Rates.

[7] Or before the end of June 2023 for USD, provided that the publication of USD LIBOR is extended until then.

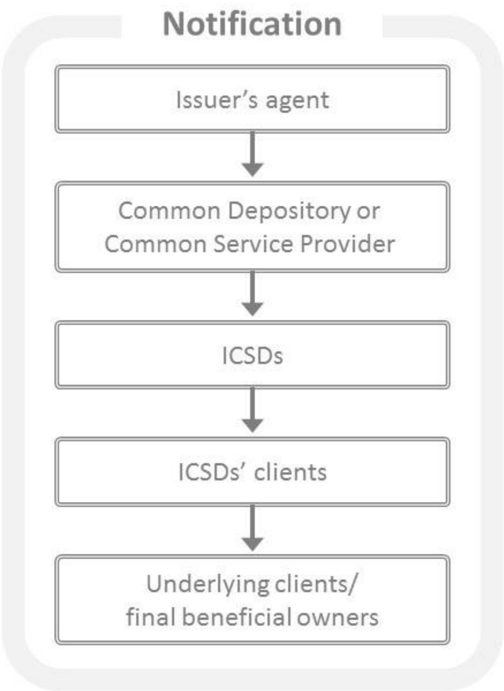
3.1. Change of a benchmark rate by the issuer without solicitation of holder's consent for existing securities

3.1.1. Corporate action

Under certain circumstances[8], the issuer may have a contractual right to unilaterally change the benchmark rate of existing securities from IBOR/LIBOR to ARR/RFR to calculate the interest for a certain security and make the related changes to the calculation method (e.g. modification of margin, etc.), without a need to solicit holders' consent.

In such cases, the issuer should notify all noteholders of the changes via a corporate action and share the relevant documentation (e.g. amended Terms and Conditions of the security). This corporate action should be cascaded down throughout the entire custody chain of the security in order to reach the relevant noteholders (beneficial owners). All parties in the custody chain should be aware that it may take time for the information to reach them via the relevant intermediaries.

Anticipated flow[9] for Eurobonds (ICSD model):



[8] The ICSDs' current understanding is that the issuer will decide which action to take based on what is defined as the fallback provisions in the Terms and Conditions of the security or based on the forced action by the jurisdiction, if any. Please also note that, if the consent is reached outside of the ICSDs (e.g. written resolution), the issuer should cascade the change in the Terms and Conditions of the security down through the custody chain.

[9] There may be additional custodial layers between the ICSD clients and final beneficial owners.

3.1.2. Recommended actions for the issuer

The ICSDs recommend that the issuer:

- discusses its proposals for benchmark rate modification with its agents that are involved with the calculation of the interest rate, communication or payment well in advance of the relevant 'interest period starting date'[10], in order to ensure that what is being proposed can be operationally supported by those agents before communicating the proposals to the noteholders.

- if there are common features across multiple securities, groups the benchmark rate modifications together and prepares:

  - a clear and standardised overview of the amendments applied to the Terms and Conditions of the security in the benchmark rate modification notice, referring to both the payment date and the starting date of the interest period as from when the changes start to apply (this information may be included in the Excel file if multiple ISINs)

  - both a blacklined version and clean version of the amended Terms and Conditions of the security

  - an Excel file listing the impacted ISINs (if multiple ISINs)

- asks its agent to notify the Common Depository or Common Service Provider and provide the relevant documentation

3.1.3. Recommended actions for the Common Depository or Common Service Provider

The ICSDs recommend that the Common Depository or Common Service Provider, upon receipt of the notice/documentation from the issuer's agent, informs both ICSDs about the benchmark rate modification in the governing documentation of the security by sending:

- a SWIFT MT 564 with the corporate action type CHAN ('Change'), mentioning 'BENCHMARK RATE CHANGE', followed optionally by any relevant details, in the narrative

- an email with a copy of the relevant documentation provided by the issuer, such as the benchmark rate modification notice (either a modification of benchmark rate or amendment in the fallback provisions) and/or the amended Terms and Conditions of the security (both blacklined version and clean version) and an Excel file listing the impacted ISINs (if multiple ISINs), specifying the following information in the subject:

  - type of corporate action (e.g. Benchmark rate change)

  - ISIN (or name of series if multiple ISINs)

  - 'PD dd/mm/yyyy for period starting dd/mm/yyyy' to indicate the relevant payment date and the period (if multiple ISINs, please refer to the earliest one)

    Example: Benchmark rate change ISIN XSnnnnnnnnnn PD 30/11/2021 for period starting 31/05/2021

    Important: if a significant number of benchmark rate modification events need to be sent at the same time, the ICSDs will prioritise them on the basis of the payment date, followed by the starting date of the interest period.

[10] The ICSDs make this recommendation considering the impact on the noteholders, who may need to use a new calculation method to calculate the accrued interest associated with any trades during this interest period or to update the accrued income for accounting purposes. As mentioned in section '1 Benchmark replacement provisions (b)' of the ICMSA bulletin 200120/47, the minimum notice period for the benchmark rate modification event should be at least 'ten business days prior to the first date on which a calculation is required to be made by the Agent'. However, changing the terms of the interest calculation at the end of the period may cause additional workload for the noteholders (e.g. market claim to adjust the difference in the accrued interest).

3.1.4. Subsequent actions by the ICSDs

Upon notification by the Common Depository or Common Service Provider, the ICSDs will notify their clients by:

- sending them a corporate action notification for CHAN ('Change') via SWIFT MT 564 and/or a proprietary communication channel
- making a copy of the relevant documentation (e.g. amended Terms and Conditions of the security) available upon request. How to receive the documentation will be described in the corporate action narrative

3.1.5. Recommended actions for the ICSDs' clients and their underlying clients

The ICSDs recommend that the ICSDs' clients and their underlying clients, upon receipt of the benchmark rate modification event:

- update their records accordingly and assess the impact on the operational processes due to the changes in the Terms and Conditions of the security (e.g. benchmark rate, rate fixing timing, etc.)
- if acting as a custodian, share this information with their underlying clients, so that they can also update their records and prepare for the change

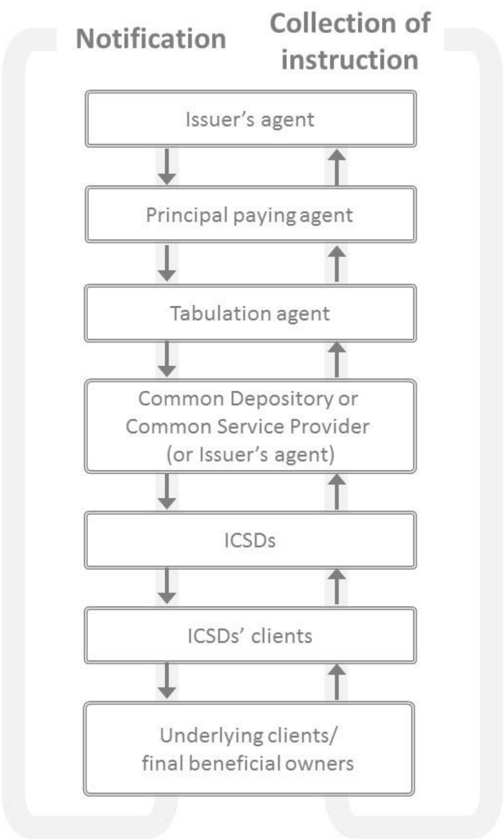
3.2. Change of a benchmark rate by the issuer with solicitation of holders' consent for existing securities

3.2.1. Corporate action

For existing securities, if the issuer decides or it is required by the Terms and Conditions of the security to solicit the consent of the holders to modify the benchmark rate[11], the issuer needs to launch a corporate action (which is also referred to in this section 3.2 as a consent solicitation) by taking the recommended actions explained in section 3.2.2.

[11] For securities referencing EURIBOR as the benchmark rate, the consent solicitation may relate to the addition of or changes in the fallback provisions in the Terms and Conditions of the security.

Anticipated flow[12] for Eurobonds (ICSD model):



Alternatively, if there are a limited number of known holders (e.g. following a private placement), the issuer may contact them directly to obtain the necessary written consent[13]. In such circumstances, the issuer will need to consider that any trustee or representative may require the noteholders to provide adequate proof of their holdings on any relevant date, as specified by the trustee or representative.

3.2.2. Recommended actions for the issuer

The ICSDs recommend that the issuer:

- refers to the ICMSA bulletin 200610/50 'The discontinuation of LIBOR/IBORS – timeline of a consent solicitation', in which the issuer is advised to:

  - liaise with its legal counsel, the trustee (if applicable) and its relevant agents once the issuer has identified the outstanding securities referencing LIBOR/IBORs, the replacement rate and the scope of the proposed modifications to the terms of the securities, to ensure that what is being proposed can be operationally supported by those agents before communicating the proposals to the noteholders.

  - appoint a solicitation agent and a tabulation agent to facilitate the consent solicitation

    Note: if another party than the Common Depository/Common Service Provider is appointed as a solicitation agent/a tabulation agent, the issuer or its agents need to notify the Common Depository/Common Service Provider of the consent solicitation and keep them informed of the results, in addition to the ICSDs

[12] There may be additional custodial layers between the ICSD clients and final beneficial owners.
[13] If the consent is reached outside of the ICSDs (e.g. written resolution), the issuer should cascade the change in the Terms and Conditions of the security down through the custody chain.

- aim to complete the consent solicitation as soon as possible, well in advance of the relevant 'interest period starting date'[14] and certainly not to delay and leave the exercise until the end of 2021

- if there are common features across multiple securities, groups the consent requests into a single consent solicitation document and prepares:
  - a clear and standardised overview of the proposed changes to the Terms and Conditions of each security in the consent solicitation document
  - the blacklined version of the amended Terms and Conditions of each security;
  - an Excel file listing the impacted ISINs (if multiple ISINs)
- refers to the ICMSA bulletin 210118/55 'The discontinuation of LIBOR/IBORS – operational and procedural considerations for Consent Solicitations and Written Resolutions' for the operational aspects to take into account. In general, the following aspects are key for the ICSDs:
  - use either the blocking or record date
  - use a fixed instruction window (standardised duration to collect instruction) of at least 10 business days or longer[15]
  - use the standardised participation options (e.g. CONY and NOAC[16])
  - avoid paper forms (use SWIFT as the exclusive channel to send instructions)
  - include the contact details of the solicitation agent and/or the tabulation agent[17]

3.2.3. Recommended actions for the Common Depository, Common Service Provider or issuer's agent

The ICSDs recommend that the Common Depository, Common Service Provider or issuer's agent:

- upon receipt of the issuer's instructions and the relevant documentation, informs both ICSDs about the consent solicitation by sending:
  - a SWIFT MT 564 with the corporate action type:
    - BMET (bondholder meeting) if a bondholder meeting is planned to obtain the consent
    - CONS (consent) if a bondholder meeting is not required

    mentioning 'BENCHMARK RATE CHANGE', followed by any relevant details, in the narrative
  - an email with a copy of the relevant documentation provided by the issuer, such as the consent solicitation memorandum, notice of meeting, the amended Terms and Conditions of the security (blacklined version) and an Excel file listing the impacted ISINs (if multiple ISINs), specifying the following information in the subject:

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[14] This recommendation is made considering the impact on the noteholders, who may need to use a new calculation method to calculate the accrued interest associated with any trades during this interest period or to update the accrued income for accounting purposes.
[15] Trust deeds and agency agreements typically require a longer instruction window than 10 business days.
[16] Please refer to Annex 3 for more details.
[17] As mentioned in the ICMSA bulletin – 210118/55, this information is not mandatory. However, '[d]irect communication between the noteholder and the Solicitation Agent and/or the Tabulation Agent may accelerate the resolution of enquiries if the noteholder has a query on the proposed changes or the content of the consent solicitation memorandum. Noteholders may also contact their custodian (or the ICSDs if the noteholders hold the notes as ICSD Participants) as their service provider. It may, however, take time if enquiries need to be raised through a custody chain.'

        - type of corporate action (e.g. Meeting or consent for benchmark rate change)
        - ISIN (or name of series if multiple ISINs)
        - 'DDL dd/mm/yyyy' to indicate the deadline of the instruction

    Example: Meeting for benchmark rate change ISIN XSnnnnnnnnnn DDL 30/11/2021

    Important: if a significant number of consent events need to be sent at the same time, the ICSDs will prioritise them on the basis of the deadline.

- provides the consent results as soon as they are known, as follows:
    - if consent has been reached:
        - an updated MT 564 with the consent status
        - an email announcing that consent has been reached, including the clean version of the amended Terms and Conditions of the security
    - if consent has not been reached:
        - an updated MT 564 with the consent status
        - an email announcing that consent has not been reached

3.2.4. Subsequent actions by the ICSDs

Upon notification by the issuer's solicitation agent (either the Common Depository, the Common Service Provider or the issuer's agent), the ICSDs will:

- notify their clients by:
    - sending them a corporate action notification for BMET/CONS event via SWIFT MT 564 and/or a proprietary communication channel
    - making a copy of the relevant documentation available upon request. How to receive the documentation will be described in the corporate action narrative
- collect instructions from their clients and share them with the tabulation agent (Common Depository, Common Service Provider or the issuer's agent)
- share the results of the consent solicitation with their clients upon receipt by, as explained above:
    - sending the updated corporate action notification (BMET/CONS)
    - making a copy of the relevant documentation (e.g. amended Terms and Conditions of the security) available upon request

3.2.5. Recommended actions for the ICSDs' clients and their underlying clients

The ICSDs recommend that the ICSDs' clients and their underlying clients, upon receipt of the consent solicitation event (BMET/CONS):

- promptly respond to the applicable corporate action(s) and send instructions in a timely manner, in line with the procedures and the instruction deadline specified in the corporate action

- if acting as a custodian, share the information and collect instructions from their underlying clients
- once notified that the consent threshold has been reached, update their records accordingly and assess the impact on the operational processes as a result of the changes to the Terms and Conditions of the security (e.g. benchmark rate, rate fixing timing, etc.)
- if acting as a custodian, share the results of the consent solicitation with their underlying clients, so that they can also update their records and prepare for the change

4. Impact on interest payments on floating rate notes/securitisations

4.1. Timing and complexity of rate fixing

The major operational differences between the ARRs/RFRs and IBORs are the timing and the increased complexity of the rate fixing, unless a forward-looking term rate is developed for the ARRs/RFRs in the future.

- LIBOR is a forward-looking rate that is available for:
  - seven tenors (overnight, one week, one month, two months, three months, six months and twelve months)
  - five currencies (CHF, EUR, GBP, JPY and USD)
- ARRs/RFRs[18] are backward-looking rates, i.e. overnight rates that are announced based on historical market data.

When ARRs/RFRs are used for the rate fixing, the following elements need to be taken into account to calculate the interest rate for a certain interest period based on the daily overnight ARRs/RFRs:

- **observation period** - as mentioned in Annex 4, there are various conventions to set the observation period. The convention that is commonly used for the securities referencing SONIA and SOFR is called ‘Lookback’. This means that a lag is set by moving the observation period a certain number of days, typically five business days (excluding the last day), before the starting and the ending date of the interest period or the payment date (see image b). If the ‘Payment delay’ convention is chosen, the impact on the record date[19] rule also needs to be assessed.
- **publication time of the last daily rate** - once the last daily rate is published (see Annex 1 for the timing), the rate fixing process can be started by the issuer’s calculation agent, involving the issuer and its paying agent

  Important: in practice, it may not be possible for the issuer’s calculation/paying agent to officially announce the rate on the same day as the publication date of the reference rate, considering:

  - **the time zone differences** – the interest rate that is calculated by the issuer’s calculation agent needs to be confirmed by the issuer before the official announcement is provided to the ICSDs via Common Depository/Common Service Provider. However, the relevant reference rate may be published (see Annex 1) outside the business hours of the issuer and its agents due to different time zones
  - **complexity of calculations** – more time may be required to take actions based on any fallback provisions, if applicable. In such cases, part of the reference rate data that is required for the calculation may not be available on the expected rate fixing date

Consequently, the issuer may decide to change the timing of the rate fixing date[20] as follows:

- **current (LIBOR): two business days before the start of the interest period** – this leaves enough time to transmit the rate information through the custody chain, investigate discrepancies, if any, and announce the payable rate well before the payment is made at the end of the applicable interest period

[18] See Annex 1 for more details on the ARRs/RFRs.
[19] If the Payment Due Date (PDD) is delayed by adding a business day count from the interest period ending date (IPED), the record date rule may require a change from PDD-1 ICSD Business Day (a default rule that is used for the securities that are deposited with a Common Depository/Common Safekeeper if there is no definition on the record date) to IPED-1 ICSD Business Day to reflect the period that the bond is traded cum-coupon.
[20] The rate fixing date is often referred to as ‘interest determination date’ in the Terms and Conditions of the security. Throughout this document, the term ‘rate fixing date’ or ‘Fixing Date’ will be used.

- **new (ARR/RFR): close to the end of the interest calculation period/payment date** (e.g. five business days prior) – this leaves very little buffer to transmit the rate information through the custody chain, address the discrepancies (if any) and announce the payable rate, in each case before the payment

In addition, the issuer will need to decide how to:

- use the overnight rate: simple daily averaged rate or the compounded rate/index. Currently, the compounded rate/index seems to be commonly used

- re-define the adequate margin

Summing up, the transition from LIBOR to the new backward-looking ARRs/RFRs:

- reduces the time the issuer and its agents have to process the rate fixing, unless:

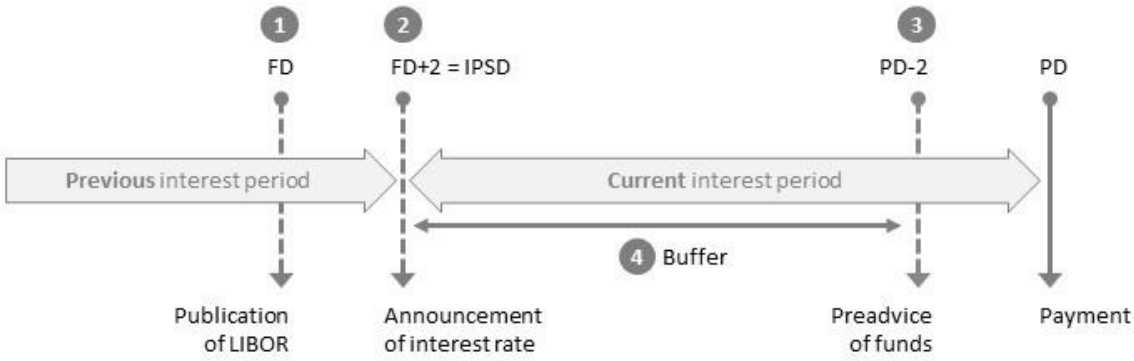
  - a term rate based on ARRs/RFRs is developed and used in the future

  - the issuer applies one of the conventions that works ‘in advance’ as described in Annex 4

- increases the complexity of the interest calculation method.

The below images illustrate the upstream processes for interest determined on a forward-looking versus a backward-looking basis:

a) Forward-looking model – Eurobonds (e.g. floating rate notes which reference LIBOR)



FD = Fixing Date IPSD = Interest Period Start Date PD = Payment Date

1 Fixing Date

In general, the fixing date is two business days before the start of the interest period.

The following actions take place once LIBOR is published:

1. The calculation/determination agent determines the rate.
2. The issuer reviews the rate (not applicable for securitisations).
3. The principal paying agent invoices the issuer.
4. The issuer approves the invoice (not applicable for securitisations).
5. The principal paying agent notifies the Common Depository/Common Service Provider.
6. The Common Depository/Common Service Provider notifies the ICSDs.
7. A notification is cascaded down through the custody chain to all noteholders.

Notes:

- The custody intermediaries in the chain, including the ICSDs, pass on the rate fixing notification and are not responsible for the correctness of the announced rate (no validation is performed for the calculation of interest rate).

- For securitisations, cash managers require sufficient time to prepare and agree on their reports for amounts payable at each stage of the waterfall, taking into account the priority of payments.

2 **Announcement of the interest rate at the start of the interest period**

As per the International Securities Operational Market Practice Book (ISMAG MPB), the interest rate should be announced within two business days as of the fixing date.

3 **Preadvice of funds**

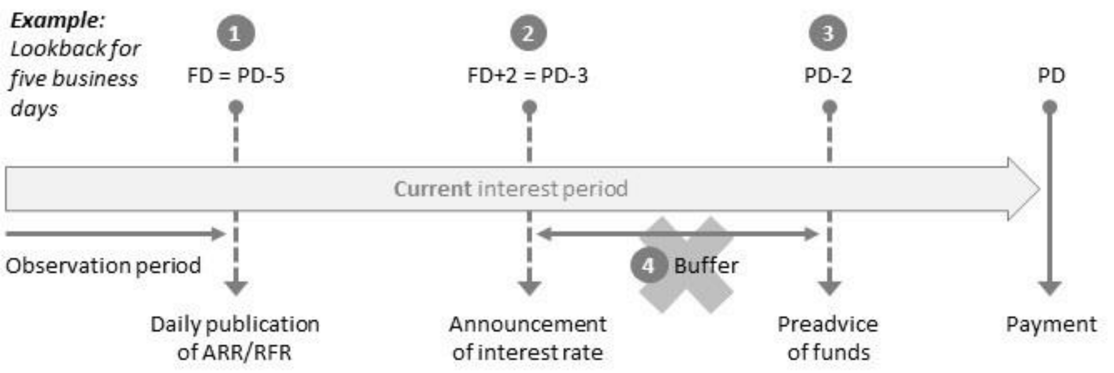
The following actions take place:

1. The Common Depository/Common Service Provider send the payment claim to the principal paying agent and reconciles the discrepancies if any.
2. The principal paying agent claims the funds from the issuer.
3. The Common Depository/Common Service Provider send a preadvice of funds to the ICSDs. As per the ISMAG MPB, the preadvice of funds is sent at the latest two business days before the payment date.

Note: the ICSDs start providing cash payment projections to the ICSD's clients/noteholders as from PD-5 based on the announced interest rate. The price will be indicated as 'unknown' if the rate fixing notification is not yet received.

4 **Buffer to investigate and solve any discrepancies** before the payment (e.g. investor disagrees with the announced rate)

b) Backward-looking model - Eurobonds (e.g. floating rate notes which reference an ARR/RFR 'in arrears' as described in Annex 4)



FD = Fixing Date PD = Payment Date ARR = Alternative Reference Rate RFR = Risk-Free Rate

1 **Fixing Date**

The following actions take place once the ARR/RFR is published:

1. The calculation/determination agent determines the rate.
2. The issuer reviews the rate (not applicable for securitisations).
3. The principal paying agent invoices the issuer.
4. The issuer approves the invoice (not applicable for securitisations).
5. The principal paying agent notifies the Common Depository/Common Service Provider.

6. The Common Depository/Common Service Provider notifies the ICSDs.
7. A notification is cascaded down through the custody chain to all noteholders.

Notes:

- The custody intermediaries in the chain, including the ICSDs, pass on the rate fixing notification and are not responsible for the correctness of the announced rate (no validation is performed for the calculation of interest rate).

- For securitisations, cash managers require sufficient time to prepare and agree on their reports for amounts payable at each stage of the waterfall, taking into account the priority of payments.

2 **Announcement of interest rate**

As per the International Securities Operational Market Practice Book (ISMAG MPB), the interest rate should be announced at the latest two business days after the fixing date.

3 **Preadvice of funds**

The following actions take place:

1. The Common Depository/Common Service Provider send the payment claim to the principal paying agent and reconciles the discrepancies if any.
2. The principal paying agent claims the funds from the issuer.
3. The Common Depository/Common Service Provider send a preadvice of funds instruction to the ICSDs.

Note: the ICSDs start providing cash payment projections to the ICSD's clients/noteholders as from PD-5 based on the announced interest rate. The price will be indicated as 'unknown' if the rate fixing notification is not yet received.

4 **Very little buffer to investigate and solve any discrepancies** before the payment (e.g. investor disagrees with the announced rate)

Note: a shorter lag between the Fixing Date and the payment date (i.e. securities which have a Fixing Date of less than PD-5), would have a direct (and potentially adverse) impact on the following processes:

- timely transmission of the rate fixing notice or amendments (if any) through the whole custody chain (issuer, agents, CDs/CSPs, ICSDs, noteholders)

- availability of the payable rate to the ICSD's clients and their underlying clients prior to the payment date

- pro-rata temporis taxation reporting, if applied

- timely payment to noteholders

4.2. Recommended actions for the issuer

The ICSDs recommend that the issuer:

- ensures that there are clear definitions of the record date[21], the payment date, the observation period, fixing date and the method to calculate the interest rate in the governing documentation of the security. This is important because of the shortened timing and the increased complexity of the calculation method

[21] If the Payment Due Date (PDD) is delayed by adding a business day count from the interest period ending date (IPED), the record date rule may require a change from PDD-1 ICSD Business Day (a default rule that is used for the securities that are deposited with a Common Depository/Common Safekeeper if there is no definition on the record date) to IPED-1 ICSD Business Day to reflect the period that the bond is traded cum-coupon.

- sets the new rate fixing date sufficiently in advance, taking into account the following:
  - the publication timing of the new benchmark rate (see Annex 1)
  - the need to set the rate fixing date as soon as possible, and in any event no later than three business days before the payment date (PD-3), considering the need of the ICSDs' clients to receive the rate fixing notices well before the payment date for various reasons (cascade of information to their underlying clients or front office, accounting, to take reinvestment decisions, cash management, etc.)

    Note: the best practice, as defined for the Eurobond market[22] is that **the rate fixing notices are made available within two business days[23], which should be at least three ICSD Business Days before the expected value date**. This allows the ICSDs to make the payable rate available to their clients at the start of two Business Days before the payment, regardless of the geographic location of the client.
  - the impact of the time zone difference for securities that are offered globally
  - the paying agent's deadline to receive information on payment details to execute the payment on the due date
  - the time it takes to officially communicate the rate from the issuer's calculation agent/paying agent to the Common Depository/Common Service Provider

    Note: this official communication should be available well in advance of the paying agent's deadline.
  - relevant local business days for the rate fixing (e.g. if a London-based agent calculates the interest rate referring to SOFR (USD), both UK and US business days need to be taken into account)
- ensures that all of the above actions and decisions are reviewed and approved by the paying agent and the calculation agent that have been appointed, to make sure that the contractual terms align with the operational processes required before the payment is made to the ICSDs

In general, the ICSDs anticipate that it will take at least one to two business days for the Common Depositories/Common Service Providers to receive the rate fixing notice from upstream parties that are responsible for the rate fixing and the transmission of the information. This will depend on the timing when the relevant ARR/RFR is announced and the location of the key stakeholders (issuer, calculation agent, paying agent, etc.).

This is why the ICSDs are supportive of having the rate fixing date set **well in advance[24], at least five business days before the payment date**[25]. This timing allows for a series of operational processes to take place involving the issuers, their agents and the noteholders.

As the timing of the rate fixing date is not an ICSD eligibility criterion, the ICSDs will accept securities even if the rate fixing date is **less than five business days before the payment date**.

[22] Link to the International Securities Operational Market Practice Book (MPB).
Clearstream: https://www.clearstream.com/clearstream-en/products-and-services/international-securities-operational-market-practice-book-1288254
Euroclear: https://www.euroclear.com/dam/Brochures/MA1521_ISMAG_MPB_2012.pdf

[23] MPB recommends the 'Calculation/Determination Agent, and any other relevant Agent, to provide the applicable accurate rate fixing notifications to their Paying Agent no later than fixing/determination date +1 Business Day providing all required information listed in the relevant checklist for onward delivery to the Common Depository/Common Service Provider no later than one business day following receipt.' – Quoted from 1.2. ISMAG Best Practices Summary – point 6.

[24] The noteholders in the ICSDs usually expect that the complete information (including payable rate) to be reported five Business Days prior to the expected value date of the payment. In the absence of the term rate (as of January 2021), earlier fixing requires the usage of 'in advance' method that is described in 'A user's Guide to SOFR' or setting the end of observation slightly earlier, such as ten Business Days prior to the expected value date.

[25] The five-day recommendation applies to all interest rate calculations using ARRs/RFRs 'in arrears', whether based on the individual daily rates or one of the indices.

However, in such cases, the issuers and their agents will have to shorten the time required to officially announce the rate from one or two business days (which is the current market practice due to the practical challenges of the operational process necessary to make the relevant calculations) to a same-day notice (e.g. one to two hours). As mentioned in section 4.1, in certain cases, this may not be possible due to the publication timing of the ARRs/RFRs, the location of the issuers and their agents and/or the operational processes required for the waterfall calculation.

4.3. Recommended actions for the issuer's calculation agent and paying agent

The ICSDs recommend that the issuer's calculation agent and paying agent:

- simulate the time required for the operational processes for the rate fixing and the payment, together with the Common Depository/Common Service Provider
- provide information on the time required for the operational processes to the issuer

4.4. Recommended actions for the Common Depository/Common Service Provider

For the timing of the rate fixing notification, there are no changes to the current best practices that are described in the MPB, i.e. same-day notification upon receipt of the information from the issuer's agent.

4.5. Recommended actions for the ICSDs' clients and their underlying clients

The ICSDs recommend that the ICSDs' clients and their underlying clients:

- review how the timing and complexity of the rate fixing may impact their own processes (e.g. contractual payment service as custodian, how to anticipate the earliest possible timing to receive information on the rate, how to calculate/treat the accrued interest, impact on payment timing, etc.) and/or their underlying clients, if any
- assess the best ways to adapt to the impact on their processes, if any

5. Other impact: taxation of Italian debt securities

Both ICSDs, in their role as withholding tax agents, have identified a potential impact of the IBOR transition on the pro-rata temporis taxation applied to the Italian debt securities (i.e. tax calculation based on the accrued interest and holding period). Both ICSDs are closely monitoring the situation together with their agents in Italy to assess the operational impact.

To allow the ICSDs to apply pro-rata taxation on daily settled purchase and delivery instructions during the interest period, the interest rate, used to calculate the tax on daily accrued interest, must be determined and communicated to the ICSDs before the start of the coupon period.

However, there is a risk that the interest rate will be known only at the end of the interest period (see section 4.1). This will prevent the ICSDs from applying a pro-rata taxation on movements settling from the very start of the interest period until the information on the applicable interest rate is received.

Note: this risk may not materialise if the issuer chooses to set the rate fixing date at the start of the interest period. Concretely, this means that either:

- the issuer uses the EURIBOR as the benchmark rate (EURIBOR has a term rate)[26]
- a term rate is developed for the new ARRs/RFRs and made available to the issuer. However, the feasibility of having a term rate is still unknown
- the issuer uses the 'in advance' framework to set the observation period (see Annex 4)

From discussions with the Italian market, the understanding is that the IBOR transition is not being discussed by issuers, financial institutions or tax authorities. In the absence of concertation and in-depth analysis between the community of issuers and the tax authorities in Italy, certain implications of the IBOR transition might:

- be overlooked or not yet known
- not be transposed into the Italian tax law that rules the pro-rata taxation

We will continue to monitor the market evolution and notify the ICSDs' clients via an online communication (Euroclear Bank Newsletter/Newsflash or Clearstream Banking Luxembourg announcement) if there are any changes on the taxation of Italian debt securities.

[26] As announced in the press release dated 23 November 2020 by the European Central Bank, the working group on euro risk-free rates launched two public consultations on fallbacks to EURIBOR.

6. Other impact: floating rate repo service (triparty)

Benchmark rates are made available for floating rate repo in the triparty collateral management service depending on clients' needs.

For more details, please refer to the following online documentation:

ICSD	Documentation
Clearstream Banking Luxembourg	• CmaX product guide • Triparty repo
Euroclear Bank	• Floating Rate Repo Service – Service description • What is triparty repo? webpage • Related Newsletters and Newsflashes

Any future updates on this service will be communicated via an online communication (Euroclear Bank Newsletter/Newsflash or Clearstream Banking Luxembourg announcement).

7. Frequently Asked Questions (FAQ)

For the IBOR transition FAQ for the ICSDs' clients, please refer to the following webpages:

ICSD	Webpage
Clearstream Banking Luxembourg	IBOR transition FAQ on www.clearstream.com
Euroclear Bank	IBOR transition - Frequently Asked Questions on my.euroclear.com

8. Who to contact

8.1. Clearstream Banking Luxembourg

Role	Type of questions	Contact
ICSD client	Any questions	Regular Client Service contacts
Issuer, agent, Depository	Questions on new issues only	New Issues team
Issuer, agent, Depository	Questions on changes to existing securities	Regular Corporate Actions Operations contacts

8.2. Euroclear Bank

Role	Type of questions	Contact	Contact details
ICSD client	General IBOR transition questions	Account Management	• +32 2 326 2812 for Brussels • Your usual contacts in the local Representative Office
	Questions on a specific payment	Income Client Service or your local Client Service team	• +32 2 326 2130 • income.clientservice@euroclear.com • Find your local Client Service team in the Contacts app on my.euroclear.com
	Questions on a specific event related to migration of existing IBOR linked securities (e.g. benchmark rate modification event)	Corporate Actions Client Service or your local Client Service team	• +32 2 326 4245 • corporateactions.clientservice@euroclear.com • Find your local Client Service team in the Contacts app on my.euroclear.com
Issuer, agent, Depository	New issuances	Primary Market Client Service	• +32 2 326 2140 • newissues.clientservice@euroclear.com
Issuer, agent, Depository	Corporate action – migration of existing securities	Regular Corporate Actions Operations contacts	

Annex 1 - Alternative reference rates for LIBOR

Currency	ARR/RFR		Timing	Rate link (if publicly available)	Working group
	Full name	**Abbreviation**			
CHF	Swiss Average Rate Overnight	SARON	Published at 18:00 Brussels/Luxembourg time on the same business day[27]	SARON Calculator: calculator for a compounded SARON with a built-in delay of three business days	National Working Group on Swiss Franc Reference Rates
EUR	Euro short-term rate	€STR	Published at 08:00 Brussels/Luxembourg time on the next TARGET2 business day[28]	Euro short-term rate (€STR)	Working Group on Euro Risk-free Rates
GBP	Sterling Overnight Index Average	SONIA	Published by 10:00 London time on the next business day[29]	SONIA Compounded Index	Sterling Risk-free Rates Working Group
JPY	Tokyo Overnight Average Rate	TONAR/ TONA	Published around 10:00 Tokyo time on the next business day[30]	Call Money Market Data	Cross-Industry Committee on Japanese Yen Interest Rate Benchmarks
	Tokyo Term Risk Free Rate - prototype rate	TORF	Published at approximately 17:00 Tokyo time every business day	Tokyo Term Risk Free Rate (TORF) – prototype rate	
USD	Secured Overnight Financing Rate	SOFR	Published at approximately 08:00 New York City time on every U.S. business day **Note**: because the Fed can correct and republish this rate until 14:30 New York City time each day, you may want to reference the rate after this time (e.g. 15:00 New York City time)[31].	SOFR Averages and Index Data	The Alternative Reference Rates Committee (ARRC)

[27] Source: SIX – About Swiss Reference Rates.
[28] Source: European Central Bank – Overview of the euro short-term rate (€STR).
[29] Source: Bank of England – SONIA interest rate benchmark.
[30] Source: Bank of Japan – Statistics – Call Money Market Data.
[31] Source: A User's Guide to SOFR by The Alternative Reference Rates Committee (April 2019).

Annex 2 - Examples of alternative reference rates for other IBORs

There are other IBORs that are used as a reference rate to determine the interest rate for the floating rate notes. Here are some examples:

Currency	IBOR	ARR/RFR	Working group
AUD	Bank Bill Swap Rate (BBSW)	AUD Overnight Index Average (AONIA)	IBOR Transformation Australian Working Group
CAD	Canadian Dollar Offered Rate (CDOR)	Canadian Overnight Repo Rate Average (CORRA)	Canadian Alternative Reference Rate Working Group (CARR)
EUR	Euro Overnight Index Average (EONIA)	Euro Short-Term Rate (€STR)	See Annex 1
EUR	Euro Interbank Offered Rate (EURIBOR)	Euro Short-Term Rate (€STR)[32]	See Annex 1
HKD	Hong Kong Interbank Offered Rate (HIBOR)	Hong Kong Overnight Index Average (HONIA)	Treasury Market Association
JPY	Tokyo Interbank Offered Rate (TIBOR) • Japanese Yen TIBOR • Euroyen TIBOR	Tokyo Overnight Average Rate (TONAR)	See Annex 1
SGD	Singapore Interbank Offered Rate (SIBOR)	Singapore Overnight Rate Average (SORA)	The Association of Banks in Singapore
SGD	Swap Offer Rate (SOR)	Singapore Overnight Rate Average (SORA)	
THB	• Thai Baht Interest Rate Fixing (THBFIX) • Bangkok Interbank Offered Rate (BIBOR)	Thai Overnight Repurchase Rate (THOR)	Bank of Thailand

Notes:

- Some of the IBORs that are mentioned above may continue to be published/used after the reform.
- Publication of EONIA is expected to be discontinued on 3 January 2022.

[32] As announced in the press release dated 23 November 2020 by the European Central Bank, the working group on euro risk-free rates launched two public consultations on fallbacks to EURIBOR.

Annex 3 - Corporate actions (CAEV) that may be used for the migration of the existing IBOR-linked securities

Migration of existing securities that have a tenor beyond 2021 require a corporate action to announce (or solicit consent) to modify the benchmark rate and related details (margin, observation period, record date[33], etc.).

For the securities that require a solicitation of the holder's consent, an additional corporate action such as DSCL or INFO may be used to stimulate the dialogue between the issuer and the final beneficial owners, if needed.

CAEV	Scenario
BMET	Bond holder meeting (this may include the consent) - typically, the options for a BMET would be: • CONY (voting in favour without attending) • CONN (voting against without attending) • ABST (abstain from voting) • PROX (attend the meeting) • SPLI (only applicable if multiple resolutions are to be voted upon and a holder wants to vote differently among these resolutions) • NOAC (take no action)
CHAN	Notification for the change in Terms and Conditions of the security due to the benchmark rate modification
CONS	Solicitation of holders' consent - typically, the options for a CONS would be: • CONY (voting in favour without attending) • CONN (voting against without attending) • ABST (abstain from voting) - optional • SPLI (only applicable if multiple resolutions are to be voted upon and a holder wants to vote differently among these resolutions • NOAC (take no action)
DSCL	Request for the disclosure of the holder's contact details
INFO	Information on the conference call hosted by the issuer and/or its agents

Notes:

- If the change to the benchmark rate occurs as a result of the consent/meeting event, the original corporate action type (CONS or BMET) will be used to notify the noteholders about the amendment in Terms and Conditions of the security instead of CHAN.
- For more information on the bondholder meetings and consents, please also refer to the following ICMSA bulletins:
  - 200610/50 The discontinuation of LIBOR/IBORS – timeline of a consent solicitation
  - 210118/55 The discontinuation of LIBOR/IBORS – operational and procedural considerations for consent solicitations and written resolutions

[33] The record date rule may require a review if the convention of payment delay is applied as described in Annex 4.

Annex 4 - Different conventions to set the observation period (example for SOFR)

As illustrated in A User's Guide to SOFR by the Alternative Reference Rates Committee that was published in April 2019, there are different conventions to set the observation period:

Framework	Convention	How to set the observation period
In arrears	Lookback[34]	Set a lag by moving the observation period a certain number of days before the starting and ending date of the interest period. **Example**: • interest period = 01/03/YYYY (S) to 01/09/YYYY (E) • observation period = S-5 to E-5
	Lockout or suspension period	Set a lag by using the last rate from a certain number of days before the end of the interest period. The observation period remains the same as the interest period.
	Payment delay[35]	Set a lag by deferring a payment, i.e. the observation period remains the same as the interest period, but the Payment Due Date will be delayed for a certain number of business days as defined in the Terms and Conditions of the security.
	Plain[36]	No lag with delayed payment, i.e. the observation period remains the same as the interest period and the payment is made after the due date
In advance	Last reset	Use the last interest period to determine the payable rate for the current interest period.
	Last recent	Use a shorter recent period to determine the payable rate for the current interest period.

Notes:

- The ICSDs refer to the definitions in A User's Guide to SOFR as an example. There may be different methods that are developed for each currency/market.

- A User's Guide to SOFR also refers to 'Hybrid Models', such as 'Principal Adjustment' and 'Interest Rollover'. However, the ICSDs have not received any operational details on how such models would work. If any issuer is considering to use these models, the ICSDs recommend that the issuer asks its agents to liaise with the place of deposit (e.g. Common Depository for Eurobonds or domestic Central Securities Depositories for domestic bonds) well in advance to check the operational feasibility.

[34] In general, it is the same convention that is commonly used for GBP (SONIA).
[35] T+2, which is referred to as the general convention for OIS swaps in the guide, may be too short as a lag to have the rate fixing notice available to the noteholders before the payment. The ICSDs recommend to use a longer lag (minimum five business days) if feasible. Also, if this method is applied, it is critical to have a clear definition of the record date that matches the trading practice. The general recommendation on the record date rule is to set it on the Business Day before the Payment Due Date. However, for this particular method, the record date rule may need to be the business day prior to the end of the interest period if it is traded cum-coupon up to the last inclusive date of the interest period.
[36] The ICSDs recommend to avoid this option as it is difficult to anticipate the actual day that the noteholder can receive the payment.