Replacing IBORs - Regulatory Roundtable Frankfurt

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Replacing IBORs

Status quo of IBOR transition and essential – what you need to know now

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1. An overview on EU Benchmarks Regulation (the BMR)

A recap: benchmarks in the financial industry

- Indices used to reference the price of:
  - “financial instruments” (MiFID II); or
  - “financial contracts” (wide – but incl. consumer and/or mortgage credit).
- Can be used as a reference, *inter alia,* for:
  - determining the price of financial instruments (including UCITS/AIFs performance/return or asset allocation and/or fees);
  - determining floating interest rates;
  - measuring the performance of investment funds.

How we arrived at the EU's Benchmarks Regulation (BMR)

- Pre-2011 the Benchmarks Regime in the EU was not unified. The BMR has a significant impact on the use of benchmarks across the EU and EEA.
- Only a few Member States with adopted national rules which were inconsistent with one another. The BMR builds upon IOSCO's "Principles for Financial Benchmarks" – which will also apply post-Brexit.
- **Incidents of manipulation of key benchmarks (LIBOR scandal) triggered global concerns on the integrity of benchmarks**
- Global concerns about the integrity of benchmarks and investigations coupled with enforcement action by regulators concerning the manipulation of key benchmarks led to the European Commission concluding it was necessary to introduce **a common framework across member states to ensure the accuracy, robustness and integrity of benchmarks and the way they are determined**.
- An EU Regulation (directly applicable) was deemed the most appropriate legislative instrument.
- Providers of in-scope benchmarks are required to be either:
  - Authorised; or
  - Registered;
  - Third-country – equivalent, endorsed or recognised…
- Users of benchmarks are restricted by the EU's BMR as to the benchmarks they may use in the EEA.
- **Blunt approach? Definition in BMR of what is a "benchmark" is broadly drafted – effectively any index by reference to which an amount is payable under a financial instrument.**

BMR – Key dates

Regulation on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds ((EU) 2016/1011):

- In force since June 30, 2016.

- Majority of provisions have applied from January 1, 2018 (i.e. contingency planning).

- Transitional provisions apply until January 1, 2020 regardless of whether administrators are located in the EU or a "third country".
NB – Brexit and lack of clarity which third country benchmarks qualify for use in EEA.

- Since January 1, 2018, a supervised entity may only make use of a benchmark within the EU if the reference value or the administrator of that specific benchmark is entered in an ESMA register pursuant to Article 36 of the BMR. This is subject to transition period relief.

- **Subject to transitional arrangements,** third country benchmarks (that is, benchmarks provided by administrators located outside of the EEA) can only be used in the EEA if they qualify under the BMR third country regime.

- **There are three ways in which a third country benchmark may qualify for use in the EEA: equivalence, recognition or endorsement.**

- Race to move to replacement rates as well as risk free rates (**RFR**s) started in earnest.

Principal objectives of the BMR

Political aims to:

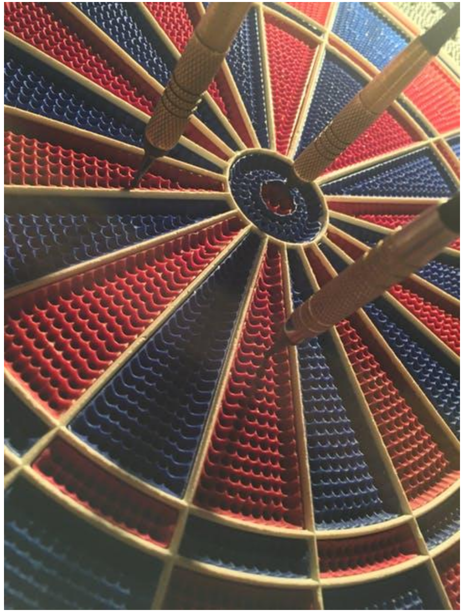
- Restore investor and consumer confidence in the accuracy, robustness and integrity of indices used as benchmarks in financial instruments and financial contracts.
- Ensure that benchmarks are not subject to conflicts of interest.
- Ensure that benchmarks are used appropriately and reflect the actual market or economic reality they are intended to measure.

Legislative measures in BMR aims to improve:

- Governance arrangements – minimise manipulation.
- Benchmark quality and data input for submission and validation.
- Quality of benchmark methodology – incl. Amending benchmark or replacing due to market structure change or disruption.
- Accountability of those inputting and using by establishing complaints processes, documentation standards and audit requirements.

Drilling down on operationalising the legislative scope of the BMR

- Rules on the:
  - provision of benchmarks;
  - contribution of input data to a benchmark; and
  - use of a benchmark within the EU.
- Regulated users of benchmarks may only use BMR compliant benchmarks.
- Regulated users must set up contingency plans, including replacement benchmarks.
- Administrators will have to ensure that their benchmarks are BMR compliant.
- **Challenges primarily of how and what a BMR in-scope entity is doing in relation of a BMR in-scope "benchmark"?**



The EU’s Benchmarks Regulation (BMR) – Who fits in where?

	Benchmark Administrators	Benchmark Contributors	Benchmark Users
Who is caught? Does not apply to central banks, public authorities providing benchmark for public policy purposes nor media persons for “journalistic” purposes nor “innocent bystanders	A natural or legal person with control over the administration of the benchmark. Which includes: • Administrating arrangements for determining a benchmark; • Collecting, analysing or processing input data for the purposes of determining a benchmark; • Determining a benchmark through the application of a formula or other method of calculation, or by an assessment of input data to that benchmark.	A natural or legal person contributing input data which is: • is not readily available to the administrator; • required in connection with the determination of a benchmark and is provided for that purpose.	A natural or legal person who: • issues financial instruments which reference a benchmark; • is party to a contract which references a benchmark; • determines the amount payable under a financial instrument or financial contract by referencing the benchmark; • measures the performance of an investment fund through the use of an index.

Requirements?	• Authorisation or (less onerous) registration (preferential for regulated entities) for BMR purposes plus complying with governance arrangements and controls on benchmark integrity – degree depends on type of benchmark provided;
	• Proportionate controls in light of classification of benchmark;
	• Governance and control - i.e. BMR compliant policies/procedures;
	• BMR compliant outsourcing / licensing arrangements;
	• Observance of BMR methodology and transparency obligations;
		• Follow administrator’s code of conduct (in compliance with BMR);
		• Supervised Contributors are required to:
		  • prevent conflicts of interest;
		  • co-operate in auditing and supervision of benchmarks;
		  • maintain records and make these available.
			• May only use authorised benchmarks ;
			• Is required to produce robust action plans if a benchmark materially changes or ceases to be produced (to be reflected in contractual documents) – this requires fallbacks.

Category of benchmark defines BMR requirements

- Categorise BMRs as:
  - Critical - those that are "Administrators" for BMR's purposes are subject to most stringent requirements
  - Significant - proportionate application of rules
  - Non-significant
  - Third-country
- Challenge remains that it is not clear how benchmarks may evolve through thresholds i.e. from "critical" to "significant" etc.
- Challenge also exists where an institution is administered by, contributed to and used by a given BMR in-scope entity – to what degree do roles need to be truncated and if yes where are the interfaces and how is this documented?

Size (reference volume) matters

Critical	Significant	Non-significant	Third-country
EUR 500 billion in volume of financial contracts referenced; or Supervisors' discretion	- EUR 50 billion to 500 billion in volume of financial contracts referenced; or - Low impact or few substitutes.	Less than EUR 50 billion	Can be: 1. Equivalent; 2. Recognised; or 3. Endorsed.
Mandatory contribution from Administrators Set procedure for cessation of benchmark	Proportionate application of BMR's rules in the form of limited exemptions for requirements relating to: - governance and conflicts of interest systems and controls; - compliance oversight of input data and controls; - shorter-form of BMR-compliant "code of conduct". In order to avail of these reliefs the BMR relevant administrator must adopt comply or explain approach. Regulator may overturn administrator's decision.	Further proportionate relief and exemptions for: - governance and conflicts of interest systems and controls; - compliance oversight and systems and control frameworks; - accountability framework; - input data controls; - transparency of benchmark methodology; - reporting of BMR infringements; - simplified code of conduct; and - less(er)-stringent controls for contributors. Explanation as to why each requirement is inappropriate to be included in compliance statement. May be appropriate forum for proprietary indices (WARNING: not available for interest or commodity indices).	**Equivalent** - Only applicable when the Commission has made a positive equivalence decision in respect of the relevant third country (taking into account whether the legal framework ensures compliance with the IOSCO principles) and an MoU is in place between ESMA and third-country authority; - The third country administrator must be authorised or registered, and subject to supervision, in the third country •The administrator must have notified ESMA of the identify of its regulator and the administrator's consent to the use of its benchmarks in the EEA. **Recognised – mostly when equivalence decision is pending** - Recognition provided by the regulator in the administrator's Member State of reference (**MSoR**) and maintaining legal representative in MSoR; - Regulator must confirm the administrator's compliance with standards equivalent to the Regulation, taking into account compliance with the IOSCO principles – subject to audit/certification. **Endorsed** A third country benchmark can be endorsed by an EEA regulator at the request of an EEA administrator who is authorised or registered under BMR and has verified compliance and can monitor compliance and has regulatory ownership /BMR compliance responsibility.

Obligations under the BMR

Administrators

•Identify the “benchmark universe” – who owns the IP and will “own” governance and thus regulatory license/permission and reg cap in the case of administratorship.

•Supervised entities are obliged to draw up and maintain a “benchmark statement” plus robust written plans in which they set out the measures they would take in the calculation process should a malfunction result in the relevant benchmark changing significantly or ceasing to be provided incl. design, approval and governance/compliance framework for lifetime of benchmark.

•Contingency plans are also welcome, which identify one or more alternative benchmarks that could be used in the event the principal benchmark is no longer provided.

•The supervised entity to indicate why these benchmarks would be appropriate alternatives.

•Administrators and users ought to:

  - Identify which staff are involved in benchmark administration requirements – incl. by legal entity (retained v. employed); and
  - Monitoring and control of governance/compliance over benchmark lifecycle.

Contributors

- Identify the “benchmark universe” and employees/legal entity that is relevant.
- Perform a conflict of interest gap analysis.
- Develop internal codes of conduct, compliance and governance as to use of and contribution of data to benchmarks including validation.
- Distinguish between EEA and non-EEA contribution streams.

Obligations under the BMR

Users

•Identify the “benchmark universe” and employees/legal entity that is relevant.

•Users must administer the contingency plans (in the event an EEA benchmark becomes severely restricted and/or discontinued or subject to material change) in a diligent and appropriate manner, taking into account the nature and relative importance of the specific benchmark as well as how widely it is used. This applies for new and existing benchmarks and their administrators (as well as alternatives/fallbacks).

•Upon request, users are required to provide the competent authority with a copy of the contingency plans and any potential updates.

•Users of benchmarks may only use those that those that are listed on ESMA Register and are either provided by an EEA administrators that is either:

- Authorised; or
- Registered; or
- Qualified (equivalent, endorsed or recognised) for use in the EEA pursuant to BMR. This merits ensuring benchmarks are on the ESMA Register.

Third Country Benchmarks

Requirements under the BMR

- **Third country benchmark administrator has three options/routes available to become BMR compliant:**

  - Equivalence (Article 30)
  - Recognition (Article 32)
  - Endorsement (Article 33)

→ Once the requirements (**of either of those three**) have been fulfilled the benchmark becomes eligible. NB no automatic Brexit-relief for UK.

- **Article 36 BMR** empowers ESMA to set up a list of eligible third country benchmarks.
  - EU users of benchmarks can only use third country benchmarks registered on this list.
  - ESMA’s third country benchmark website is live but **does not yet have a single entry**.

→ Uncertainty whether many third country benchmark administrators can or will become BMR compliant via the available third country routes.

Why are some current benchmarks problematic?

The current Benchmarks have encountered difficulties from two main sources

- The scandal surrounding fixing during the crisis - banks have become reluctant to remain on panels (given the potential for litigation and compliance risks).
- A more concentrated panel in terms of membership threatens the representativeness of the benchmark.
- **The significant drop in underlying transaction volumes as illustrated by the graph.**

Evolution of excess liquidity and EONIA volumes (Source:ECB).

Why are some current benchmarks problematic?

Ongoing Challenges

- Banks' reporting requirements call for more frequent reports and the inclusion of a wider array of data and greater granularity at transactional level.
- Overly burdensome requirements have led to:
    - Reduced contribution to benchmarks; and
    - Increased compliance costs and regulatory burdens for benchmark administrators.

Compliance

•Key theme and spirit of BMR is to address conflicts of interest.

•BMR requires benchmark administrators to disclose all or potential conflicts of interest.

•In the case of structured products or a passive investment strategy, appointing an internal compliance function to provide oversight may, depending on circumstances be viewed as ineffective for mitigating conflicts because some degree of control remains with the trading desk.

•Compliance, and any other oversight function, will typically not have the expertise to sufficiently assume control of the index methodology or possibly even understand what they are overseeing.

Current Developments

Currently neither EONIA nor EURIBOR meet the BMR requirements

- The European Commission announced at the beginning of the year that EU institutions have agreed to grant providers of "critical benchmarks" – such as:
  - EURIBOR; and
  - EONIA.
- two years until 31 December 2021 to comply with the new BMR requirements

EONIA

- will be replaced by **€STR** (Euro Short-Term Rate) with EONIA-backed securities to transition to ESTER/€STR, which will also become a fall back rate in EURIBOR-based contracts.
- No actual ESTER /€STR data exists as of yet and may not be available until October 2019, with ECB publishing "pre-ESTER /€STR" data.

EURIBOR

- will be reformed, with the European Money Market Institute (EMMI) expected to file for authorisation of a reformed version by the second quarter of 2019.
- The reform is expected to change the calculation of EURIBOR to a "hybrid methodology".

2. Euro Short-Term Rate Working Group

Euro Short-Term Rate Working Group

- A working group on euro risk-free rates was established by the **ECB**, together with the Belgian Financial Services and Markets Authority (**FSMA**), the European Securities and Markets Authority (**ESMA**) and the European Commission to:

  identify and recommend risk-free rates that could serve as a basis for an alternative to current benchmarks used in a variety of financial instruments and contracts in the euro area, such as EONIA and EURIBOR

- It is a private sector working group - the ECB provides the secretariat and attends as an observer only.
- The group recommended on 13 September 2018 that the euro short-term rate (**€STR**) be used as the risk-free rate for the euro area and is now focused on supporting the market with transitioning.

The Euro Short-Term Rate "€STR"

- The ECB has thus now changed the rate formerly known as **EUOIR**, changed to **ESTER** to now read "**€STR**".
- Its first publication is scheduled for **October 2, 2019.** The date is however not final as the ECB aims to release €STR only when it is seen to meet the ECB's requirements regarding reliability and robustness.
- €STR is a rate which will be calculated and published by the ECB.
- It is based entirely on actual individual transactions in euro that are reported by banks in accordance with the ECB's money market statistical reporting (**MMSR**).
- The calculation is in line with the international standards set by the International Organisation of Securities Commissions (**IOSCO**) on financial benchmarks.

Waiting for “€STR”

pre-€STR

- There are currently an estimated €22 trillion of EONIA-linked derivatives contracts outstanding and €109 trillion linked to EURIBOR.
- A further €1.6 trillion of debt securities are linked to EURIBOR.
- €STR is a reliable and robust rate and it reflects financing conditions in money markets better than secured rates, which could be influenced by regulatory and collateral factors unrelated to bank borrowing.
- The market is pushing for the release of €STR as soon as possible – however:
  - A sufficient period of testing is required to make sure that the technical set-up achieves the highest degree of reliability to guarantee the smooth production of €STR.
  - The regulator tried to partly resolve this trade-off by providing market participants with a series called **pre-€STR**, using existing MMSR data.

Waiting for “€STR”

pre-€STR vs €STR

- Pre-€STR is calculated using the same methods as defined for €STR/ €STR but it differs in that it is based on final data and includes all revisions in terms of cancellations, corrections and amendments submitted by reporting agents in the 10 days following the reference date used for calculating the rate.
- €STR, by contrast, will be published every morning and take into account only the data received by the submission deadline of 07:00 CET the same morning.
- Internal analyses have shown that over the review period since mid-March 2017 an €STR rate calculated on the basis of data as submitted by reporting banks by 7:00 CET would not have been significantly different from a rate based on final (i.e. pre-€STR) data.
- While the republication risks for mistakes larger than 2 basis points always remain possible and is catered for, **the likelihood of this happening is currently assessed to be very low**.
- Despite growing excess liquidity levels, pre-€STR displays significant and steady volumes, markedly above EONIA volumes.
  - Daily volumes, based on actual transactions, average €30 billion and range from €6.8 billion to €41 billion.
  - On average, around 30 banks report data each day out of a pool of 52 MMSR reporting banks, which ensures that there is sufficient underlying data to calculate a reliable rate.
- MMSR data show that even on days with reduced activity on account of major holidays, including the year-end period, volumes remain sufficiently high and concentration sufficiently low to calculate an unbiased rate.
- It will therefore not be necessary for the calculation methodology to be enriched with historical data, or to rely on other market segments or even expert judgement.

3. IBOR Transition Industry Context

Industry Context

IBOR in today’s financial markets and proposed alternative reference rates

- London interbank offered rate (**LIBOR**) has been the standard benchmark for financial instruments for decades and is used to benchmark over $300 trillion USD equivalent across 5 currencies.
- Following the LIBOR rigging scandal and a decline in unsecured interbank market lending, in 2017 the FCA declared that LIBOR (and other “**IBORs**”) were no longer viable, and that it will not require panel banks to make submissions after 2021. This does not mark the absolute end of the IBOR, banks must consider the risks associated with this transition.
- Over the last five years, international regulatory regimes have created working groups to identify alternative risk free reference rates “ARRs” or “RFRs”. In all cases, these are overnight rates, and have been chosen in preference to term rates, because the emphasis on having real transactional data to base these rates, minimising reliance on expert judgement.
- While regulators continue to champion transition programmes in the US and UK, the Eurozone is behind – notably, EURIBOR and EONIA will need to be reformed or replaced to be BMR compliant.

Country	Administrator	RFR	Type	
US	Federal Reserve Bank of New York	Securities Overnight Financing Rate (SOFR)	Secured	• As at end-October, there has been over US$15 billion of SOFR-linked floating-rate bond issuances. • Traded volumes of SOFR derivatives have also increased, particularly futures.
UK	Bank of England	Reformed Sterling Overnight Index Average (SONIA)	Unsecured	• Share of the notional cleared sterling swap market referencing SONIA reached 18% on a duration-adjusted basis, up from 11% in July 2017. • The monthly volume reached around 270,000 contracts in October, having been negligible in early 2018.
Switzerland	SIX Swiss Exchange	Swiss Average Rate Overnight (SARON)	Secured	• Secured overnight rate based on Swiss franc repo market data. • Daily rate administered by SIX Swiss Exchange, term rates pending.
Eurozone	European Central Bank	Euro Short-Term Rate (€STR)	Unsecured	• The working group recommended €STR on 13th September 2018. • The ECB announced it intends to produce €STR a new euro unsecured overnight rate by October 2019. • Usage of non-compliant benchmarks restricted from 1 January 2020.
Japan	Bank of Japan	Tokyo Overnight Average Rate (TONAR)	Unsecured	• Unsecured overnight call rate, calculated and published by the Bank of Japan. • Daily rate published by Bank of Japan, term rates pending.

- Since the identification of RFRs there has been encouraging signs of transition:
  - The volume of cleared SONIA swaps has increased since July 2018, suggesting they are being used for a wider range of purposes;
  - As at end-October 2018 there has been over £5.5 billion of SONIA-linked bonds issued;
  - In Dec 2018, open interest in CME SOFR futures hit a new high of 80,000 contracts and over 1mn contracts have traded since CME launched the products in May 2018.
- However, there are uncertainties around how industry as a whole will address structural differences between IBORs and ARRs.

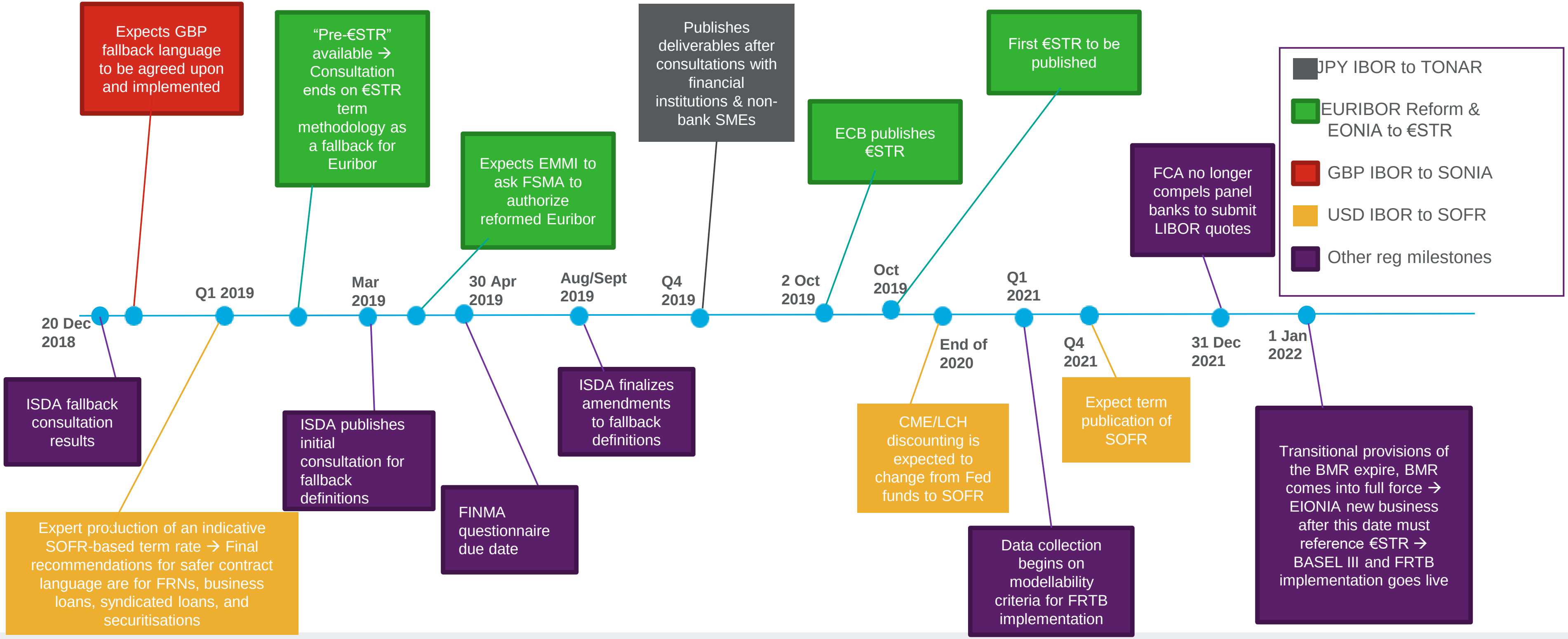
Variables of each IBOR and RFR by Jurisdiction

Key factors to be aware of in each IBOR and risk-free reference rate

Jurisdiction	Benchmark IR	Admin	Reformed IBOR include waterfall approach?	Alternative RFR	Alternative RFR Administrator	Transaction based?	Overnight rate?	Secured/ Unsecured	Underlying Transactions	Rates published
Japan	JBA TIBOR EUROYEN TIBOR	JBA TIBOR Administration	Yes	TONA	Bank of Japan	Yes	Yes	Unsecured	Money Markets	July 1985
	JPY LIBOR	ICE Benchmark Administration (IBA)	Yes			Yes				
EU	EONIA/EURIBOR	European Money Markets Institute (EMMI)	Yes	Euro short-term rate (€STR)	European Central Bank (ECB)	Yes	Yes (€STR)	Unsecured	Money Markets	October 2019 (€STR)
				Reformed EURIBOR		Partly				
UK	GBP LIBOR	ICA Benchmark Administration (IBA)	Yes	Reformed sterling overnight index average (SONIA)	ICE Benchmark Administration (IBA)	Yes	Yes	Unsecured	Money Markets	23 April 2018
US	USD LIBOR	ICE Benchmark Administration (IBA)	Yes	Secured overnight financing rate (SOFR)	Federal Reserve Bank of New York (FRBNY)	Yes	Yes	Secured	Repo Transactions	3 April 2018
Switzerland	CHF LIBOR	ICE Benchmark Administration (IBA)	Yes	Swiss average rate overnight (SARON)	Swiss National Bank (SNB) and SIX Swiss Exchange	Yes	Yes	Secured	Repo Transactions	25 August 2009

IBORs to RFRs Transition Timeline

This timeline lists kay dates and milestones associated with the transition from IBORs to risk free rates for the Japanese yen, Euro, UK pound sterling, U.S. dollar, and Swiss franc.



20 Dec 2018

ISDA fallback consultation results

Expects GBP fallback language to be agreed upon and implemented

Q1 2019

Expert production of an indicative SOFR-based term rate → Final recommendations for safer contract language are for FRNs, business loans, syndicated loans, and securitisations

"Pre-€STR" available → Consultation ends on €STR term methodology as a fallback for Euribor

Mar 2019

ISDA publishes initial consultation for fallback definitions

Expects EMMI to ask FSMA to authorize reformed Euribor

30 Apr 2019

FINMA questionnaire due date

Aug/Sept 2019

ISDA finalizes amendments to fallback definitions

Q4 2019

Publishes deliverables after consultations with financial institutions & non-bank SMEs

2 Oct 2019

ECB publishes €STR

Oct 2019

First €STR to be published

End of 2020

CME/LCH discounting is expected to change from Fed funds to SOFR

Q1 2021

Data collection begins on modellability criteria for FRTB implementation

Q4 2021

Expect term publication of SOFR

31 Dec 2021

FCA no longer compels panel banks to submit LIBOR quotes

1 Jan 2022

Transitional provisions of the BMR expire, BMR comes into full force → EIONIA new business after this date must reference €STR → BASEL III and FRTB implementation goes live

- ■ JPY IBOR to TONAR
- 🟩 EURIBOR Reform & EONIA to €STR
- 🟥 GBP IBOR to SONIA
- 🟨 USD IBOR to SOFR
- 🟪 Other reg milestones

Official Sector Working Group

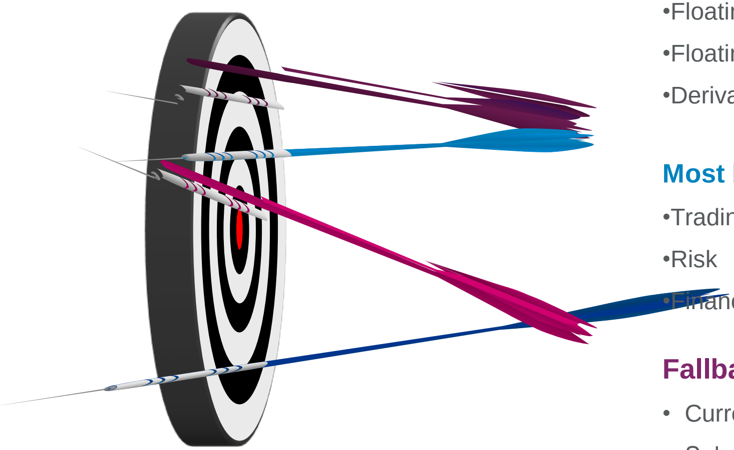
Activities and Near-Term Expectations

Working Group	Working Group Structure	Alternative/New RFR Status	Cash Fallback Language Status	Term Rate Status	Near Term Expected Actions	Issuance to Date
Bank of Japan Study Group on Risk-Free Reference Rates **Cross-Industry Committee on Japanese Yen Interest Rate Benchmarks**	**The Cross-Industry Committee on Yen Interest Rate Benchmarks is divided into three subgroups and one working group focusing on:** 1. Loans 2. Bonds 3. Development of term reference rates 4. Currency Swaps	**December 2016:** Recommended Tokyo Overnight Average Rate (TONA) calculated by the Bank of Japan.		Future work plan for term reference rate based on Swaps and Futures is discussed in the subgroup for the development of term reference rates. The subgroup considers possible timing of the implementation is around mid-2021.	The Committee will have a public consultation in mid-2019. The main scope of the consultation includes 1) Alternative benchmark options and 2) Preparation for fallbacks.	
Working Group on Euro Risk-Free Rates	**The Euro Working Group (WG) currently has three sub-groups, focusing on:** 1. Term rate methodology for euro short-term rate (€STR) 2. Best practices for contract robustness and legacy contracts 3. Euro overnight index average (EONIA) transition challenges The subgroups are currently being reorganised.	**September 2018:** Recommended €STR to replace EONIA. ECB will begin publishing €STR by October 2019. **February 2019:** Euro WG confirms EURIBOR will continue for the medium term.	Euro WG "Guiding principles for fallback provisions in new contracts for euro-denominated cash products" published in 2018 to promote effective fallback provisions in new contracts for euro-denominated cash products. In 2019, the WG intends to recommend more detailed fallback language for legacy and new euro-denominated contracts.	On 25 Feb, the WG published a summary of responses to the second public consultation on determining an €STR-based term structure methodology as a fallback in euro interbank offered rate (EURIBOR) linked contracts. The WG may seek further input from market participants through additional Consultations.		There is no issuances in €STR yet.

Working Group	Working Group Structure	Alternative/New RFR Status	Cash Fallback Language Status	Term Rate Status	Near Term Expected Actions	Issuance to Date
Bank of England Working Group on Sterling Risk-Free Rates (RFRWG)	**The WG is broken down into sub-groups focusing on:** 1. Bonds 2. Loans 3. Communications & Outreach 4. Pension Funds & Insurance Companies 5. Cross-Currency Swaps 6. Infrastructure 7. Banking Industry Forum 8. Non-Financial Corporate Forum 9. Investment Managers Forum	**April 2017:** Recommended reformed Sterling Overnight Index Average (SONIA).	GBP fallback language expected to be agreed and implemented in 2019.	The RFRWG consulted with benchmark administrators on the development of a robust term SONIA reference rate. In late 2018 the RFRWG published “LIBOR Transition and Development of a Term Rate Based on SONIA – Next Steps.”	A 2019 focus will be on development of operational capability for SONIA-referencing floating rate notes (FRNs), loans and other instruments. A term benchmark rate will be produced and made available to use. The RFRWG maintains “Working Group Timeline and Milestones.”	CME Group launched 3-month SONIA and MPC-linked futures trading on 1 Oct 2018, following launch of ICE SONIA 1-month futures, launched 1 Dec 2017, and ICE SONIA 3-month futures, launched on 1 June 2018. CurveGlobal also launched 3-month SONIA futures and an ICS between SONIA and LIBOR on 30 April 2018. To date there have been 32 issues of sterling floating rate notes referencing SONIA with total volume of approximately £18 bn.
Alternative Reference Rates Committee (ARRC)	**The WG is broken down into sub-groups focusing on:** 1. Business Loans 2. Floating Rate Notes 3. Securitisations 4. Paced Transition/Market Structures (newly merged) 5. Technology/Infrastructure (under consideration) 6. Consumer Products 7. Legal 8. Outreach 9. Regulatory Issues 10. Term rates	**June 2017:** Recommended Secured Overnight Financing Rate (SOFR) as the RFR to replace U.S. dollar LIBOR. **April 2018:** New York Federal Reserve Bank (NYFRB) began publication of SOFR.	ARRC agreed on principles for fallback language, published late Sept 2018. In late 2018, ARRC consulted on proposed fallback language for use in FRNs, bilateral loans, syndicated loans, and securitisations. ARRC will continue to develop fallback language and other provisions to address consumer products (e.g. mortgages).	ARRC’s Paced Transition Plan sets end of 2019 goal to produce a forward-looking term rate for use in certain cash products. NYFRB intends to publish an indicative term rate in Q1 2019 with transparent Calculation methodology.	ARRC to publish recommended fallback language for certain cash products in Q1 2019. To facilitate the transition from LIBOR, which is a three-month or six-month rate, to SOFR, which is an overnight rate, the NYFRB is preparing to produce a backward-looking compounded average alongside the daily SOFR. The ARRC will continue to pursue regulatory and other obstacles to a transition away from SOFR. It is also exploring educational and outreach objectives and plans.	CME Group launched 3-month and 1-month SOFR futures trading on 7 May 2018. LCH began clearing SOFR swaps in July 2018. SOFR-based bond issuances in recent months include Fannie Mae, Credit Suisse, Wells Fargo, Met Life, the Federal Home Loan Bank system and the World Bank. There have been 72 issues of U.S. dollar notes referencing SOFR with total volume of $72.4bn
National Working Group on Swis Franc Referen Rates	The WG is broken down into sub-groups focusing on: 1. Derivatives & Capital Markets 2. Loan and Deposit Markets	**October 2017:** Recommended Swiss Overnight Average Rate (SARON)		WG has recommended using compounded SARON wherever possible		On 29/10/2018 Eurex launched 3M SARON Futures

What is to be expected from the Transition

Deep impacts on products and processes



The Industry as a whole needs to arrive at a consensus across two main areas:

Credit Adjustment Spread

Term Structure

Tens of millions of contracts will be impacted across all business lines:

- Floating rate loans (corporate lending, mortgages, retail loans)
- Floating rate notes, securitisations
- Derivatives: listed, OTC, cleared and uncleared across all asset classes

Most business processes are going to be impacted:

- Trading
- Risk
- Finance
- Operations
- Legal
- Treasury
- And more…

Fallback provisions for IBOR referencing contracts:

- Current contract definitions are ill-adapted to a permanent discontinuation
- Solution will be to create “fallback language” to define triggering events and fallback rates/spreads
- Challenges include de-synchronisation between cash and derivatives, jurisdictions, currencies

Liquidity Challenges:

- Volumes of SOFR denominated derivatives and debt issuance are slow to pick up
- Volumes of IBOR referencing volumes are still growing

4. Approaching IBOR Transition

In-Flight Efforts – Industry Themes

We see varying degrees of programme maturity across the industry

Macro Industry Themes

1. **Programmes are often hybridised** – a strong central team to guide strategy, with execution federated to the businesses and functions
2. **Central accountable executive** – to which programme teams are generally aligned (usually CFO, Treasurer, CRO or COO)
3. **Uncertainty over total cost for transition** – Firms that have budget typically only have a 2019 amount ear-marked
4. **Budget visibility is low** – expected drivers of cost are tied to changes in systems and investment in legal contract review and remediation

Industry IBOR Transition Programme Maturity

No Central Programme

- Unaware of IBOR transition or in wait and see mode
- Transition activities (if any) are decentralised
- Limited participation in industry WGs
- Limited insight into potential impacts of transition

Mobilising Central Programme

- 2019 budget allocated
- Governance defined and stakeholders brought in
- Accountable executive appointed
- Understanding of size & scope of areas potentially impacted
- Participation in industry WGs
- Initial client comms

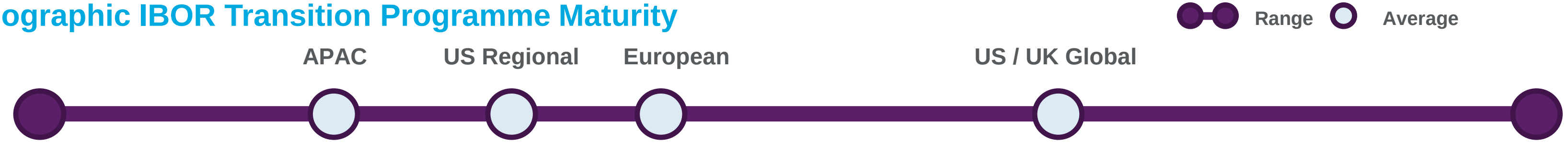
Programme Launched

- Programme initiated with a view towards budget drivers
- Plan & roadmap defined with checkpoints and dependencies, until 2021
- Active near term conduct risk mitigants (fallbacks etc.)
- New product design

Actively Transitioning

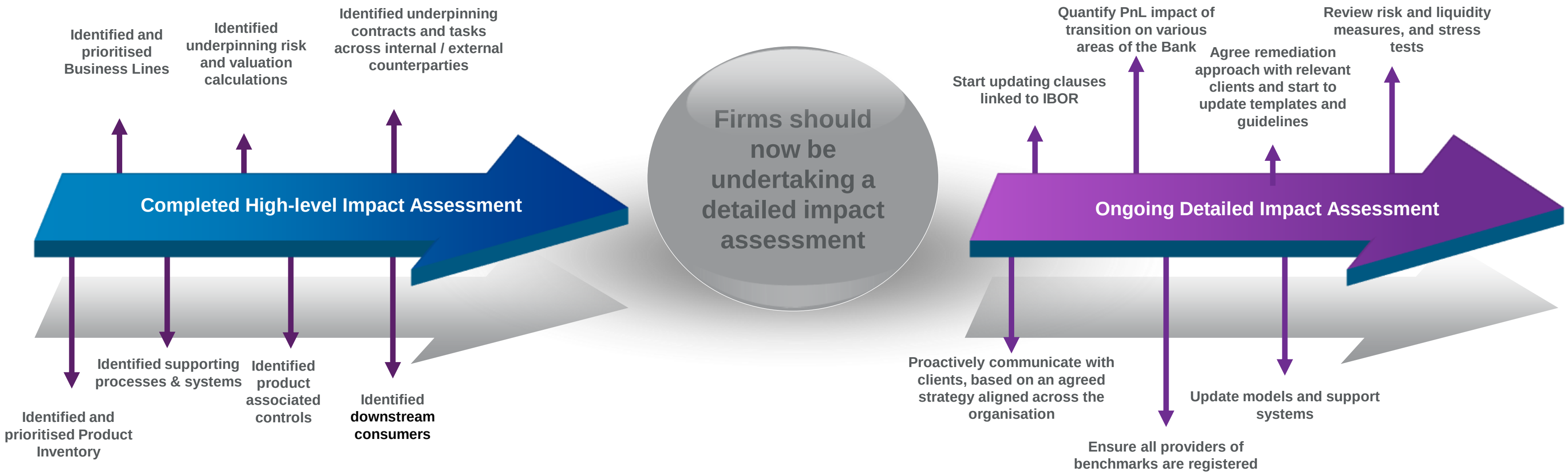
- Fully operational programme
- Active execution of IBOR programme transition remediation activities
- Active reduction and transition of the back book

Geographic IBOR Transition Programme Maturity



What should firms be doing now?

While a high level assessment should already have taken place, organisations should now be undertaking an in depth analysis across products and business units



"The time to act is now" – Sandie O'Connor, ARRC Chair

- The systemic footprint of IBOR across the financial system is vast and not fully understood
- New products are already being developed which reference new rates – for example the listing of SOFR futures
- Clients need to be properly briefed about upcoming changes, to mitigate any legal risk
- Regulators will likely increasingly engage with organisations to understand their transition plans
- Operational changes will be better implemented the earlier the engagement by firms

How should firms approach IBOR Transition?

Firms must work to understand their scale of exposure to LIBORs and formulate strategies to reduce and manage the residual risk.

Programme Set up

- **Assign a Senior Sponsor and a Programme Team to govern, coordinate and drive IBOR transition activities:**
  - Set up relevant workstreams and assisting leads to support the programme on a global, business line and functional level
  - Ensure sufficient plans, budget and resources are allocated and that this is a board level agenda

Identify

- **Create an inventory of IBOR exposures:**
  - Analysis across the product inventory and business to catalog use of IBORs (e.g. products, risk models, documentation, valuations etc.)
  - Review and agree areas to be considered. Define the scope and approach for completing impact assessment

Quantify

- **Calculate exposure to IBORs, considering:**
  - Current positions and evolution of products
  - Predicted roll off prior to end of enforced submission periods
  - Impact of fallback rates

Plan

- **Formulate a transitional plan & product strategy, considering:**
  - Product approval processes
  - Trader mandates
  - Risk appetite
  - Trading out of positions
  - Development of products referencing alternate RFRs
  - Model formulae

Mitigate

- **Formulate and execute detailed transition plans covering:**
  - Contracts and Terms (e.g. new contract design and old amendments)
  - Derivative, Cash products, hedging strategies, and managing existing book and future trading strategy *
  - Firm infrastructure (e.g. Risk, Finance, Operations, Treasury etc.)

* Scope dependent on firms' operating model

Communicate

- **Engage and input into industry forums**
- **Educate staff on overall approach and strategy**
- Identify impacted clients (internally and externally) and tailor communications accordingly:
  - Training
  - Repapering
  - Repricing

Programme Development Models

As Banks have increasingly been setting up transition programmes, three main models have emerged

Increasingly Strong Central Governance

Segregated Model

- Delegated transition programme with activity mainly focused within affected business units
- Little to no overall responsibility for the whole programme
- ***Generally seen in organisations which do not have a formal programme in place***
- ***Organisations with this model will generally migrate to the other forms in the near future***

Hybrid Model

- Borrows characteristics from both models
- Still has a centralised team, although the roles and responsibilities are severely reduced
- Team supports communication and knowledge sharing but at a much reduced level
- ***More common in organisations with less specific work streams than in the centralised approach***

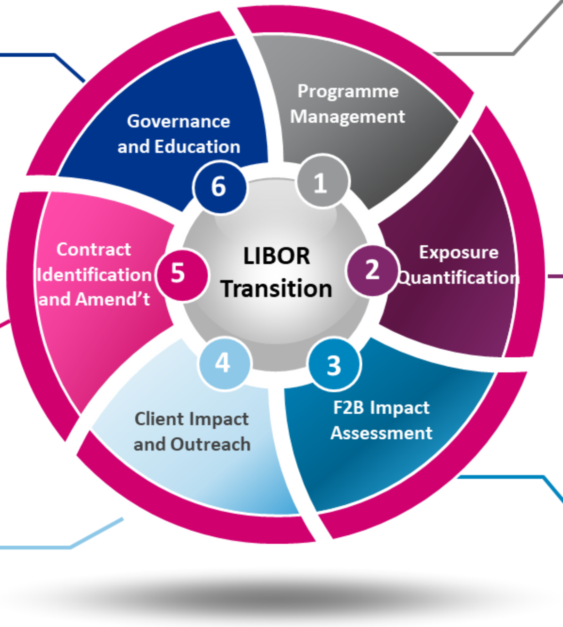
Centralised Model

- Strong central team or single owner overseeing change across business areas
- Responsible for keeping processes consistent and each unit on the same page
- Focus on sharing knowledge across areas, leveraging practice expertise
- Outside of the Central team, involvement will typically be lighter touch
- ***Although Banks may have started with a more de-centralised model, centralised models are becoming increasingly common***

Programmes are often hybridised – a strong central team to guide strategy with execution federated to businesses and functions

Structuring a programme around IBOR

Workstreams required to assess and mitigate impacts will be dependent on the organisation’s size, sale and geographic footprint – key components should be considered



*Internal governance involving Legal and Conduct teams to **approve changes and ensure customers are being treated fairly**. **Employee education** on implications so they can guide clients through the process*

*Documentation and contracts covering all products and business lines, including **expected fallbacks and bi-lateral negotiations***

*Client segmentation based on impact. **Clear and early communication with customers** to provide education and information, and to pave the way for renegotiation and collaboration*

*A central programme to **govern, coordinate and drive** the overall plan, considering all business lines and jurisdictional differences*

***Repeatable quantification of exposures** to IBOR and impact on the Balance Sheet across the in scope product portfolio*

***Impact assessment** across the product value chain, with specific focus on processes, data, systems controls, as well as technical areas such as accounting and tax impacts, cashflow, hedging, transfer pricing, which may have large PnL impacts*

Transition Planning

The nature of work will change over time along with resource requirements – initial focus on programme mobilisation, analytics and conduct risk mitigation

H1 2019
- Awareness raising around IBOR transition
- Assess exposure to IBORs
- Conduct impact assessment and highlight required changes to systems, processes, controls, etc
- Begin to transition portfolio with sufficient alterative rate liquidity

2020
- Start to repaper and upload fallback language where needed
- Continue to execute model, process and system updates
- Continue transition of portfolio, in line with market liquidity

H1 2019 | H2 2019 | 2020 | 2021

H2 2019
- Begin to implement on the required operational and technology changes
- Planned client outreach on need for change and impacts
- Continue transition of portfolio, in line with market liquidity

2021

- Finish repapering / updating fallback language
- Shift all remaining exposures to new rates
- Complete model, process and system updates

Current focus should be on delivering on foundational items

Set up **Governance and programme structure** to execute and monitor transition activities

Educate and facilitate communication amongst executives and key impacted businesses

Perform a **quantitative analysis of IBOR exposures** by legal entity, product, IBOR and maturity

Include appropriate **fallback language in contracts** for new issuances of IBOR linked products

Conduct **front to back impact assessment,** including impact on models, contracts, systems and processes

Consider potential **accounting and tax outcomes**, especially for hedging portfolios

Cut back on new issuance of IBOR linked products to reduce legacy exposure and **start trading in ARRs** where operationally ready

Use impact assessment to **develop the implementation book of work** and agree budgets

Transition Scenarios

Observing market development across four elements will guide the implementation

Category	Dimension	Considerations	Base Assumption	Rationale
1. Rate Fundamentals	**Term Rate**	• Cash product users tend to desire term rates, but a forward looking term rate will require sufficient futures liquidity to model	• Term rate develops using compounded overnight rate (not a forward-looking rate) by end of 2019	• Forward looking term rate may develop later on, but regulators generally voiced that this should not be a dependency
	Rate Availability	• IBOR rates are expected to discontinue after 2021 but there is no regulatory mandate yet; rates may also become unreliable before then as liquidity dries up	• IBOR fully discontinued after 2021; will remain viable until then	• Based on current regulatory direction of travel
2. Economic considerations	**Credit spread**	• IBORs and ARRs are not one for one equivalents – the different credit spread will result in economic differences	• Credit spread is consistent to ISDA approach for all products (historical mean over a lookback period TBD)	• General industry feedback is to maintain consistency across products
	Value transfer	• Asymmetry of transition will result in value transfer and potential basis risk for the bank	• Some asymmetry leads to additional basis risk and value transfer • Cash products and derivatives are not fully aligned on timing	• Level of uncertainty in transition is likely to drive some divergence and economic transfer
3. Market transition	**IBOR product usage**	• Continuing to use IBOR products adds to the back book that needs to be transitioned	• Some reduced demand for certain IBOR products continue through to 2021	• Assumption allows for some conservatism
	Alternative rate usage	• Non-IBOR products will need to be developed to replace IBOR products	• Demand for derivatives picks up in 2019; broad cash products begin on SONIA and SOFR in 2020	• Based on discussions with business, industry plans and other discussions
	Industry / regulatory action	• Transition will need to be in sync across the industry; a disorderly transition will result in increased economic impact	• Regulators take action to make continued use of IBORs beyond 2021 not feasible • Relief for key tax, accounting, and margin posting roadblocks	• Based on current regulatory direction of travel
	3rd party readiness	• Dependencies exist on vendors, clients and market infrastructure to be ready to transition	• Vendors prepared before 2021 • Additional vendor and client investment required for customised tools or tools not on latest vendor version	• Based on discussion with business, industry plans and other discussion
4. Legal	**“Back book” terms**	• Existing IBOR fallbacks were not written in contemplation of a permanent cessation of IBOR – there are challenges in enforcing the existing language	• Existing fallbacks are enforceable • Clients are open to negotiation	• Based on discussion with business, industry plans and other discussion
	“Front book” terms	• New fallback language can either be hard-wired (which depends on knowing the ARRs upfront) or flexible (which can result in ambiguity during transition)	• Clients generally accept new flexible fallback terms in contracts	• Based on discussion with business, industry plans and other discussion

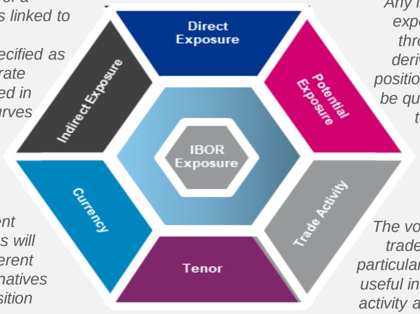
5. Impact Assessment and Transition Risks

Exposure across products

A thorough understanding of an organisation’s product inventory should already have been drafted, with a holistic view on the overall exposure to IBOR

Product	Key Examples	Identifying Linked Exposures	Measures
Derivatives	• **Interest rate swaps** • **Cross Currency swaps** • **Commodity swap** • **Credit default swap** • **Interest rate futures** • **Interest rate options**	• **Direct vs. Indirect Exposure –** *IBOR can be directly or indirectly referenced (the latter is more difficult to quantify)* • **Linear vs. Non-Linear –** Derivatives can have a linear and non-linear payoff. A non-linear derivative will have a payoff that changes with time and may have additional sensitives to IBOR (such as deep in and out of the money positions) • **Exchange traded vs. OTC** – *there would be differences owing to Price Alignment Interest and OIS discounting*	• **Notional** • **MTM** • **DVO1** • **Additional Greeks for Options**
Cash	• **Bonds** – *Corporate, Floating Rate Notes, Covered bonds, Perps, Agency notes, Leases, Trade Finance* • **Loans –** *Syndicated, Securitised, Business Loans, Real Estate Mortgages* • **Securitised products** – *Collateralised bond obligation, Collateralised loan obligation, Mortgage backed security* • **Short term products** – *CPs, Money markets, Repos and Reverse repos* • **Retail** – *Loans, Mortgages, Pensions, Credit cards, Overdraft and late payments*	• **Trading vs. banking books** - *Cash products booked in the trading book are regularly traded while those booked in the banking book are expected to be held to maturity*	• **Notional** • **Committed undrawn amount** • **MTM** • **DVO1**

Once product inventory has been identified it is important to accurately measure the impact across products on an ongoing basis



Where IBOR is indirectly referenced, it becomes more difficult to quantify:
- *Underlying of a derivative is linked to IBOR*
- *IBOR is specified as a fall back rate*
- *IBOR is used in discount curves*

A complete assessment of the current exposure to IBOR must be undertaken across products

Any indirect exposure through derivative positions must be quantified too

Different currencies will have different IBOR alternatives and transition timelines

It is important to understand how far current IBOR exposures extend too – particularly those that extend past the 2021 deadline and will need to be repapered

The volume of trades in a particular area is a useful indicator of activity and hence be used potential starting points

Tools required for continued assessment

Development of a IBOR “Heat Map” enables a firm to identify areas of high dependency across multiple dimensions in order to support prioritisation and to monitor improvements over time

Exposure to IBOR

IBOR Heat Map Scoping

- Identify division, business line, region, asset class, product, systems in scope
- Identify applicable themes for assessment (i.e. economic, systems, processes, controls, contracts etc.

IBOR Heat Map Scoring

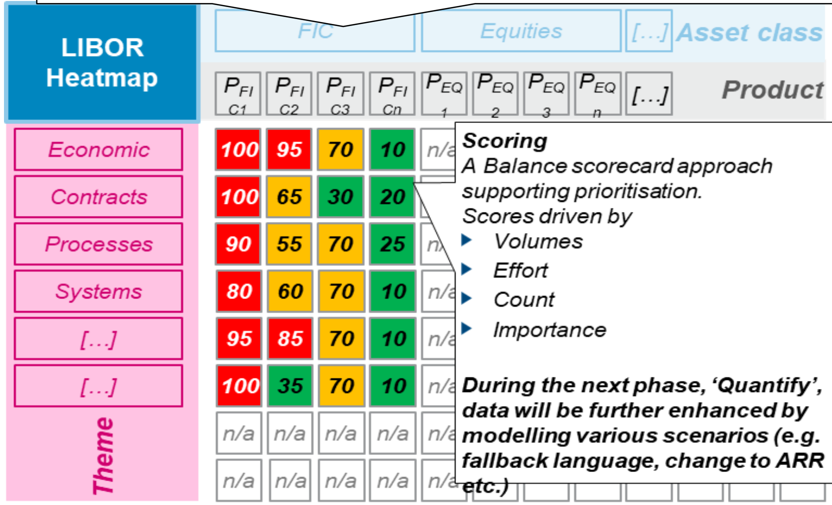
- Quantitative assessment based on volumes
- Where a quantitative assessment is not easily attainable a qualitative assessment is performed based on agreed scoring based on importance, known limitations, scheduled changes, etc.

Supporting Governance

- Heat Map can be refreshed on an regular basis to enable monitoring and track transition progress
- The Heat Map supports monthly prioritisation decisions in an auditable manner

Example: IBOR Heat Map

Scope
Depending on client preference the heat map can be structured either by: ***- Rate Type – Geography - Division - Product***



LIBOR Heatmap	P_{FI} C1	P_{FI} C2	P_{FI} C3	P_{FI} Cn	P_{EQ} 1	P_{EQ} 2	P_{EQ} 3	P_{EQ} n	[…]
Economic	100	95	70	10	n/a				
Contracts	100	65	30	20					
Processes	90	55	70	25	n/				
Systems	80	60	70	10	n/a				
[…]	95	85	70	10	n/a				
[…]	100	35	70	10	n/a				
	n/a	n/a	n/a	n/a	n/a				
	n/a	n/a	n/a	n/a	n/a				

Scoring
A Balance scorecard approach supporting prioritisation.
Scores driven by

- *Volumes*
- *Effort*
- *Count*
- *Importance*

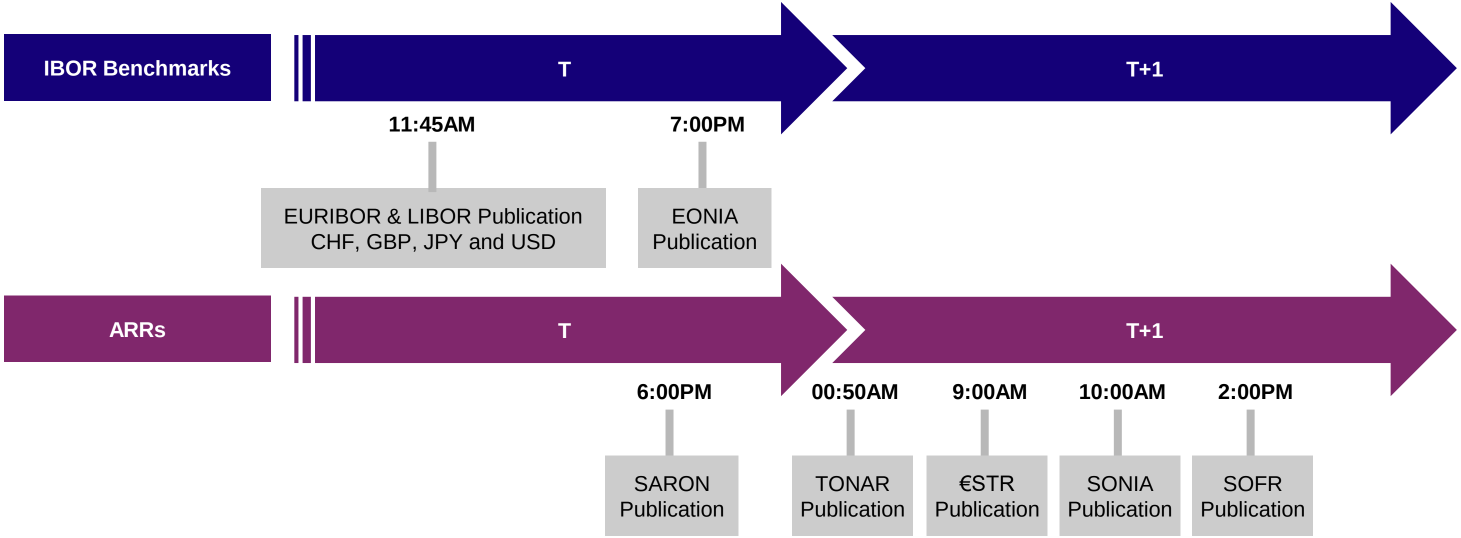
During the next phase, ‘Quantify’, data will be further enhanced by modelling various scenarios (e.g. fallback language, change to ARR etc.)

Theme

- *Cross functional impact areas used to assess the scale and breath of impact of the transition*

Structural Differences – Time of Fixing

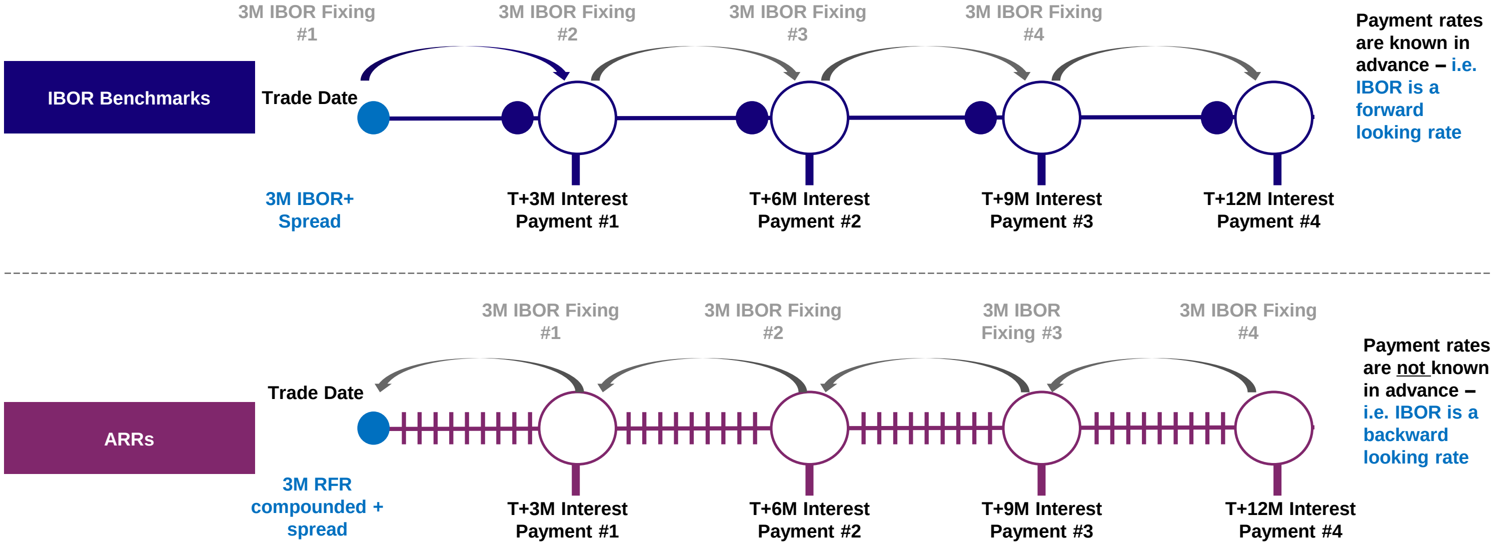
Post trade operational processes will need to consider the impact of T+1 rate fixing and synchronisation of batches for downstream processing



- Most systems will be able to adapt to the T+1 rate fixing. Batch synchronisation will be necessary, due to different ARR publication timetables.
- Flow of information across Middle/Back office teams will be later than with IBORs, hence processes and availability of teams should be reviewed and adjusted if required.
- There will be a large amount of data to manage: product registration should be done on a daily basis (vs. once every 3 months for a LIBOR 3M indexed product).

Structural Differences – Coupon Calculation

ARR benchmarks are overnight rates, and term structure calculation methodology will modify the way that interest is calculated



Payment rates are known in advance – i.e. IBOR is a forward looking rate

Payment rates are not known in advance – i.e. IBOR is a backward looking rate

- With ARR overnight rates, the way that interest is calculated will need to switch to compounding in arrears – this may need to be updated in relevant IT systems
- Timing and processes for the calculation will need to change. There is a risk that this will generate more mismatches, since each party will compound the interest in their own systems – an option could be to send calculation details to the counterparty.
- Discussions are on-going around the construction of term rates with ARRs, however this is yet to be agreed

How does this impact units across the Bank?

Once a product inventory has been collated, firms should already have a strong view of the impact assessment across business areas. The below focuses on an Investment Bank

Investment Bank – Capabilities

Primary Impacts

Front Office

Sales & Trading
- Trading Mandates
- Current Positions
- CVA / FVA / XVA Calculations
- Hedging Strategies
- Curve Management

Legal

Documentation
- Contract Review
- Fallback & Restrike Language
- Industry Template Language

Middle Office

Credit Risk
- Exposure Models (PFE & CE)
- Margin Models (IM & VM)
- Counterparty Credit Risk Models

Market Risk
- Risk factor / time series
- VaR Models
- Stress Test and Sensitivity Models

Treasury
- Hedging Strategy
- FTP Methodology
- Unsecured Funding
- Secured Funding
- Asset & Liability Management

Secondary Impacts

Back Office

Operations
- Data Management
- Collateral Management
- Trade Processing & Confirmation
- Settlements
- Asset Servicing
- Reconciliations

Finance & Tax
- Balance Sheet Valuation
- Reval. of Assets & Liabilities
- Tax Reporting
- Internal Price Verification
- Hedge Accounting
- PnL Calculation

Other Bus. Areas

Corporate Banking
- Structured Finance
- Loans
- Treasury services
- Derivatives
- Underwriting

Asset Management
- Funds
- ETFs
- Derivatives

Retail Banking
- Retail Mortgages
- Credit Cards
- Consumer loans
- Student loans

High Level Impact Assessment – Front Office

Impact assessment conducted across Front Office desks and products

#	Requirement	Description	IT Change	Cleared Swaps	XCCY Swaps	Futures	FRN Bonds	Repo	CBs	Loans	MTN Issuance	etc
1.	**New FO Models and Curves**	- **New pricing curves** in FO systems and Analytics tools, to be able to value using ARRs across all currencies and tenor - Amendment **of pricing libraries** - Assumption that each IBOR will transition to a respective ARR following a transition trigger – **"Big Bang"** - Transition **timelines expected to be different for each jurisdiction** and currencies, ARRs and deployment and availability of new curves for various currencies will need to be phased	Y	🟥	🟥	🟥	🟩	🟨	🟨	🟥	🟥	🟩
2.	**Position Management / PnL impact of transition**	- Ability to see **PnL and risk exposure prior to transition** ("what if" analysis), so FO tools should be able to provide the ARR forecast and IBOR based valuations per ccy to help flag impact - Legacy transaction maturing post Q42021 will need to be valued using IBOR rates up until the point of transition trigger, **then need to switch over corresponding ARR** - In these cases, transactions need to be **cancelled/rebooked or amended**	Y	🟥	🟥	🟥	🟩	🟨	🟨	🟥	🟥	🟩
3.	**Hedge Effectiveness**	- Understand the impact of transitioning at different times for different currencies and evaluate hedge effectiveness. **Revise hedging strategy**	N	🟨	🟨	🟨	🟨	🟨	🟨	🟨	🟨	🟨
4.	**Conduct Risk Mitigation**	- For all new contracts referencing IBORs, **risk disclaimers** are drafted by Legal/Compliance and are actively used	N	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩
5.	**Client Communications**	- For centrally cleared trades, assumption is that communications will be driven by CCPs, For **bilateral contracts, client engagement** will be required to support contract negotiations	N	🟩	🟩	🟩	🟩	🟩	🟩	🟨	🟨	🟨
6.	**Legacy Contract Negotiation (with Legal)**	- For legacy contracts maturing beyond Q42021, where ISDA/CSAs, or **other standard templates** (e.g. GMRAs, GMSLAs) are in place, changes expected to follow industry protocols - Where **bilateral contracts are in place**, these will **require negotiation** by legal, sales and counterparties	N	🟩	🟥	🟩	🟩	🟩	🟥	🟥	🟥	🟨
7.	**Impact of new business**	- Consider the **evolving requirements of the Business**, and ensure that any new products are incorporate into scope of IBOR planning/transition	Y	To be assessed								

High Level Impact Assessment – Back Office Examples

Transitioning to ARRs will have impacts on downstream systems

Primary Owners

- **Name one** (Product Control – PC)
- **Name two** (Financial Accounting and Tax - FA)
- **Name three** (Regulatory Reporting - RR)
- **Name four** (SOX)
- **Name five** (Operations - O)

Objectives

Document high level impacts on valuations across the **Back Office** as a result of industry wide transition from IBORs to alternative reference rate benchmarks. Use this to prioritise BA effort and come up with technology change cost estimate

ID	Impact Description and Activity Duration	Indicative Start	Sub-Function Owner					Cost Estimate	
			PC	FA	RR	SOX	O	IT	Non-IT
PC1	• Agree procedure to monitor ongoing IBOR exposure		✓					*£XX*	*£XX*
PC2	• Be able to toggle between IBOR and respective ARR to see any PnL difference		✓						
PC3	• IPV: Visibility of contract fallback language for each product and evaluate impact		✓						
FA1	• US GAAP and FAS 157 requirement to report on new trades vs. amendments			✓				*£XX*	*£XX*
FA2	• Analyse impact of likely IFRS9 applicability for UK/GAAP purposes			✓					
FA3	• Updates to hedge accounting documentation			✓					
RR1	• Changes in reporting templates, following direction from report owner				✓			*£XX*	*£XX*
SOX	• Review impacts on IT and Business Control Effectiveness as part of the BAU SOX					✓		*£XX*	*£XX*
O1	• Adjust cashflow and payment processes to accommodate structural differences						✓	*£XX*	*£XX*
O2	• Adjust collateral operations as a result of any MTM changes						✓		
O3	• Support FO in re-booking process to ensure accuracy						✓		

Sample Impacts across Finance and Operations

Documentation Challenge (1/2)

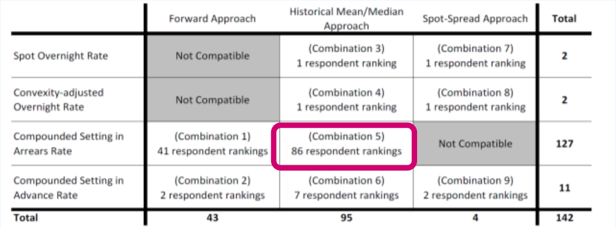
Current fallback language in contracts is not be robust enough to support permanent discontinuation of IBORs

Derivatives referencing ISDA Master Agreements and CSAs

- July 12, 2018, ISDA published a market wide consultation on technical issues related to new fallbacks for Derivatives contracts that reference certain IBORs (GBP LIBOR, CHF LIBOR, JPY LIBOR, TIBOR, Euroyen TIBOR and BBSW. The ISDA consultation also solicited preliminary feedback on USD LIBOR, EUR LIBOR, and EURIBOR
- This consultation captured feedback around alternative options for calculating adjusted RFRs to consider term structure and spread adjustments, and asked market participants to rank nine combinations of these options in order of preference

Spread Adjustment

Term Structure Adjustment



	Forward Approach	Historical Mean/Median Approach	Spot-Spread Approach	**Total**
Spot Overnight Rate	Not Compatible	(Combination 3) 1 respondent ranking	(Combination 7) 1 respondent ranking	**2**
Convexity-adjusted Overnight Rate	Not Compatible	(Combination 4) 1 respondent ranking	(Combination 8) 1 respondent ranking	**2**
Compounded Setting in Arrears Rate	(Combination 1) 41 respondent rankings	(Combination 5) 86 respondent rankings	Not Compatible	**127**
Compounded Setting in Advance Rate	(Combination 2) 2 respondent rankings	(Combination 6) 7 respondent rankings	(Combination 9) 2 respondent rankings	**11**
Total	**43**	**95**	**4**	**142**

Source: ISDA.org

- Majority of respondents ranked preference in favour of **compounding set in arrears rate with the historical mean / median approach to spread adjustment** (Combination 5)
- A common reason that market participants could not use a compounded setting in advance approach for the adjusted RFR was that it would not capture the IR changes during the relevant period
- Based on these results, ISDA will proceed with developing fallbacks for inclusion in its standard definitions based on preferred combination, as a market standard, **minimising the need for bilateral negotiations.**

Non-ISDA based lateral Contracts

- For non-ISDA based contracts with more bespoke contracts, the renegotiation effort is expected to be lengthier and more expensive. In these cases, depending on volume of contracts, a number of tools and 3rd party solutions can be considered to make this effort more cost effective*:*

Contract Digitisation

Workflow Management

Nearshore Documentation Managed Service Providers

- For Loans, the LMA is working with the market, other trade associations and the regulators on the transition, although there is still as yet no obvious alternative to IBOR for the syndicated loan market.

Documentation Challenge (2/2)

A sample review of contracts can help identify patterns that can be applied to the full population

Ref	Category	Ref	Examples Found	Number
1.	**Permanent IBOR suspension**	a)	Contracts have clauses that **presume permanent** IBOR discontinuation	◔
		b)	Presume **temporary IBOR suspension** (e.g. display error or temporary market shutdown). These do not provide sufficient fallback language	◕
2.	**Alternative Rate assignment**	a)	**Permanent IBOR suspension** is presumed and an **alternative reference rate specified**	○
		b)	Presume **permanent IBOR discontinuation** and specify **existing rates to be used** as alternatives, provided that both parties agree	◔
		c)	**Do not presume IBOR discontinuation** but specifies an **existing rate to be used** as alternative reference rate, requiring mutual agreement	◑
3.	**Right to decide on alternative rates**	a)	**Do not specify** who will be making the decision	◔
		b)	**Lender makes the decision**, however there could be potential for **disputes** whether an appropriate alternative has been chosen as reference rates	◑
		c)	Decision is made through **mutual consultation**	◑

○ **No contracts in analysed sample** ◔ **Few contracts in analysed sample** ◑ **Some contracts in analysed sample** ◕ **Many contracts in analysed sample**

New fallback language to be agreed which presumes permanent IBOR discontinuation and clarity on alternative reference rate decision

Legal and Compliance teams draft appropriate fall-back clauses

Review internally with Business Heads and Departments

Client Negotiation

Other expected impacts across functions (1/2)

A front to back assessment across the organisation should already been completed

Area/Function	Example Impacts and Actions
Transformation Programme Governance	• Project management, governance and control of all workstreams delivering IBOR transition • Impact assessment across the whole organization and prioritisation • Managing timelines across geographies and stakeholders • Liaising with regulators across multiple jurisdictions
Business and Front Office	**Trade Capture, Risk Management, Financing and Client Communications** • Identify business lines and products in scope, based on new and existing contracts (e.g. derivatives, loans, bonds, mortgages) • Determine any cut-off dates after which IBOR linked products should no longer be available • Assess impact on cash flows settled after the reference rate changes • Consider legacy portfolios, whether these remain referenced to IBOR or need to be converted to the new RFR • Consider new curve construction and risk management change (exacerbated by RFRs coming available at difference times) • Raising of finance widely impacted – for Loan agreements, fallback provisions in existing documents can ease the process; existing debt issuance may require agreements from bondholders to change existing T&Cs; new debt issuance, where firms should be aware that variable rate lending issued today will change • Client outreach and communications
Product Control and Finance	**Valuations, Accounting and Reporting** • Impact on valuations and pricing on the EoD PnL from Day 1 and Balance Sheet impact across all affected products • Market liquidity may impact prudential valuation and product classification of products (L1-3) and changes in capital requirements • Impact on existing hedge relationships and hedge accounting. Given RFRs may not be consistently adopted across all types of contracts an economic mismatch could arise between a derivative and the underlying hedged exposure • Impact on IFRS 9 impairment provisions and possible additional disclosure requirements in financial statements
Treasury	**Asset Liability Management, Hedging Strategy and Funds Transfer Pricing** • Impact on the market value of the liquid buffer and impact on net carry costs for the firm needs to be measured • Evaluate the impact of the transition on fallback provisions and existing hedge relationships - undertake an impact assessment of their current economic and accounting hedges in order to assess potential exposure • There may be a need to revisit stress tests and the associated assumptions (e.g. in a market stress how will a banks' credit spread be captured in context of a new risk free benchmark rates). Possible impact on calibration and calculation of internal appetite and limits • Impact on intercompany and 3rd party funding arrangements and interest rate amendments • Internal specification of FTP curves will be affected, and operational and conceptual impact will need to be thought through

Other expected impacts across functions (2/2)

A front to back assessment across the organisation should already been completed

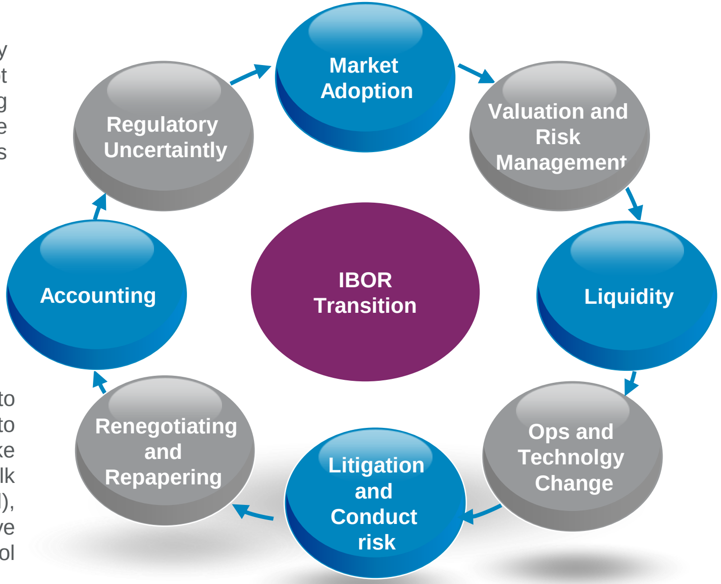
Area/Function	Example Impacts and Actions
Operations	**Collateral Management, Cashflows and Documentation** • Review and amend a wide range of contractual documentation, including amendments and changes to ISDAs and CSAs to reflect permanent discontinuance of a benchmark • Repapering is likely to be a greater challenge for cash products versus derivatives, given ISDA and industry bodies have evolved the thinking around fallback arrangements on derivatives • Amendments to documentation may require additional collateral and more liquid assets /cash requirements for the firm • Changes in reference rate will impact the value of cashflows from day 1. Proposed overnight rates are backward looking, compared to forward looking IBOR rates; this has the potential to create cashflow uncertainty • Firms holding intercompany loans and deposits that reference IBOR will also need to be amended, and impacts on cashflows recognised • Payment systems at firms will need to be adapted to reflect the change in reference rates, and firms can expect impacts on key reconciliations, such as Nostro and cash reconciliation • Differences in tax treatment/payments due
Legal and Compliance	**Legal Documentation / Repapering, Regulatory Impact Assessment and Tracking** • Legal input into firms needing to review and amend a wide range of contractual documentation (see also Operations impacts). Fallback provisions across different documents, especially for: a) Issuer debt - need to address discontinuation of the rate or the replacement rate and the impact on payments to investors; b) third party and inter company lending - provisions for interest rates will need to be reviewed and amended with accounting and funding implications assessed; c) derivatives - new/amended contracts • Different jurisdictional requirements and treatment of RFRs across jurisdictions, regulatory tracking by Compliance is important
IT and Infrastructure	**Core system changes, policies and procedures, controls** • Trade capture and booking systems will need to be updated to reflect the booking of trades which reference RFRs. The impact will need to flow downstream to ensure that the risk is captured correctly within derivative accounting and valuation tools, risk management, and collateral systems • Large scale changes in legal documentation, models and curves, may introduce additional operational risk which needs to be understood and mitigated • Impact on controls framework, operating procedures, policies and guidelines

Company wide communications and awareness

Transition Challenges

The transition book of work must look to mitigate a number of economic, legal, conduct and operational risks

Adoption of ARRs requires education and dedicated resources across multiple market sectors. This is particularly the case for ARRs that do not yet exist



Requirements under existing regulatory regimes may make the transition to ARRs more difficult if not modified. For example, current margining requirements may be triggered for existing derivative transactions if they transition to ARRs

The transition of legacy contracts could potentially result in less effective hedges and/or valuaton issues from credit spreads and term structures. This may require adjustments to address inherent differences between IBORs and ARRs

For accounting the transition may result in complications related to fair value designation, hedge accounting and intercompany accounting

Liquidity in the derivatives market referencing ARRs is cruicial. Such liquidity will be necessary for development of term structures based on the ARRs

For any contract maturing beyond 2021, firms may need to renegotiate with their borrowers and counterparties to transition the base rate from IBORs to ARRs. Unlike derivative contracts, which may be addressed in bulk through updates to standard contract language (protocol), cash products for corporate and retail end users have limited contract standardisation or industry protocol

Over the years, IBORs have been extensively embedded into businesses and operational processes from low level data structures to applications. The transition away from IBORs will require significant changes made more difficult given the lack of certainty as to the timing and desired target state

Renegotiating a large volume of contracts would be difficult, especially when one party has a contractual right to a gain. Secondly, without clarity about ARRs or when the transition will happen, it is difficult to know how contracts should be priced. The longer uncertainty persists, the greater the mis-selling risk incurred

6. Looking Ahead

Challenges

- The challenges of creating alternative benchmarks and their corresponding markets within the next 15 months and for banks to successfully adapt their processes and systems – **are enormous!**
- Can alternative risk free rates be established to replace existing Interbank offer-rates (IBORs) in that short period – and can banks handle the transition in time?
- How can one compel those that are “users” to comply? What consents are needed? How documented?
- For those that are BMR administrators or contributors – what polices and procedures need to be put in place? To what extent do they need to be coordinated with peers and/or users?

Next steps?

- Financial market participants should redouble their efforts to ensure a smooth transition that:
  - Examines and proposes credible paths for the transition away from EONIA and towards €STR
  - Checks contracts for consistency with the new regulations and robust fallback rates should be specified to ensure continuity in the event of disruption
- The ECB looks forward to taking on its new role as administrator of €STR. Given the critical role of RFRs for market functioning and monetary policy, the ECB attaches high importance to the smooth production of €STR which must be guaranteed even in times of unforeseen stress
- This includes:
  - building the infrastructure for submission and/or fallbacks;
  - defining processes and governance; and
  - testing operations.

Working Group

Further Recommendations in the EU

- The working group recommended on 14 March 2019 that market participants gradually replace EONIA with the €STR as a reference rate for all products and contracts and make all necessary adjustments for using the €STR as their standard benchmark, including making the appropriate changes to their systems to enable a T+1 publication, i.e. taking into account that the €STR will be available by 09:00 CET based on individual transactions conducted on the previous trading day, while currently EONIA is published by 19:00 CET based on same-day transactions.

- The working group also recommended that the European Money Market Institute (**EMMI**), EONIA's administrator, modify the current EONIA methodology to become the €STR plus a spread until the end of 2021 to give market participants sufficient time to transition to the €STR.

- As an €STR-dependent rate, EONIA would draw on a more representative and stable set of input data than currently provided by a panel of banks and would continue to represent the euro overnight unsecured market.
  - A spread would be added to smooth out any perceived valuation transfer and balance sheet impact.
  - The working group also believes that the evolved EONIA should be authorised under the EU Benchmarks Regulation until the end of 2021.

- These recommendations were made taking into account feedback received on the report on the transition from EONIA to the euro short-term rate.

Your presenters

Today’s Speakers - Dentons lead Eurozone Hub contact

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Michael Huertas is a partner in our Frankfurt office and the Co-Head of our Financial Institutions Regulatory in Europe Practice Group. Michael leads our Eurozone Hub and the wider Eurozone Group of multi-disciplinary, multi-jurisdictionally qualified and multi-lingual professionals who help our clients navigate and realise the opportunities in the EU—and in particular the Eurozone’s regulatory, supervisory and monetary policy framework. Michael specifically advises on the Eurozone's Banking Union, the European Central Bank’s monetary policy activity and the EU’s Capital Markets Union priorities, along with the regulatory and supervisory workstreams of the European Supervisory Authorities.

His structured finance practice focuses on derivatives, securities financing transactions, structured notes and securitisations. Michael also has experience advising on conduct of business and governance arrangements (in particular, the managing of non-performing assets) and financial market infrastructure (including CCPs), collateral and custody arrangements as well as helping clients to optimise their regulatory capital treatment under CRR/CRD IV.

Michael has a wealth of in-house experience, specifically in relation to designing, drafting, implementing and monitoring compliance with regulatory as well as risk driven policies, procedures, governance and control measures for a range of global financial institutions, funds, financial market infrastructure providers across a breadth of business models. Michael has also lead on and project managed new as well as extension of licences on a multi-jurisdictional basis. He has also drafted and project managed the implementation of “customer journeys” and the interrelation with new product processes as well as treasury and collateral management needs for various firm types with diverse distribution models.

Michael was also seconded during 2014-2015 to the ECB, where he was responsible for the legal design, implementation and running of the ABS Purchase Programme, contributed to the legislative and technical drafting of the Securitisation Regulation as well as the ECB's NPL Framework. He is a frequent speaker at industry events and frequent publisher in trade and industry publications.

Today’s Speakers - Dentons lead Eurozone Hub contact

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Dr. Holger Schelling is a partner in Dentons’ Frankfurt office and a member of the Banking & Finance practice. He advises banks, investment firms, fintechs and other financial institutions on financial regulation, including banking regulation, securities regulation and payment services regulation. He has successfully advised domestic and international clients on the implementation of regulatory changes, such as MiFID II, BMR and the reform of EURIBOR and LIBOR, PSD2 and EMIR. He provides commercially minded advice on innovative technology such as online payment services, robo advice and blockchain technology. A further focus of his practice is on legal and commercial aspects of sustainable finance.

Holger also has extensive experience regarding structured products and OTC derivatives. He represents clients in regulatory enforcement proceedings instituted by financial supervisory authorities and in civil proceedings.

Before joining Dentons, Holger handled regulatory and derivative matters for more than ten years at other international law firms. He also gained valuable in-house insights during his two years at DZ BANK AG, where he took a leading role in the implementation of the EU markets in financial instruments regulation (MiFIR).

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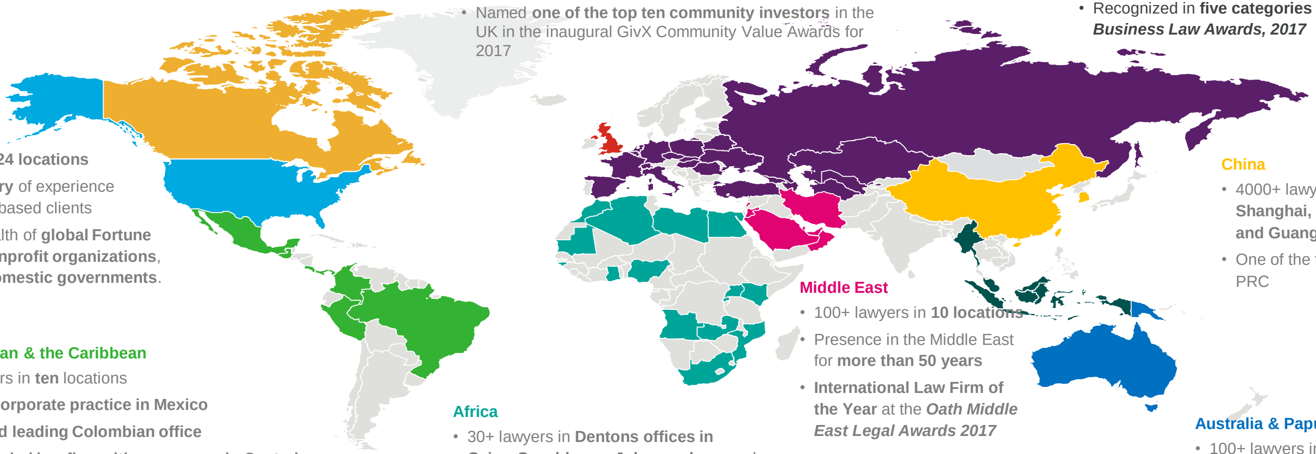

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- **Strategic alliance** with Vella Pugliese Buosi e Guidoni Advogados, **in Brazil**
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Australia & Papua New Guinea

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Today’s speakers - Baringa

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Oliver Schlicht joined Baringa's Financial Services practice in March 2012 as a Partner to support the further extension into the German-speaking region following more than 13 years of experience in the financial sector and management consulting.

He started his professional career in one of the world’s largest global consultancies where he led several complex transformation programmes and projects with major international clients. His extensive experience ranges from the conception and realisation of business processes and the definition of target operation models, to the definition and implementation of system architectures in the trading industry.

Furthermore, Oliver has supported several large mergers and acquisitions in Germany, solidifying his significant experience in the area of post-merger integration. Most recently the focus of Oliver's work was Financial Markets regulation and compliance.

Bruce Laing
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Bruce is a Partner in Baringa’s Financial Services practice and brings extensive experience in managing and delivering large scale change and system implementation programmes. Prior to consulting, Bruce managed a Risk IT team responsibly for vendor selection, 3rd party package implementation, data integration and then the daily management of these systems. He operates at all levels of stakeholder management and communication and is a highly credible link between the Business and IT functions.
Bruce has led teams to implement and/or consolidate systems for Trade Management, Market Risk, Collateral Management, Commercial Lending as well as building bespoke applications to meet the needs of the Business users
Bruce has also led a large team to remediate the Programme management function of the CRO office with an annual budget of $600m.

Lucine Tatulian

Partner

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Lucine is a Partner in the Capital Markets practice. She has ~15 years of experience in delivering transformation for top tier universal and investment banks. Lucine works with her clients to define their future strategy and change their operating models front to back, in order to help them address challenges, such as regulatory compliance, margin optimisation, simplification or post-merger integration

Her experience spans all key front to back functions including Front Office, Operations, Risk, Product Control and Technology. Some of her previous engagement have included regulatory compliance across Risk and Finance, working with CRO, CFO, CIO, COO etc.

Lucine is currently working with one of Baringa’s clients to set up the IBOR transition programme, lead the front to back impact assessment and coordinate industry outreach efforts.

Baringa Partners LLP

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Our Model	**1 Partner : 10 Employees**	**20+ Business Practices** We are experts in our chosen fields and have deep industry knowledge and capability	**5 Offices Worldwide** 660+ employees and 65 partners across the UK, USA, Germany, UAE and Australia
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