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Agenda item 5: Update by Subgroup 2 on the identification and recommendation of a term structure on RFRs

Fourth meeting of the working group on euro risk-free rates

Frankfurt am Main, 11 July 2018

Presentation structure

1	Introductory remarks
2	Subgroup 2A
3	Subgroup 2B
4	Subgroup 2C
5	Next steps

SG2 governance and organisation

- Review of SG2 Terms of Reference (ToR)
  - Include establishment of a liquid derivatives market within the scope

- Assessment of SG2 governance and organization
  - Available resources sufficient and member engagement overall adequate
  - Still challenging to measure how communication is received / integrated by this large group

- Alignment with working groups in other currency areas
  - First exchange of views with Nick Saggers (Bank of America Merrill Lynch - Sterling Working Group (SWG)) and Terry Bolton (JP Morgan - Alternative Reference Rate Committee (ARRC))

Interaction with Sterling Working Group (SWG) and Alternative Reference Rate Committee (ARRC)

- ## SWG and ARRC
  - Work on both forward-looking (FWD) and backward-looking (BWD) approaches as this is requested by market participants
  - Might not necessarily use the same methods in implementing the FWD and BWD approaches
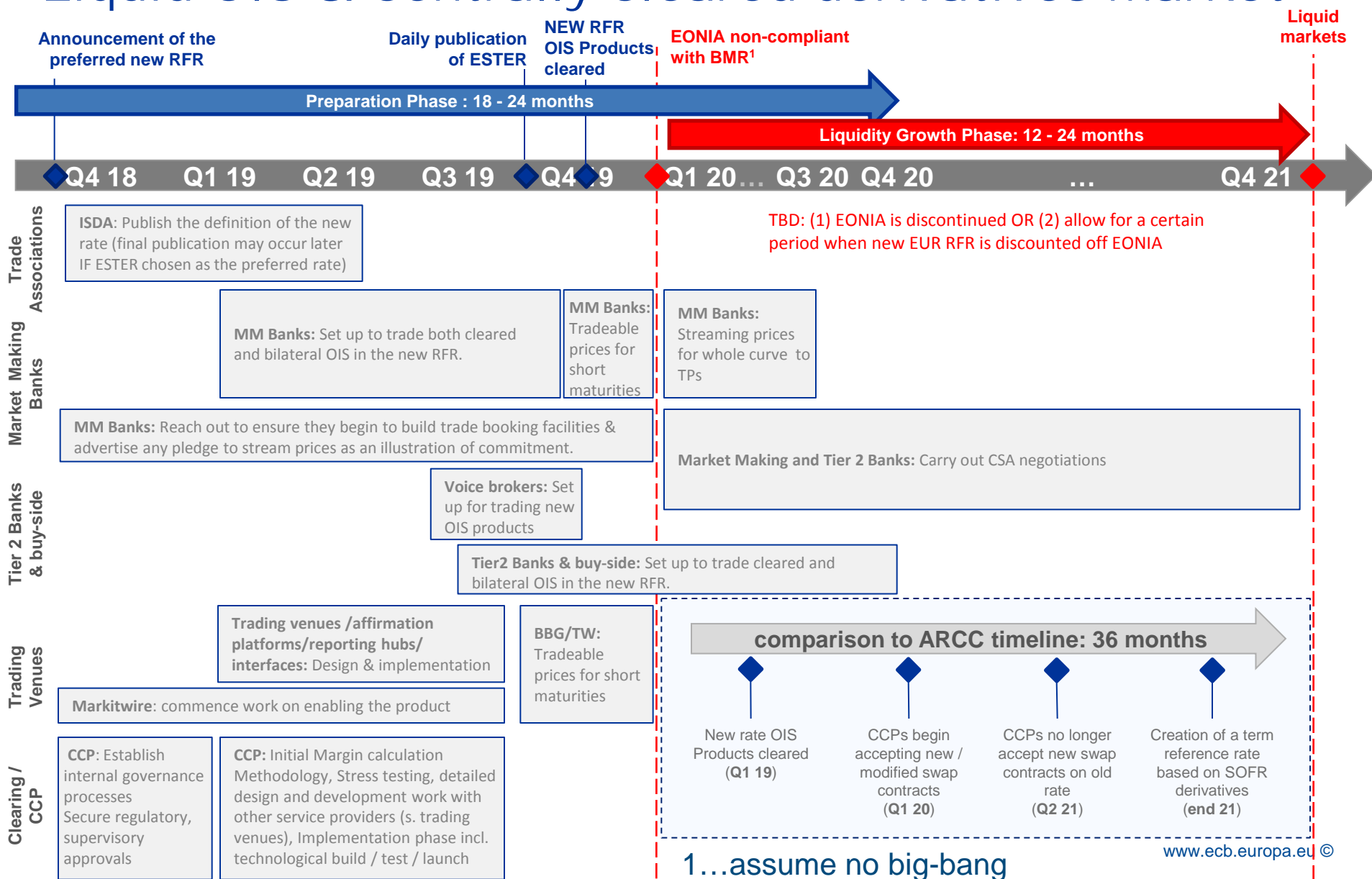 - Might lead to a coexistence of both FWD and BWD approaches

- ## FWD approach
  - Might be needed for loan markets and bond products
  - E.g. corporate loan and bond markets need to know interest/coupon amounts at least 5 days prior to interest/coupon date in order to allow sufficient time to process payments
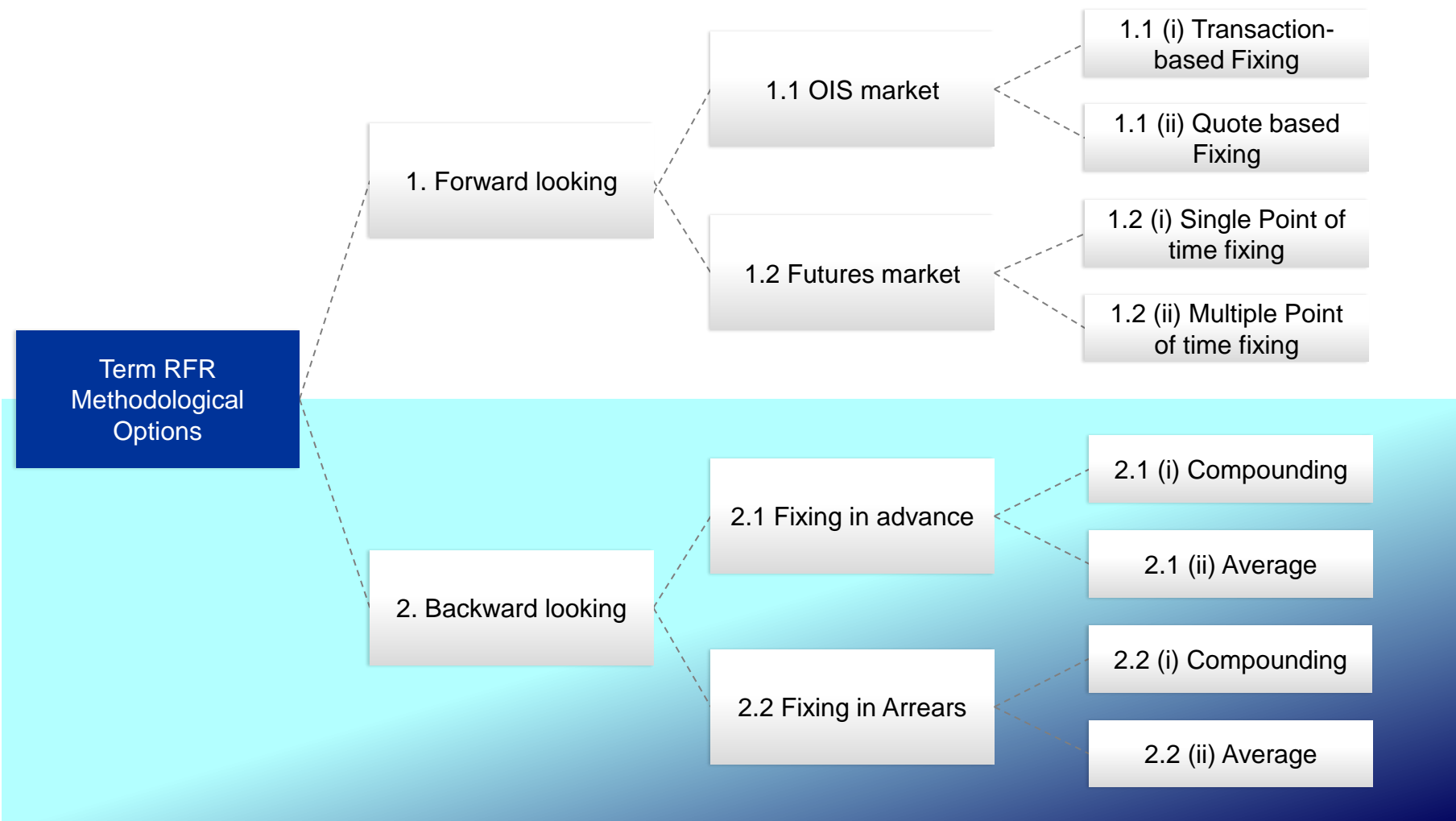
- ## BWD approach
  - Works very well for derivative markets
  - Avoids any other fixing than O/N
  - Reduces fixing risks in derivatives books (compared to IBOR risks)

Liquid OIS & centrally cleared derivatives market

Announcement of the preferred new RFR

Daily publication of ESTER

NEW RFR OIS Products cleared

EONIA non-compliant with BMR[1]

Liquid markets

Preparation Phase : 18 - 24 months

Liquidity Growth Phase: 12 - 24 months

| Q4 18 | Q1 19 | Q2 19 | Q3 19 | Q4 19 | Q1 20 … | Q3 20 | Q4 20 | … | Q4 21 |

Trade Associations

ISDA: Publish the definition of the new rate (final publication may occur later IF ESTER chosen as the preferred rate)

TBD: (1) EONIA is discontinued OR (2) allow for a certain period when new EUR RFR is discounted off EONIA

Market Making Banks

MM Banks: Set up to trade both cleared and bilateral OIS in the new RFR.

MM Banks: Tradeable prices for short maturities

MM Banks: Streaming prices for whole curve to TPs

MM Banks: Reach out to ensure they begin to build trade booking facilities & advertise any pledge to stream prices as an illustration of commitment.

Market Making and Tier 2 Banks: Carry out CSA negotiations

Tier 2 Banks & buy-side

Voice brokers: Set up for trading new OIS products

Tier2 Banks & buy-side: Set up to trade cleared and bilateral OIS in the new RFR.

Trading Venues

Trading venues /affirmation platforms/reporting hubs/ interfaces: Design & implementation

BBG/TW: Tradeable prices for short maturities

comparison to ARCC timeline: 36 months

Markitwire: commence work on enabling the product

Clearing / CCP

CCP: Establish internal governance processes Secure regulatory, supervisory approvals

CCP: Initial Margin calculation Methodology, Stress testing, detailed design and development work with other service providers (s. trading venues), Implementation phase incl. technological build / test / launch

New rate OIS Products cleared **(Q1 19)**

CCPs begin accepting new / modified swap contracts **(Q1 20)**

CCPs no longer accept new swap contracts on old rate **(Q2 21)**

Creation of a term reference rate based on SOFR derivatives **(end 21)**

1…assume no big-bang

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Methodologies for term rate based on RFR (draft)

Term RFR Methodological Options

1. Forward looking
- 1.1 OIS market
  - 1.1 (i) Transaction-based Fixing
  - 1.1 (ii) Quote based Fixing
- 1.2 Futures market
  - 1.2 (i) Single Point of time fixing
  - 1.2 (ii) Multiple Point of time fixing

2. Backward looking
- 2.1 Fixing in advance
  - 2.1 (i) Compounding
  - 2.1 (ii) Average
- 2.2 Fixing in Arrears
  - 2.2 (i) Compounding
  - 2.2 (ii) Average

Methodology outline

Methodologies for Term Rate based on RFR	
1. Forward Looking	Fixing based on the future expected overnight risk free rate for a given period, derived from either:
1.1 OIS market	A EUR RFR OIS market, a synthetic rate could be constructed with fixing data based on either:
1.1 (i) Transaction-based Fixing	Actual transaction data for a given period, based on data supplied by either trade repositories, MMSR data or another independent source.
1.1 (ii) Quote based Fixing	Actionable market quotes on a trading facility at: − a specific point in time − multiple points in time
1.2 Futures market	EUR RFR futures market, a synthetic constant maturity rate could be constructed by bootstrapping between nearby EUR RFR futures contracts either at:
1.2 (i) Single Point of time fixing	Single point in time fixing.
1.2 (ii) Multiple Point of time fixing	Multiple point in time fixing.
2. Backward Looking	Fixing based on actual realised EUR RFR overnight rates for a given period, whereby the fixing is either:
2.1 Fixing in advance	Set in Advance, where the rate is known at the start of the payment period but is based on the overnight rates for the previous X months.
2.1 (i) Compounding	Compounded interest calculated based on the overnight rates during this period
2.1 (ii) Average	Simple arithmetic mean of the overnight rates during this period
2.2 Fixing in Arrears	Set in arrears, where the rate is known only at the end of the period (but before payment date), based on the average overnight rates for the period.
2.2 (i) Compounding	Compounded interest calculated based on the overnight rates during this period
2.2 (ii) Average	Simple arithmetic mean of the overnight rates during this period

Evaluation template against BMR and IOSCO Principles

- EU BMR and IOSCO Principles have a large number of requirements for benchmark administrators.
  - IOSCO Principles predate and inspired the EU BMR.
  - Any term structure compatible with IOSCO Principles should also be EU BMR compliant.

- Administrator responsibilities
  - Perform self-assessment against all IOSCO Principles, and ultimately the EU BMR.
  - Request formal authorization from relevant National Competent Authority (NCA) under the Benchmarks Regulation.

- Final assessment of the candidates against the BMR is the remit/prerogative of the NCA

- SG2B evaluation to focus on benchmark methodology (IOSCO principles 6 to 9) as well as data inputs, sources and sufficiency.

Evaluation template against BMR and IOSCO Principles

IOSCO Principles under scope	Criteria to consider for assessing Term of reference and fallbacks candidates
Principle 6: Benchmark design Should seek to achieve, and result in an accurate and reliable representation of the economic realities of the Interest it seeks to measure, and eliminate factors that might result in a distortion of the price, rate, index or value of the Benchmark.	1.Adequacy, accuracy, auditability, back-testing and reliability of data, 2.Transaction volume and size of market 3.Liquidity, concentration, dynamics, transparency, of the market, position of the market participant 4.Resilience (periods of illiquidity, changes in regulatory approach or in the monetary policy framework) 5.Benchmark methodology satisfies soundness and robustness of the IOSCO & BMR principles on quality of the methodology
Principle 7: Data sufficiency Sufficiency and accuracy of data based on prices, rates, indices or values that have been formed by the competitive forces of supply and demand, anchored by observable transactions	1.Sufficiency and accuracy of market data based on prices, rates, indices or values from a representative and competitive markets 2.Market data to be transaction data where possible. Data anchored by observable transactions 3.Depth of the underlying market and its likely robustness over time 4.Underlying interest of the benchmark seeks to measure to be clear and transparent
Principle 8: Hierarchy of data inputs Establish and Publish or Make Available clear guidelines regarding the hierarchy of data inputs and exercise of expert judgment used for the determination of Benchmarks.	1.Standardized terms for data inclusion : format, type of input data, frequency, traceability, and timing 2.Clear guidelines (transparency) for data inputs hierarchy and the exercise of expert judgement according to RTS 13-1-5
Principle 9: Transparency of benchmark determinations Describe and publish with each benchmark determination	1.Benchmark determination should be explained and publish in a timely, clear, transparent (BMR) and concise manner 2.Ease of implementation to facilitate the transition rate at a minimal cost for the users (article 23 BMR §9 c)

Key messages from working group survey on RFR term structure

- The definition of a RFR term structure is deemed important for both legacy and new contracts

- Interest rate derivatives, retail products and syndicated loans are the identified instruments most dependent on a term rate

- No final conclusion can be drawn from the survey on the preferred data inputs that should underpin a term RFR
  - Among backward looking solutions, O/N compounded RFR seems to be appreciated by a large number and seems feasible for derivatives and bond markets. However, many think such a solution is not well adapted to the loan market
  - Among forward looking solutions, OIS swap data from MMSR seems most preferred, followed by OIS swap data from CCP and unsecured term transactions from MMSR

- MMSR and repositories data are preferred over panel banks' data, and most important tenors are 3M and 6M

- Other points of attention include the need for consistency with other jurisdictions and for more time to perform a better impact assessment

Response rate to the survey has been high
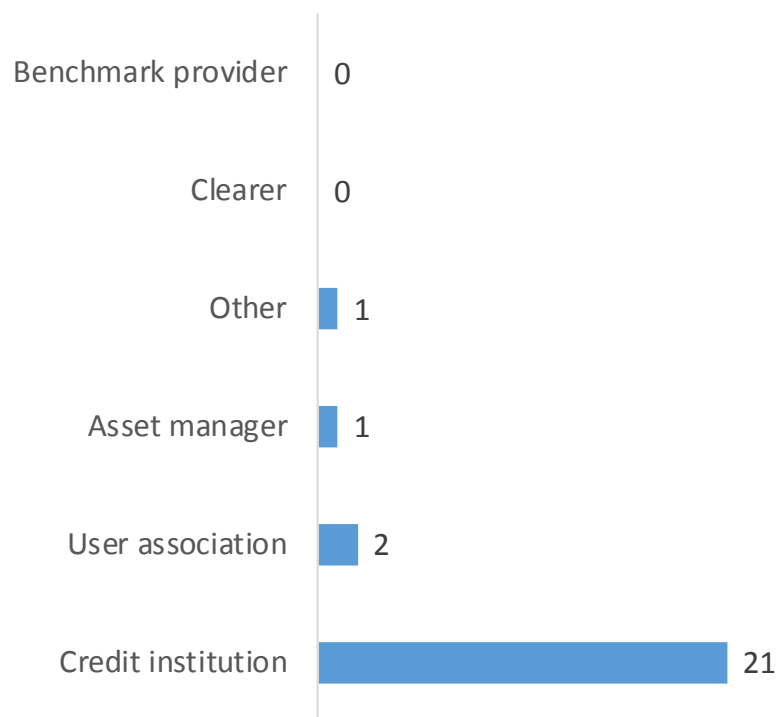
- 25 respondents (out of 27 institutions surveyed)
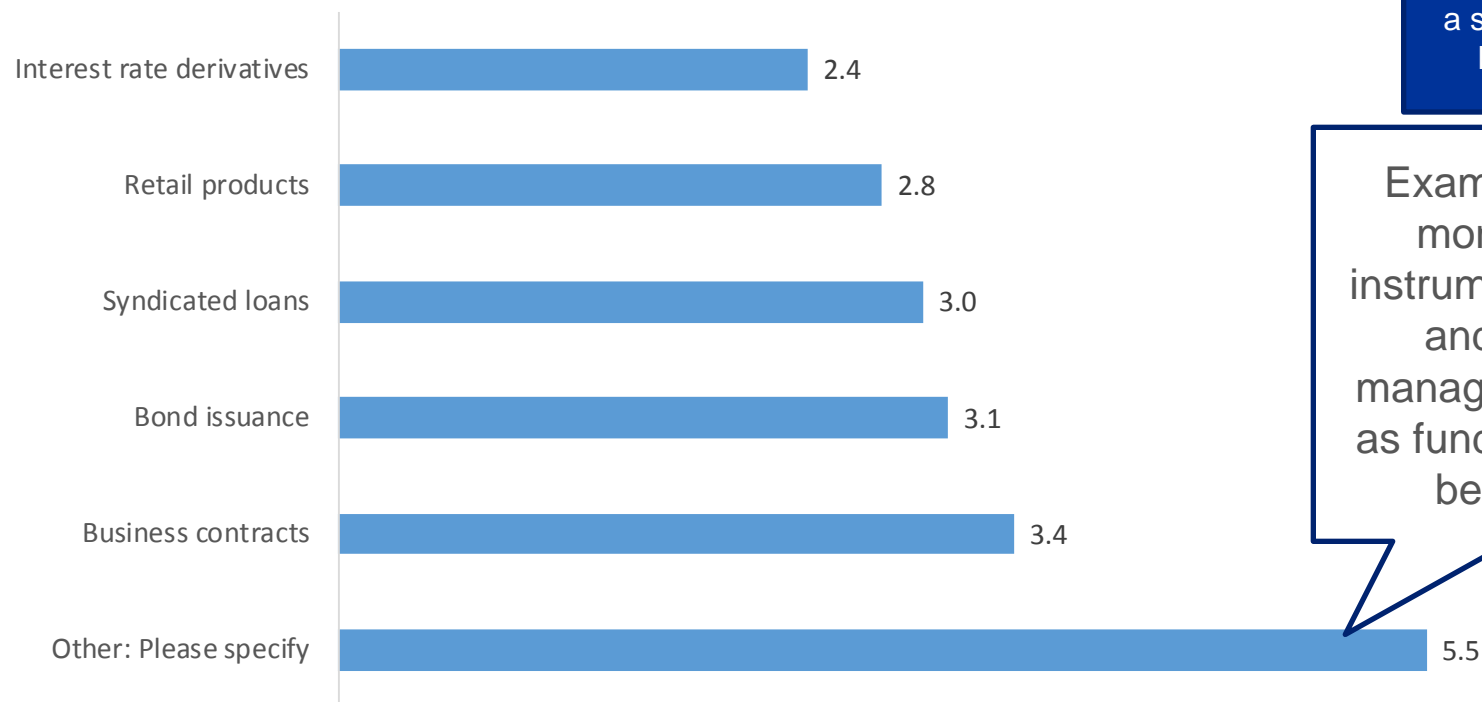- Response rate of 92%, despite the short deadline
- Thank you!

The definition of a RFR term structure is deemed important for both legacy and new contracts

What is the most important use case of term RFR for your institution?

Fallback for legacy contracts — 1

Reference rate for new contracts — 2

Both types of contracts — 22
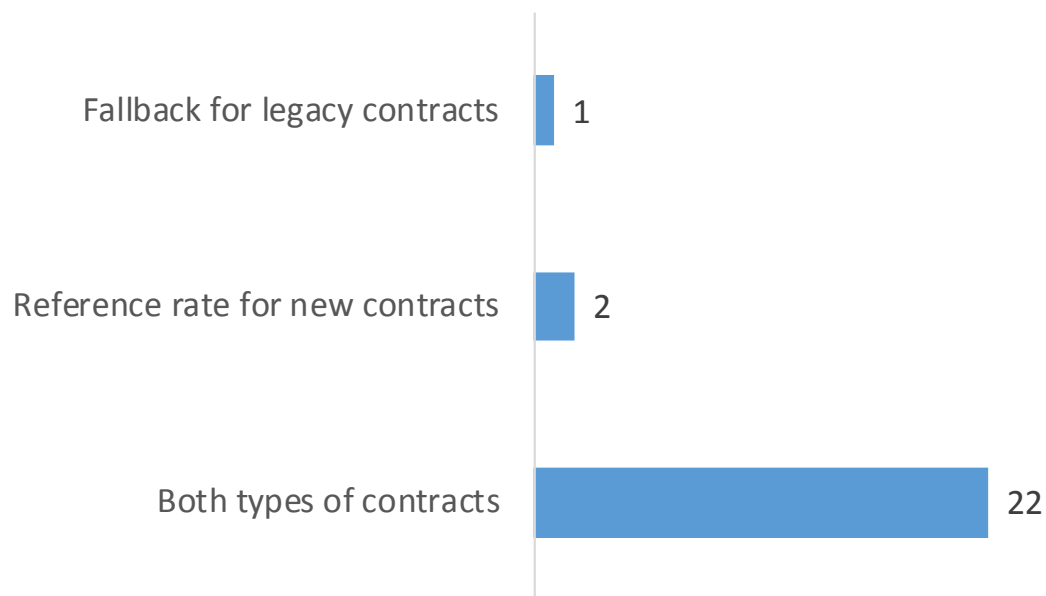
Interest derivatives, retail products and syndicated loans most dependent on a term rate

Across both legacy and new contracts, which product type is the most dependent on term rate for your institution?

A low score reflects a higher ranking and thus a stronger preference by surveyed WG members

Product	Score
Interest rate derivatives	2.4
Retail products	2.8
Syndicated loans	3.0
Bond issuance	3.1
Business contracts	3.4
Other: Please specify	5.5

Examples include money market instruments, deposits and collateral management as well as fund performance benchmarks

Compounded O/N RFR (BWD) and OIS swaps in MMSR data (FWD) most preferred

Which data inputs should underpin a term RFR?

A low score reflects a higher ranking and thus a stronger preference by surveyed WG members
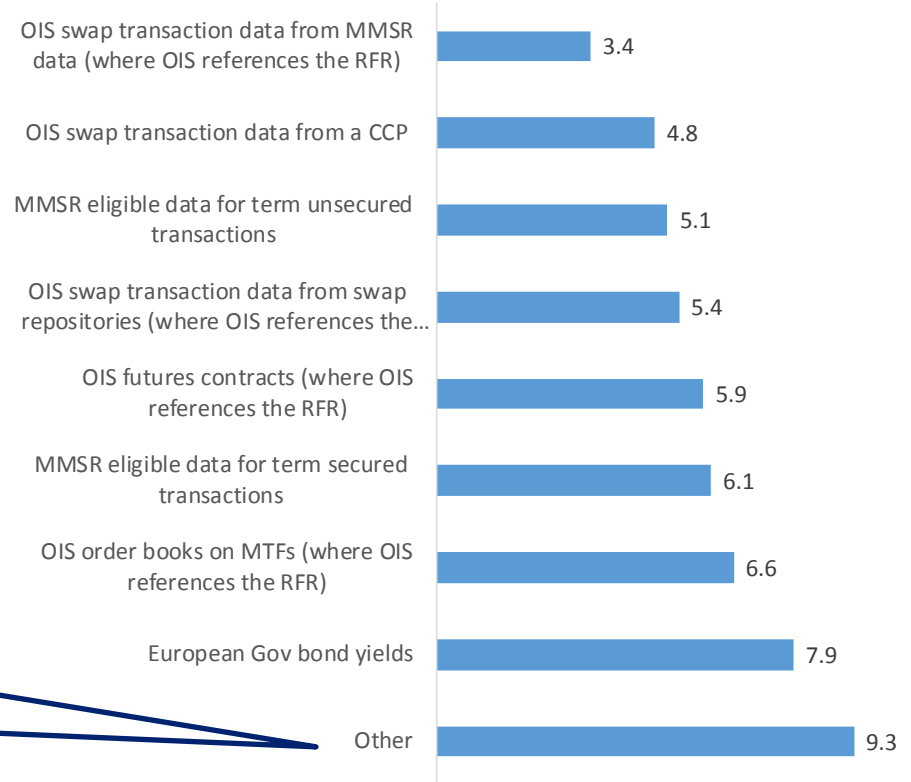
Among backward looking solutions

Compounded O/N RFR — 1.8

Other — 9.3
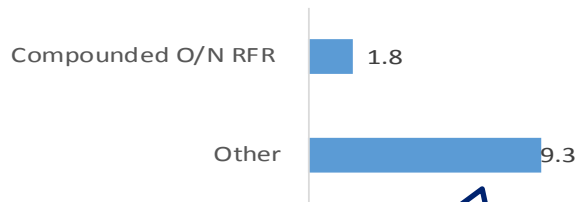
Examples include "daily arithmetic average calculation method" and "current methodology for Euribor"

Examples of comments include: "A forward-looking solution will be key for the loan market."

Among forward looking solutions

	Score
OIS swap transaction data from MMSR data (where OIS references the RFR)	3.4
OIS swap transaction data from a CCP	4.8
MMSR eligible data for term unsecured transactions	5.1
OIS swap transaction data from swap repositories (where OIS references the…	5.4
OIS futures contracts (where OIS references the RFR)	5.9
MMSR eligible data for term secured transactions	6.1
OIS order books on MTFs (where OIS references the RFR)	6.6
European Gov bond yields	7.9
Other	9.3

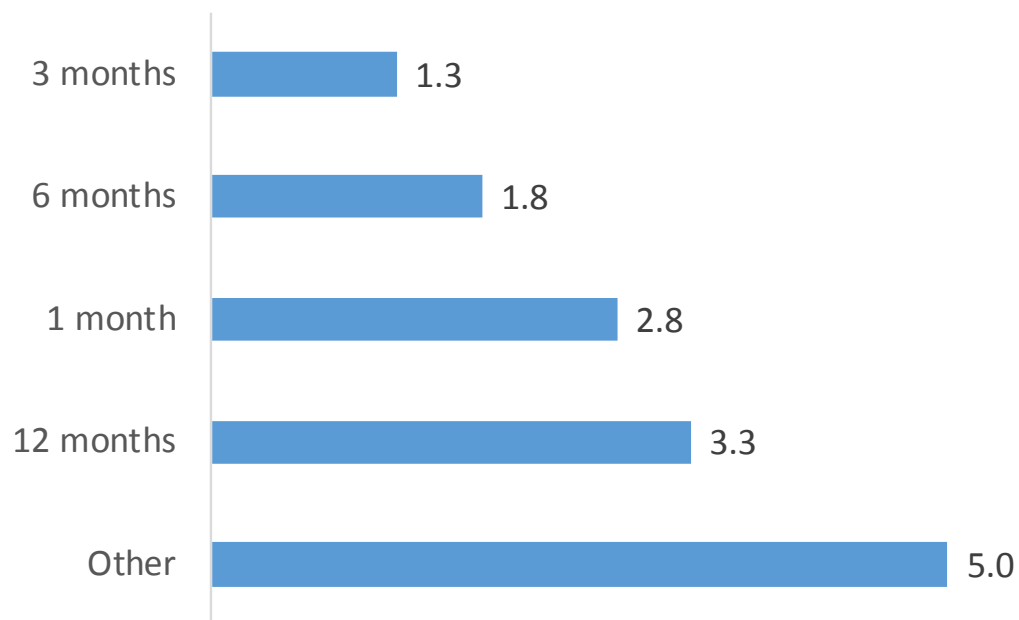# Backward looking vs. forward looking
Important considerations

- The better ranking score for the compounded O/N RFR cannot be interpreted as "this being the preferred solution overall"
    - Some institutions ranked their preferences for the two approaches in an independent manner, considering on the one hand backward looking solutions and on the other hand forward looking solutions
    - Others considered the whole universe altogether and expressed their preference across the whole set of solutions

- Some very interesting comments & remarks have been made, calling for a cautious approach before selecting a solution

3M and 6M tenors most important

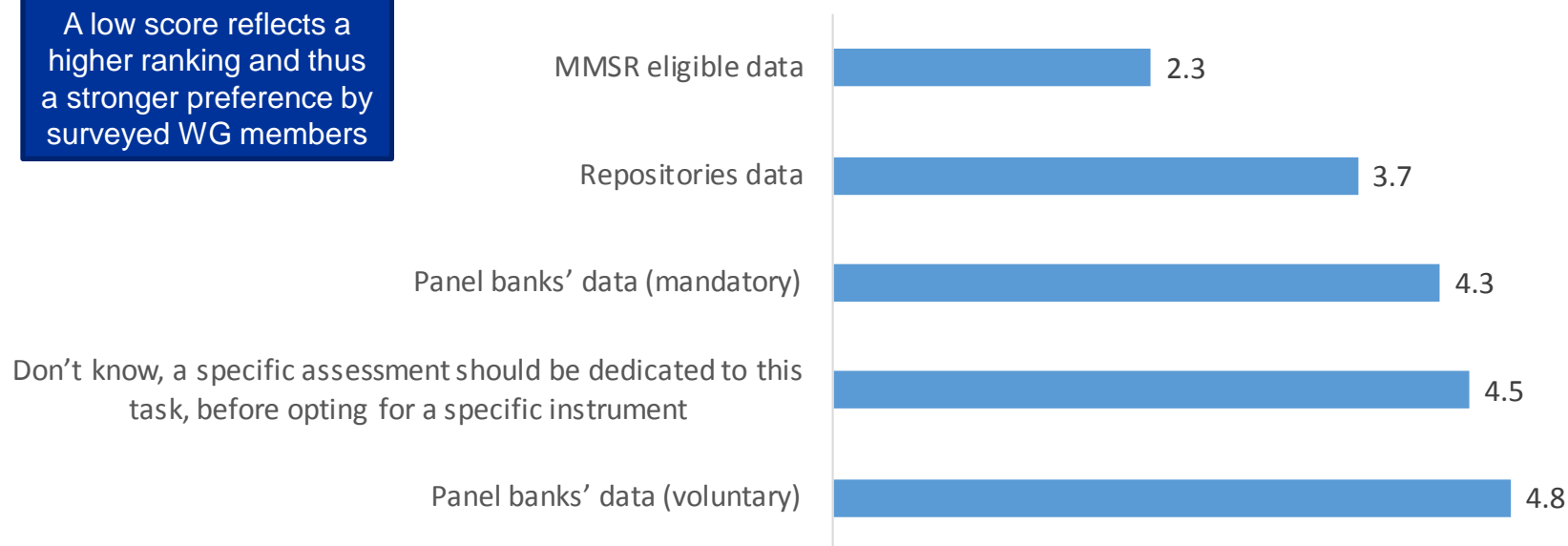*Which tenor/s of term FRF is/are the most important to your institution?*

A low score reflects a higher ranking and thus a stronger preference by surveyed WG members

Tenor	Score
3 months	1.3
6 months	1.8
1 month	2.8
12 months	3.3
Other	5.0

MMSR and repositories data are preferred over panel banks' data

Which dataset, in your opinion, would allow the construction of a robust and reliable forward looking term rate?

A low score reflects a higher ranking and thus a stronger preference by surveyed WG members

Category	Score
MMSR eligible data	2.3
Repositories data	3.7
Panel banks' data (mandatory)	4.3
Don't know, a specific assessment should be dedicated to this task, before opting for a specific instrument	4.5
Panel banks' data (voluntary)	4.8

SG2 governance

- Clearer steering of what is expected
  - capitalize better on the size of the WG to allocate specific deliverables

- Emphasize the role of the SG2 transparency and information sharing in seeking SG2 member feedback and endorsement of output

- Aim to enhance coordination among SG2 work streams and with other working group sub-structures in order to elaborate an integrated timeline

External coordination

- ## SWG and ARRC
  - Need for ensuring consistency between the three working groups in terms of conventions, term structures and time lines
  - Approaches for future information exchange and interaction:
    - Conference calls
    - Mutual invitations to work stream meetings
    - Proposal: Establishment of a working group on cross-currency market requirements

- ## ISDA
  - Develop the collaboration with ISDA and their participants in SG2

Forward-looking vs. backward-looking methodology

- ## Key issue in EURIBOR transition discussion as of now

- ## Status of work on forward-looking methodology (FWD)
  - Results from survey on the usage of term rates reveals preferred data provider
  - Experience from other groups suggesting methodology could differ depending on the characteristics of the market
  - Proposal for a data study on the basis of EONIA OIS MMSR data
    - Data request by the working group to the ECB (see Annex)
    - SG2A will propose methodologies for each data provider (i.e. MMSR, repositories, e-trading venues, futures)
    - SG2A findings will serve as basis for SG2B and SG2C analyses identifying pros and cons for each of the methodology proposals

- ## Status of work on backward-looking methodology (BWD)
  - Work on backward-looking methodology to be started shortly

- ## WG2C work on accounting issues related to BWD
  - Accounting issues for corporates => usage of in arrears methodology
  - Hedge accounting for banks

Specification of requested MMSR data items

- Average daily turnover, for spot starting dates
  - Divided by standard tenor buckets (2w, 1m, 3m, 6m, 12m);
  - We acknowledge that a large part of business is performed at IMM, ECB, bond maturities' dates; therefore we might ask what is NOT in standard tenors.
- Average daily turnover for forward starting dates
  - Divided by standard tenor buckets (2w, 1m, 3m, 6m, 12m);
  - We acknowledge that a large part of business is performed at IMM, ECB, bond maturities' dates; therefore we might ask what is NOT in standard tenors.
- Number of different trading agents in total
- Average, minimum and maximum number of trading agents per day
- Concentration of trading activity by group of banks (top 3, second top 3, …) and by country (country 1, country 2, etc.)
- Average, minimum and maximum number of trades per day and volume per trade
- Minimum and maximum turnover per day
- Pure OIS volumes (fixed vs. EONIA) and Basis swaps (EONIA vs. Euribor).
- Number of days with no activity (e.g. less than 3 counterparties or less than 100 mn traded); number of consecutive days with no activity