

Contents

1. Survey Participants	3
2. Introduction	6
3. Executive Summary	8
4. Scope and Objectives of the Survey and Report	10
5. Findings and Recommendations	12
5.1 Market Awareness and Understanding	12
5.2 Most Effective Communication Strategies	17
5.3 Engagement	18
5.4 Key Elements for Achieving a Successful Transition	26
6. Planning for IBOR Transition	35
7. Conclusion	37
8. Appendix 1	38
8.1 Overview of RFR Working Groups	38
9. Appendix 2	48
9.1 Survey Participants' IBOR Profiles	48
9.2 Survey Demographics	50
9.3 Trade Association Contact Information	52

1. Survey Participants

The International Swaps and Derivatives Association, Inc. (ISDA), the Association for Financial Markets in Europe (AFME), the International Capital Market Association (ICMA), the Securities Industry and Financial Markets Association (SIFMA) and SIFMA's Asset Management Group (SIFMA AMG) (Trade Associations) would like to offer their profound thanks to the institutions that agreed to participate in the survey on which this report is based.

Respondents were categorized into the following market segments: commercial and investment banks; other banking and financial entities; financial end users; corporates; infrastructure providers; and law firms. Table 1.1 displays the list of survey participants by market segment.

Table 1.1: Survey Participants Listed by Market Segment

Commercial and Investment Banks	
Aozora Bank, Ltd.	Lloyds Bank PLC
Arvest Bank	Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.
AXA Bank Belgium NV	Mizuho Bank, Ltd.
Banco Internacional del Perú SAA	Morgan Stanley
Bank Audi SAL	NatWest Markets PLC
Bank of America Corporation	NBH Bank
Bank of Tokyo-Mitsubishi UFJ, Ltd.	Nomura International PLC
Barclays PLC	Oversea-Chinese Banking Corporation, Ltd.
BB&T Corporation	ODDO BHF AG
CenterState Bank Corporation	Royal Bank of Canada
Citigroup Inc.	Santander Bank NA
Crédit Industriel Et Commercial PLC	Société Generale SA
Credit Suisse Group AG	Standard Chartered PLC
Daiwa Securities Co., Ltd.	Sumitomo Mitsui Banking Corporation
Deutsche Bank AG	SunTrust Bank
Europe Arab Bank PLC	The Bank of New York Mellon Corporation
Frost Bank	The Toronto-Dominion Bank
Goldman Sachs Group, Inc.	U.S. Bancorp
ING Bank NV	UBS Group AG
Intesa Sanpaolo SpA	Webster Bank, NA
JPMorgan Chase & Co.	Wells Fargo & Company
KeyBank National Association	Western Alliance Bank
Kotak Mahindra Bank, Ltd.	Zürcher Kantonalbank

Table 1.1: Survey Participants Listed by Market Segment (continued)

Other Banking and Financial Entities	
American Bankers Association	Investitionsbank Berlin
B&F Capital Market, Inc.	Leeds Building Society
BKS Bank AG	Loan Market Association
Charles Schwab & Co., Inc.	Loan Syndications and Trading Association
CoBank ACB	Mortgage Bankers Association
Coöperatieve Rabobank UA	Multibank, Inc., Panama
CRE Finance Council	Municipal Securities Rulemaking Board
de Volksbank NV	Navient Corporation
Farm Credit Bank of Texas	NRW.BANK
Federal Agricultural Mortgage Corporation	Penn Community Bank
Federal Home Loan Bank of New York	Sony Bank, Inc.
Federal National Mortgage Association	The Co-Operative Bank PLC
Ibercaja Banco, SA	UK Debt Management Office

Financial End Users	
ACT Commodities, Inc.	New York Life Insurance Company
AllianceBernstein, LP	NIAL
American International Group, Inc.	Nomura Asset Management (Japan) Co., Ltd.
APG Asset Management NV	Nordic Investment Bank
AQR Capital Management, LLC	Nova Scotia Health Employees' Pension Plan
Aviva Investors Global Services Limited	Ontario Teachers' Pension Plan
BlackRock, Inc.	Pension Insurance Corporation PLC
BMO Global Asset Management	Pensions Europe
BN Valores, Puesto de Bolsas SA	PGGM
Caisse des Depots et Consignations	Phoenix Group
Cardano Risk Management BV	Pacific Investment Management Company, LLC
D.E & Shaw Co., LP	Principal Financial Group
European Bank for Reconstruction and Development	Prudential Financial, Inc.
European Fund and Asset Management Association	Rokos Capital Management, LLP
European Investment Bank	Rothsay Life PLC
GreatAmerica Financial Services Corporation	RSJ Securities AS
Hagan Capital Group, Inc.	Secquaero Advisors AG
Horizon Asset, LLP	Serica Partners Asia, Ltd.
International Finance Corporation	Swap Financial Group, LLC
KfW Bankengruppe	Swiss Reinsurance Company, Ltd.
M&G Prudential	The Blackstone Group, LP
Magnitude Capital, LLC	The Guardian Life Insurance Company of America
Manulife Financial Corporation	The Vanguard Group, Inc.
MetLife, Inc.	Transtrend BV

Table 1.1: Survey Participants Listed by Market Segment (continued)**Corporates**

Airbus SE	Hargray Communications Group, Inc.
Arrow Electronics, Inc.	JBS USA, Inc.
ASSA ABLOY	John Bean Technologies Corporation
Bayer AG	Johnson & Johnson
BP PLC	National Association of Corporate Treasurers
CentraCare Health System	Navistar International Corporation
Citation Oil & Gas Corp.	Providence St Joseph Health
Comcast Corporation	Proximus SA
Cornerstone Chemical Company	The Mosaic Company
Daimler AG	Wärtsilä Corporation
Enel SpA	ZF Friedrichshafen AG

Infrastructure Providers

Deutsche Boerse Group	Intercontinental Exchange
European Money Markets Institute	Japan Securities Clearing Corporation
European Venues & Intermediaries Association	London Stock Exchange Group
Fitch Ratings, Inc.	

Law Firms

Allen & Overy, LLP	Eversheds Sutherland, LLP
Clifford Chance, LLP	Linklaters, LLP

2. Introduction

The Future of IBORs

Interbank offered rates (IBORs) play a central role in financial markets, and act as reference rates to hundreds of trillions of dollars in notional amount of derivatives and trillions of dollars in bonds, loans, securitizations and deposits.¹ The dependence on IBORs by all sectors of the financial markets is changing, however.

There are now real concerns about the sustainability of certain IBORs due to a significant decline in activity in the unsecured bank funding market that they are supposed to represent. Given the limited number of actual transactions, and with banks reluctant to provide submissions based on judgement², the viability of certain IBORs is now in doubt.

Significant work has been conducted by global regulators and the public-/private-sector risk-free rate working groups (RFR working groups) to identify alternative, nearly risk-free rates (RFRs) and plan for a transition to those rates as appropriate.³

This global effort reflects recognition that any transition to alternative RFRs is a larger undertaking than any single private or public institution is capable of delivering, and requires coordinated efforts in order to succeed.

This does not mean that individual institutions can afford to hold off taking action. In a speech on July 27, 2017, Andrew Bailey, Chief Executive Officer of the UK's Financial Conduct Authority (FCA), stressed that each individual firm should take responsibility upon themselves.

“Market participants must take responsibility for their individual transition plans, but we and other authorities will be ready to assist and support efforts to coordinate that work”

–Andrew Bailey, FCA⁴

¹ Amounts in dollars or dollar equivalents

² Source: Andrew Bailey's speech on [The Future of LIBOR](#), July 2017

³ For further information regarding these efforts and the drivers behind the initiatives, please refer to the materials provided by the FSB OSSG, the various RFR working groups and the [IBOR Global Benchmark Transition Roadmap](#)

⁴ Source: Andrew Bailey's speech on [The Future of LIBOR](#), July 2017

The time for market participants to act is now. Each firm needs to understand the scale of its exposure to IBORs and formulate strategies to reduce it. This includes allowing existing IBOR exposures to roll off rather than allowing them to be renewed. These strategies will require market participants to create new products designed to reference alternative RFRs. Each institution needs to play its part in demanding, designing, supplying and trading these products.

To help market participants understand and engage with the effort led by the global regulators and RFR working groups, the Trade Associations joined together, starting in 2017, to produce the *IBOR Global Benchmark Transition Roadmap* (the roadmap), the Global IBOR Market Survey (the survey) and the *IBOR Global Benchmark Transition Report* (the report).

Roadmap

The roadmap was published in February 2018, and aimed to complement the work conducted by regulators and RFR working groups by focusing on three key objectives.

- ▶ It provided an overview of the background and drivers behind the benchmark reform initiatives that have been led by the Financial Stability Board (FSB) and its Official Sector Steering Group (OSSG).
- ▶ It aggregated and summarized existing information that had been published by regulators and various RFR working groups in their efforts to identify alternative RFRs and develop plans for transitioning to them.
- ▶ It aimed to raise market awareness of some of the key transition challenges identified by the RFR working groups and their efforts to address them.

Survey

The survey was intended to gauge the current state of market readiness and identify challenges and potential solutions for an orderly, efficient and coordinated transition. The survey was conducted by Ernst & Young LLP (EY) and involved in-person interviews and electronic surveys with over 150 market participants in 24 countries.

Participants were selected from buy- and sell-side institutions in the cash and derivatives wholesale and retail markets. They included investment, commercial and retail banks, hedge funds, asset managers, government-sponsored entities (GSEs), pension funds, insurance companies and other types of financial entities, corporates and other end users, infrastructure providers and law firms. A list of participants in the survey is contained in the opening pages of this report.

Report

This report is largely based on information obtained from the survey, but also includes other publicly available information that may be helpful to market participants as they develop strategies for addressing their exposure to IBORs.

An Important Word of Caution

Although the survey results are instructive, caution should be exercised before attempting to extrapolate them across the general population of institutions that will be affected by the transition from IBORs to alternative RFRs.

- ▶ Survey invitations were sent to a very wide and diverse group of market participants, but its core consisted of members of the Trade Associations. The population of survey respondents therefore contains a higher proportion of institutions that are members of RFR working groups (approximately 30% of respondents) than would be found in the general population.
- ▶ Market participants already engaged in the transition process were more likely to have taken up invitations to participate in the survey than those that were not.

These two factors may mean that, in some cases, and particularly with respect to corporate entities and investors, the survey results may not be entirely reflective of the views of the wider market.

3. Executive Summary

High Awareness and Positive Understanding of RFR Working Group Efforts

Awareness of benchmark transition is relatively high, and many firms are awake to the issues involved. According to the survey, 87% of respondents are concerned about their exposure to the IBORs, and most are familiar with the objectives and output of the various RFR working groups.

Survey Participants are Gearing Up for Transition

There are also signs that survey participants are gearing up for transition: 76% have, at the very least, started internal discussions on the transition from IBORs to alternative RFRs. Most survey participants expect to trade RFRs, with 78% stating they intend to trade them within the next four years.

Gap Between Awareness and Action

However, there is a gap between the high level of awareness and concrete steps being taken to prepare for adoption of the alternative RFRs. Only 11% of respondents have allocated budget to the initiative, and just 12% have developed a preliminary project plan. Nearly a quarter of survey participants have yet to initiate a program to support transition.

Reasons for Holding Back

There are a number of possible reasons for this gap. For one thing, the RFR working groups have previously focused their efforts on selection of the alternative RFRs. Now that selection is largely complete, their attention has only recently turned to implementation. Nonetheless, the survey suggests there may be additional reasons why institutions are holding back from taking action, including those below.

- There appears to be a qualified acceptance or understanding of the systemic risks posed by the vulnerability of certain IBORs and the absence of robust fallbacks. Some respondents have yet to develop a clear picture of their own exposures to the IBORs or how those exposures might roll off over time.

- Respondents identified a need for the market to develop products that are critical to the widespread adoption of alternative RFRs, including derivatives, cash products, futures and forward rate agreements (FRAs), money market instruments and various types of options.
- Basis risk was cited by some survey respondents as a cause for concern in transitioning to alternative RFRs. This includes the basis risk that could emerge if derivatives and the cash products they hedge transition to alternative RFRs under different timelines.
- Survey participants identified a lack of a clear sense of direction, potentially because different desired end states are being pursued for different IBORs. There is also uncertainty about how participants should approach key issues, such as the amendment of legacy positions. Respondents indicated appetite for more frequent guidance and output from the RFR working groups, particularly in a form that could be used in discussions with their boards and clients.

The Need for Immediate Action

The report highlights the need for market participants to take immediate action. With every new IBOR trade executed, the extent of IBORs expected to be outstanding post 2021 (or post-2019 in the case of EURIBOR) will increase.

Key Elements of Transition

This report identifies the key elements that respondents consider essential for a successful transition, many of which are already under consideration by the RFR working groups. These include:

- Long runways for transition (especially with respect to EURIBOR);
- The development by market participants of new RFR products and the creation of deep and liquid markets in them;
- The development of forward-looking term reference rates based on the alternative RFRs, particularly for cash products;
- Tax and accounting alignment with the goals of transition.

Checklist for Transition

The report provides a detailed implementation checklist that market participants can use to track progress towards benchmark transition. The main elements of this checklist are designed to help institutions:

- ▶ Mobilize a formal IBOR transition program;
- ▶ Assess their exposure to IBORs;
- ▶ Understand how a permanent cessation of IBORs would impact them and their clients;
- ▶ Ensure products contain robust fallback provisions and understand what their effect will be;
- ▶ Contribute to the design of, demand for and trading in new products that reference alternative RFRs;
- ▶ Define an external communication strategy;
- ▶ Define a transition route map.

Update on RFR Working Group Activities

The final sections of the report provide an update on the activities of the various RFR working groups since the roadmap was published on February 1, 2018.

4. Scope and Objectives of the Survey and Report

The report is designed to consolidate and summarize survey participants' views on the impact of a transition from IBORs to alternative RFRs. The main objective of the survey was to gather information related to:

- ▶ The current state of market readiness for the transition;
- ▶ Potential challenges related to the transition;
- ▶ Potential solutions to enable an orderly, efficient and harmonized transition.

The survey covered IBORs denominated in five major currencies and alternative RFRs that have been identified by the respective RFR working groups for those currencies. At the time of publication, alternative RFRs have been identified for each IBOR except EURIBOR and EUR LIBOR, where the Working Group on Euro Risk-free Rates is rapidly progressing its selection process.⁵

Table 4.1: Alternative RFRs Selected for Each Currency

Currency	IBOR	Alternative RFR	RFR Working Group
GBP	GBP LIBOR	Reformed Sterling Overnight Index Average (SONIA)	Working Group on Sterling Risk-Free Reference Rates
USD	USD LIBOR	Secured Overnight Financing Rate (SOFR)	Alternative Reference Rates Committee (ARRC)
EUR	EUR LIBOR, EURIBOR	The selection of the alternative RFR for EUR is expected by September 2018	Working Group on Euro Risk-Free Rates
CHF	CHF LIBOR	Swiss Average Rate Overnight (SARON)	National Working Group on Swiss Franc Reference Rates
JPY	JPY LIBOR, JPY TIBOR, Euroyen TIBOR	Tokyo Overnight Average Rate (TONA)	Study Group on Risk-Free Reference Rates

⁵ The EU RFR Working Group launched a public consultation on the candidate rates on June 21, 2018 ([Working Group on Euro Risk-free Rates](#))

Given the broad use of IBORs, the survey asked participants questions on a wide range of products.

Table 4.2: Products in Scope

Product	Product Examples
Over-the-counter (OTC) derivatives	Interest rate (IR) swaps, Forward Rate Agreements (FRAs), cross-currency swaps, credit default swaps (CDS)
Exchange-traded derivatives (ETDs)	IR options, IR futures
Loans	Syndicated loans, business loans, mortgages, credit cards, auto loans, consumer loans, student loans
Bonds and floating rate notes (FRNs)	Corporate and non-US government bonds, agency notes, leases, trade finance, Floating Rate Notes (FRNs), covered bonds, capital securities, perpetuals
Short-term instruments	Repos, reverse repos, time deposits, commercial paper
Securitized products	Mortgage-backed securities (MBS), asset-backed securities (ABS), commercial mortgage-backed securities (CMBS), collateralized loan obligations (CLO), collateralized mortgage obligations (CMO)
Other	Late payments, discount rates, overdrafts

The survey population comprised a wide range of institutions that use IBORs in derivatives and cash products across the market segments denoted in Table 4.3.

Table 4.3: Market Segments in Scope

Market Segment	Market Segment – Details
Commercial and investment banks	Commercial banks, investment banks
Other banking and financial entities	Retail banks, GSEs, banking and finance associations, non-bank lenders
Financial end users	Asset managers, pension funds, hedge funds, other regulated funds, insurance/reinsurance companies, supranationals
Corporates	Non-financial corporates
Infrastructure providers	Central counterparty clearing houses (CCP), exchanges, benchmark administrators, rating agencies
Law firms	Law firms

5. Findings and Recommendations

5.1 Market Awareness and Understanding

The international regulatory community and RFR working groups have consistently cited the importance of raising market awareness about benchmark transition. This is a fundamental first step toward successful adoption of the identified alternative RFRs.

High Level of Concern, Good Knowledge of RFR Working Groups and Sense of Readiness

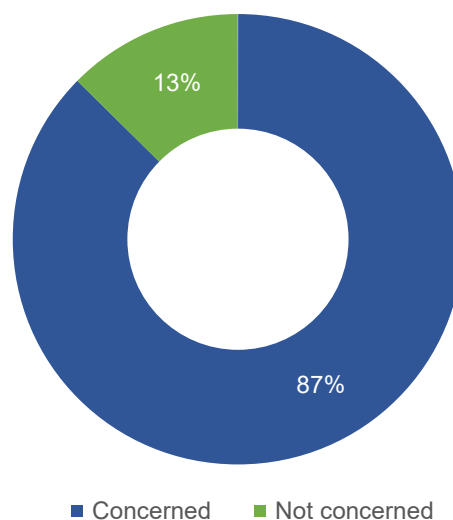
The survey results indicate that these efforts have had an impact. Eighty-seven percent of survey participants indicated they are concerned about their exposure to IBORs as shown in Exhibit 5.1.1. In addition, the majority of survey participants indicated they are knowledgeable about the objectives of the RFR working groups that have been established in each jurisdiction. The fact that 78% of respondents indicated they intend to trade products which reference alternative RFRs within the next four years ([Exhibit 5.1.2](#), page 13) suggests they are readying themselves to transition away from IBORs.

“LIBOR rates may be less feasible to quote post-2021, because they will become less liquid throughout the transition”

–Survey participant from an asset manager

Exhibit 5.1.1: Concern About Level of Exposure to IBORs

Q: How concerned are you about your organization's level of exposure to IBORs?



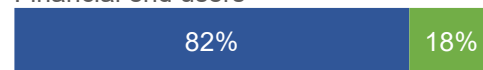
Other banking and financial entities



Infrastructure providers



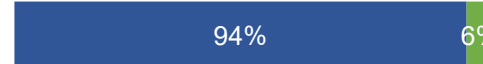
Financial end users



Corporates



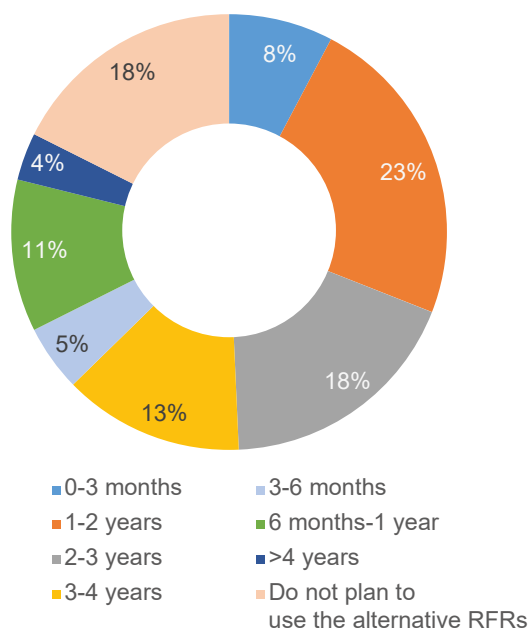
Commercial and investment banks



■ Concerned ■ Not concerned

Exhibit 5.1.2: Timing for Transitioning New Contracts to Alternative RFRs

Q: When does your organization intend to enter into new contracts referencing alternative RFRs?



Some Survey Participants Remain Unaware of Transition Issues

Despite the high level of concern, it is clear that focus on market outreach remains crucial. As illustrated in [Exhibit 5.2.1](#) on page 17, 15% of survey participants professed to have no knowledge of transition-related issues. Of the market segments that were surveyed, corporates represented the highest proportion of that group, with 29% indicating that participation in the survey was their first contact with the issue. Given the relatively high proportion of respondents that are active in the RFR working groups (30%), the true scale of those yet to gain awareness is likely to be even higher.

Some Survey Participants' Plans Suggest a Qualified Acceptance or Understanding of Potential Risk

These results suggest survey participants may not have a full understanding of the systematic risks posed by the reliance on IBORs.

Risks Posed by the Possibility that Certain IBORs May Not be Sustainable

- ▶ 60% of survey participants indicated that they would continue trading IBORs (excluding short-term instruments) if they were to be published after 2021.
- ▶ 18% indicated that they do not plan to use alternative RFRs at all (Exhibit 5.1.2).

William Dudley, President and Chief Executive Officer of the Federal Reserve Bank of New York, reiterated regulators' concerns about the vulnerability of LIBOR in a speech given on May 24, 2018:

"This is an important point that Andrew Bailey usefully underscored for us last year. Because of the great uncertainty over LIBOR's future and the risks to financial stability that would likely accompany a disorderly transition to alternative reference rates, we need aggressive action to move to a more durable and resilient benchmark regime."

—William Dudley, President and CEO of the Federal Reserve Bank of New York⁶

He was joined at that event by Mark Carney, Governor of the Bank of England, who said:

"Global markets remain overly reliant on LIBOR, a benchmark that may not exist beyond 2021. That reliance is neither desirable nor sustainable. That's why authorities internationally have worked with market participants to identify alternative benchmarks based on actual transactions."

—Mark Carney, Governor of the Bank of England⁷

⁶ Source: Federal Reserve Bank of New York – [The Transition to a Robust Reference Rate Regime](#), May 2018

⁷ Source: Bank of England – [Staying Connected](#), May 2018

Risk Posed by the Absence of Robust Fallbacks

- ▶ 25% of survey respondents indicated they did not know what would happen to their contracts if the referenced IBOR ceased to exist.
- ▶ 21% believed existing contractual fallbacks could ensure the trade/position would continue to function as intended (Exhibit 5.1.3).

In its October 2017 update to the *Reforming Major Interest Rate Benchmarks* report published in 2014, the FSB OSSG noted:

“From a public policy perspective, the FSB believes that market participants should understand the fallback arrangements that would apply if a permanent discontinuation of such an interest rate benchmark occurred, and that these arrangements should be robust enough to prevent potentially serious market disruption in such an event.”

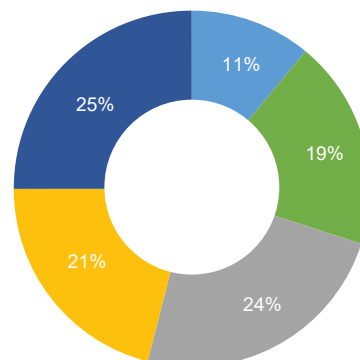
–FSB OSSG⁸

[Breakout box 5.1.1](#) on page 15 provides an overview of existing fallback language for certain products, and discusses some of their inadequacies. Although many products have fallbacks in the event that an IBOR they reference ceases to exist, the fallbacks would not provide requisite clarity or certainty upon a permanent cessation. Consequently, these fallbacks may result in market fragmentation, hedge dislocation, conversion of floating rates into fixed rates and potential uncertainty.

The ARRC has provided more information on these issues in its second report.⁹

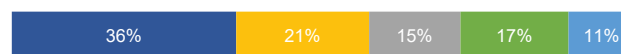
Exhibit 5.1.3: Consequences of IBORs Ceasing to Exist

Q: What do you think might be the consequence of an IBOR permanently ceasing to exist?



- There are no fallback provisions
- Fallback provisions will not provide contractual certainty
- Fallback provisions will provide contractual certainty but the trade/position will not continue to function as originally intended
- Fallback provisions will provide contractual certainty and the trade/position will continue to function as originally intended
- Do not know

Short-term instruments



Securitized products



OTC derivatives



Loans



ETDs



Bonds and FRNs



- There are no fallback provisions
- Fallback provisions will not provide contractual certainty
- Fallback provisions will provide contractual certainty but the trade/position will not continue to function as originally intended
- Fallback provisions will provide contractual certainty and the trade/position will continue to function as originally intended
- Do not know

⁸ Source: Financial Stability Board – [Reforming major interest rate benchmarks](#), October 2017

⁹ Source: ARRC – [Second Report](#), March 2018

Fallback Language in Existing Derivatives, Loan and Bond Contracts¹⁰

Derivatives

For USD LIBOR, EURIBOR, EUR LIBOR, GBP LIBOR, CHF LIBOR, JPY LIBOR, JPY TIBOR and Euroyen TIBOR, the 2006 ISDA Definitions provide that if the rate in question does not appear on the specified screen at the designated time, the counterparty acting as the calculation agent will conduct a poll of leading dealers in the London, eurozone or Tokyo interbank market (depending on the benchmark in question). The rate will be determined as the arithmetic mean of the quotations it obtains if at least two such quotations are provided. If fewer than two quotations are provided, the calculation agent is required to poll major banks in New York, the eurozone, London, Zurich or Tokyo (depending on the benchmark in question), and the rate will be the arithmetic mean of those quotations. By way of example, the fallback for USD LIBOR is replicated below:

“The rate for a Reset Date will be determined on the basis of the rates at which deposits in US Dollars are offered by the Reference Banks at approximately 11:00 a.m., London time, on the day that is two London Banking Days preceding that Reset Date to prime banks in the London interbank market for a period of the Designated Maturity commencing on that Reset Date and in a Representative Amount. The Calculation Agent will request the principal London office of each of the Reference Banks to provide a quotation of its rate. If at least two such quotations are provided, the rate for that Reset Date will be the arithmetic mean of the quotations. If fewer than two quotations are provided as requested, the rate for that Reset Date will be the arithmetic mean of the rates quoted by major banks in New York City, selected by the Calculation Agent, at approximately 11:00 a.m., New York City time, on that Reset Date for loans in U.S. Dollars to leading European banks for a period of the Designated Maturity commencing on that Reset Date and in a Representative Amount.”

The 2006 ISDA Definitions do not say what will happen if no quotations are obtained from this second part of the polling process. Banks (especially banks which are themselves benchmark contributors) may not be willing to provide quotations given the recent concerns about the potential liability faced by benchmark contributors, particularly if the relevant benchmark has been permanently discontinued. Even if the methodology produced a reasonable result in the first instance, it may prove unsustainable if the IBOR has permanently ceased because the calculation agent would be required to undertake the dealer poll for each calculation period throughout the remaining life of the transaction.

For these reasons, the FSB OSSG requested that ISDA amend its definitions to provide more robust and sustainable fallbacks for use in the event that a major IBOR ceases to exist. In response to this request, ISDA has been working to implement fallbacks to the relevant alternative RFRs that would apply if a major IBOR is permanently discontinued. ISDA has developed a set of objective triggers for determining whether a permanent discontinuation has occurred, and will conduct a market-wide consultation on several technical aspects of the fallbacks. Once implemented in the 2006 ISDA Definitions, the fallbacks will apply to transactions entered into on or after the date of implementation, but ISDA plans to publish a multilateral protocol to facilitate implementation of the fallbacks in existing derivatives transactions. More information on this initiative can be found at www.isda.org.

Loans

Corporate loan contracts are often bespoke arrangements, and so fallback provisions may not be standardized across currencies, regions or products. In some cases, fallback provisions in business loans may call for quotes from a set of reference banks in the event that an IBOR is not published. If these quotes are not obtained, the rate switches to an alternative rate (e.g., prime or the Effective Fed Funds Rate plus a spread in the US), or to the rate given at the time individual banks notify the agent of their own cost of funds. As the

¹⁰ The information in this break out box is drawn from the [ARRC's second report](#) (except with respect to derivatives)

Breakout Box 5.1.1 (continued)

ARRC noted in its second report, because these fallback rates may differ significantly from the IBOR for which they are intended to provide the fallback, there may be a significant and unplanned increase in borrowing and lending costs if the relevant IBOR were to be permanently discontinued.

In bilateral loans, the borrower and lender have the possibility of changing the terms of the loan agreement. On the other hand, most terms in syndicated loan agreements require the agreement of the majority of lenders, but certain terms, such as the interest rate, require unanimous lender consent. This may be hard to achieve in loans where there are a large number of lenders.

Bonds and Floating Rate Notes

Typical fallback provisions for bonds may call for calculation agents to make a rate determination if an IBOR is not published by polling sample banks. If these quotes are not received, the interest rate may revert to the last available IBOR rate, effectively converting the rate from floating to fixed. The ARRC noted its concern that this inadvertent conversion to a fixed rate note could cause significant market disruption, both for issuers and investors. It particularly noted that some investors, such as money market funds, would not be permitted or willing to hold fixed rate notes, and forced sales would result. Currently, in many, if not most bond documentation, the bond trustee does not have the legal authority to change the terms of the bond. Instead, consent of all or a significant majority of bondholders is usually required. In addition, many FRNs in Europe are in bearer form, which complicates the process of convening special noteholders' meetings to obtain consent.

Securitizations

Securitizations also display significant variety in the approach to fallback provisions across currencies, jurisdictions and issuances. In the US market, fallback provisions for agency MBS and CMOs may call for a quotation based on the polling of reference banks. If this quote is not received, Fannie Mae and Freddie Mac (as the noteholders) are allowed to name the successor rate. Similarly, for non-agency MBS, typical fallback provisions call for a poll of reference banks. If these quotes are not received, the rate converts to a fixed rate at the last available IBOR. Most ABS have similar fallback provisions, although some specify that trustees have the authority to name a successor rate. Changing the current fallback provisions of non-agency MBS and ABS may require unanimous consent from the noteholders. European securitizations do not contain uniform fallback provisions, but generally the procedure requires a quotation based on the polling of reference banks and if this is not possible, the last fixing is used. For CLOs, standard language states that the rate converts to a fixed-rate at the last available IBOR. This could disrupt transaction cash flows and potentially result in downgrades, as there would be mismatches between the rate paid on the underlying security and CLO.

Consumer Loans and Residential Mortgages

Many residential mortgages are linked to an IBOR. Fallback provisions (to the extent they exist) can vary significantly from jurisdiction to jurisdiction and from loan to loan.

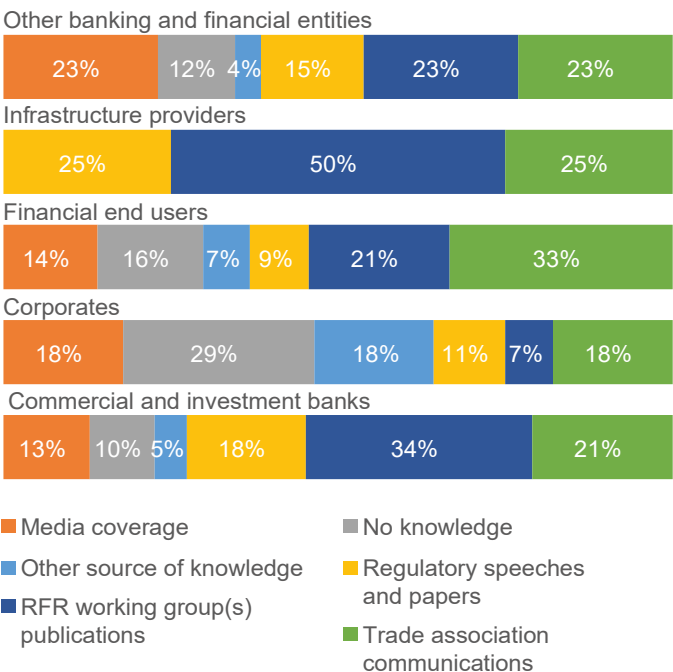
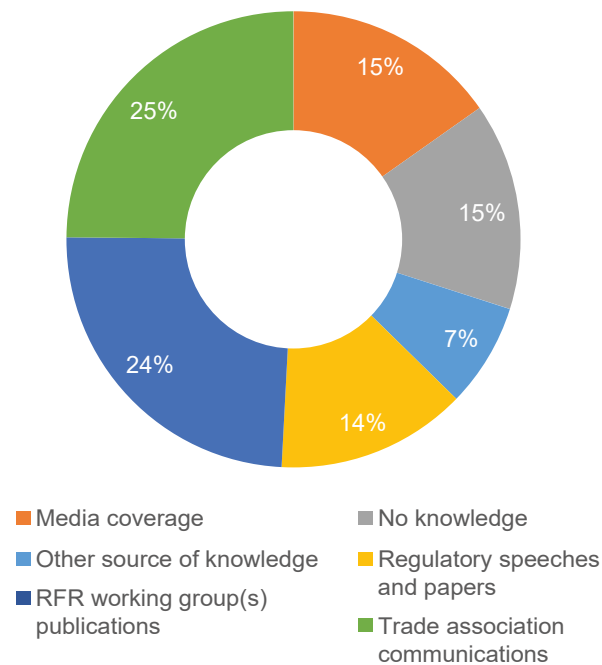
5.2 Most Effective Communication Strategies

In order to promote market awareness, regulators and RFR working groups have provided information on concerns regarding the sustainability of certain IBORs and the potential benefits of using alternative RFRs in a variety of ways since 2014. They continue to innovate in their efforts to reach out to the market, including, in the case of RFR working groups, setting up specific communications and outreach sub-groups.

The effect of these efforts are reflected in the survey results. As indicated in Exhibit 5.2.1, 53% of respondents indicated that their knowledge of the issues associated with transitioning to alternative RFRs comes mainly from regulatory speeches and papers, RFR working group publications or media coverage. The regulatory community and RFR working groups are now focusing on communication strategies that aim to reach a wider range of market participants. The RFR working groups' strategy of including trade associations has allowed them to extend their reach. Twenty-five percent of respondents cited trade associations as their main source of information. Trade associations are well-placed to intermediate between their members and the RFR working groups, and are also seeking to intensify outreach initiatives.

Exhibit 5.2.1: Main Source of Knowledge of IBOR Transition Issues

Q: What is your main source of knowledge regarding the issues associated with transitioning to the alternative RFRs?



5.3 Engagement

“Our organization has started mobilizing, but we still have a lot of work to do to prepare for adoption of alternative RFRs”

– Survey participant from a pension fund

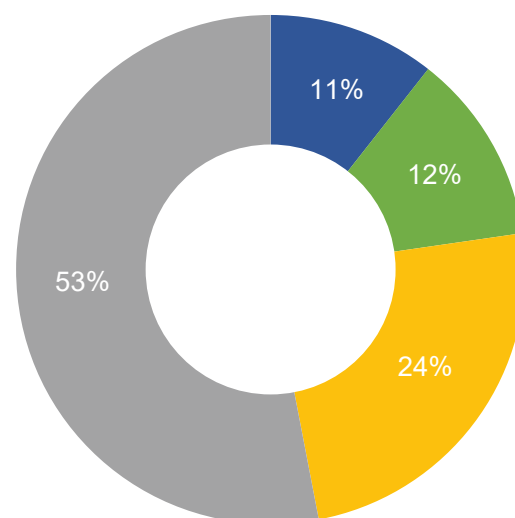
The survey results suggest that participants are starting to prepare for transition. As indicated in Exhibit 5.3.1, 76% of respondents have, at a minimum, initiated internal discussions about mobilizing a program to support the transition to alternative RFRs. However, results also suggest that survey participants are not translating these conversations into concrete steps.

- ▶ Only 12% have developed a preliminary project plan.
- ▶ Only 11% have allocated budget and resources for the program.

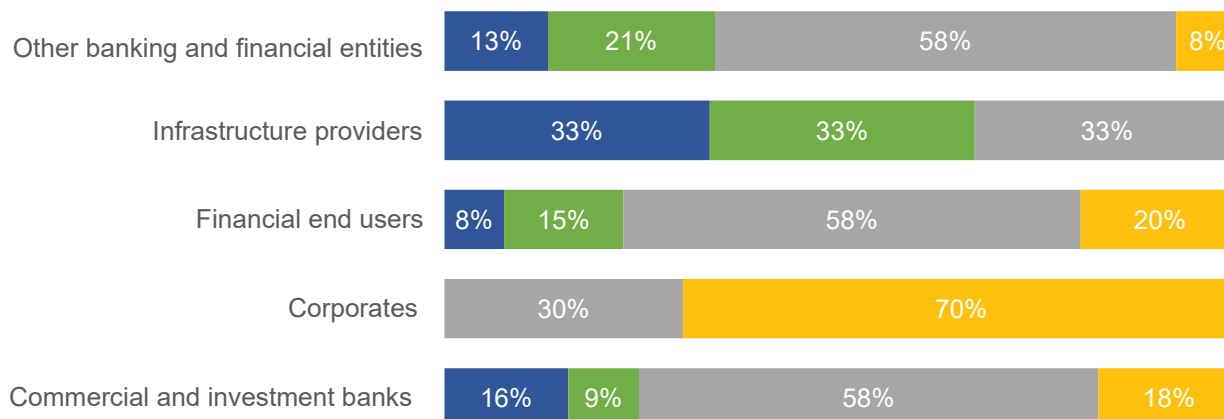
Commercial and investment banks and other banking and financial entities appear to be more advanced in their level of planning, with approximately 83% of surveyed commercial and investment banks and 92% of other banking and financial entities in the early stages of mobilizing programs. In addition, 75% of survey participants from these market segments have initiated impact assessments. Corporates proved least likely to have taken any action at this stage in terms of mobilization, with only 30% of those responding having initiated internal discussions.

Exhibit 5.3.1: Program Mobilization

Q: Has your organization mobilized a program to support the transition to alternative RFRs?



- Allocated budget and resources for the program
- Developed a preliminary project plan
- Initiated internal discussions
- No



- Allocated budget and resources for the program
- Developed a preliminary project plan
- Initiated internal discussions
- No

“We have not assessed the impacts of this issue yet. The first stage is to go out internally and make sure that each of our business units understand the issues”

– Survey participant from a corporate

The relative lag between internal discussions and concrete action to mobilize transition planning efforts may result from a number of factors, some of which are considered further below.

Internal Diligence of IBOR Exposure and Roll-off Profiles Required to Inform Strategy and Next Steps

IBOR Exposure

Some survey participants have yet to ascertain their current exposure to IBORs. As indicated in Exhibit 5.3.2, 11% of respondents were unable to indicate their organization’s aggregate market value exposure to IBORs. Given the survey demographic (with 30% of participants stating they participate in RFR working groups), it is likely that this number would be higher in the wider population.

Roll-off Profile

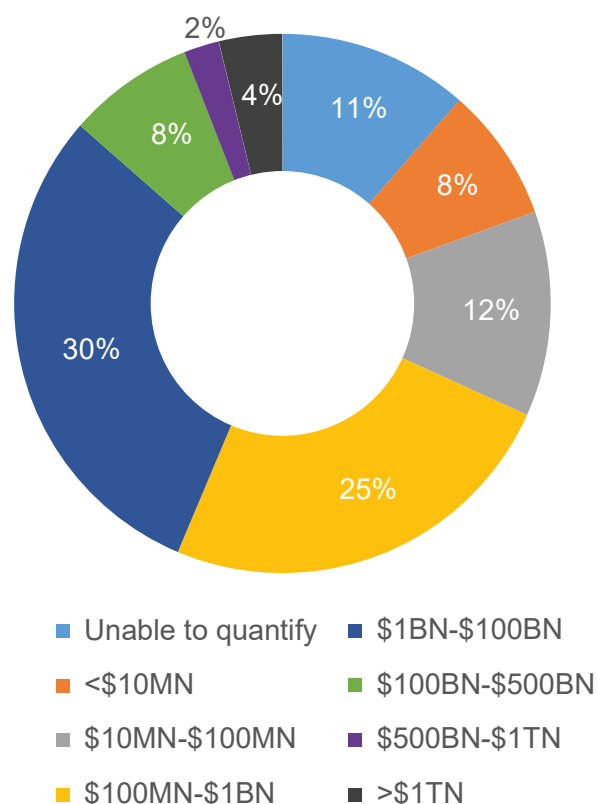
Approximately one-third of survey participants were unable to indicate the roll-off profile of their exposures to IBORs prior to the end of 2021.

Without this fundamental knowledge, it is difficult for market participants to estimate the level of risk assumed by continuing to rely on IBORs or to formulate a strategy to transition to alternative RFRs.

It is worth noting in this respect that, as discussed in [breakout box 5.4.2](#), the European Union’s (EU) Benchmark Regulation’s (BMR) transition period is due to expire at the end of 2019 and so, for EURIBOR, the roll-off profile to the end of 2019 needs to be analysed.

Exhibit 5.3.2: Survey Participants’ Market Value Exposure to IBORs

Q: Indicate your organization’s aggregate market value exposure to IBORs.



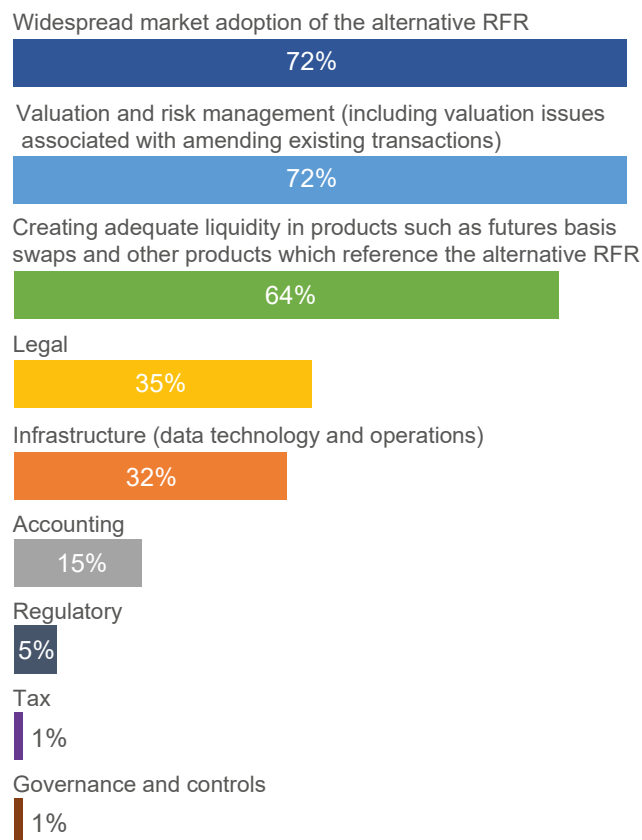
Example of How Greater Knowledge of Roll-off Profiles Might Help Reduce Difficult Issues Relating to Legacy Positions

As indicated in Exhibit 5.3.3, when asked which challenges would have the greatest impact on their organization when transitioning to alternative RFRs, survey participants' most highly ranked choice was valuation and risk management (including valuation issues associated with amending existing transactions).

In its second report, the ARRC estimated that approximately 82% of USD LIBOR exposure measured as of 2016 across all products in scope would roll off prior to 2021.¹¹ In May 2018, the European Central Bank (ECB) released analysis showing that 46% of EURIBOR-linked swaps are due to roll off by end-2019.¹² If market participants were able to point to similar numbers in their own portfolios across all of the IBORs to which they have exposure, it could well provide them with a clearer sense of strategy. For example, firms could adopt new products that reference alternative RFRs for any portion of their portfolio of IBOR exposures that is due to roll off, but which they would otherwise renew. They could also actively retrade positions due to remain on their books beyond 2021 to dispose of IBOR exposures and replace them with alternative RFR equivalents. This may require negotiation and result in administrative and economic impacts in the short-term, but could also allow them to largely avoid the very significant valuation and documentation issues associated with amending legacy positions to reference alternative RFRs. It may also provide a sense of greater urgency to adopt alternative RFRs for new transactions, because without doing so, the amount of exposure to IBORs due to roll off by the end of 2021 (or 2019 for EURIBOR) will fall significantly with each year that passes. The sooner market participants are able to use new products referencing alternative RFRs, the lower the volume of legacy positions they will need to address. The time to ascertain this information and take appropriate action is now.

Exhibit 5.3.3: Challenges that Have the Greatest Impact to Survey Participants' Organizations

Q: Which of the following challenges have the greatest impact to your organization?



Fears of Basis Risk

Survey participants expressed concerns about basis risks that could arise in several contexts. The prospect of basis risk across different products and currencies is clearly one that needs to be taken very seriously, and its complexity may well be dissuading firms from taking affirmative action until transition strategies and timelines for different products become clear. The different forms of basis risk and why some concerns may not prove as well-founded as others is discussed in [breakout box 5.3.1](#) on page 21.

“Both bonds and underlying collateral are often tied to LIBOR. If bonds and the underlying collateral reference different rates, we would face large basis risk due to the mismatch”

—Survey participant from an end user

¹¹ Source: ARRC [Second Report](#), March 2018

¹² Footnote: Source: ECB - [Update on quantitative mapping exercise](#), May 2018

Basis Risk

Survey respondents identified the following potential sources of basis risk as causing significant concerns.

Strategies that contemplate amending existing derivatives and the cash products they were intended to hedge to reference alternative rates at different times

As long as such strategies are voluntary, market participants will be able to negotiate with their counterparties whether, when and how to amend each derivative to reference alternative RFRs and will not be obliged to take a one-size-fits-all approach. Subject to agreeing terms, therefore, they will have the opportunity to negotiate amendments to derivatives that hedge underlying cash products at the same time as they amend the underlying cash products and to ensure that their terms are appropriately aligned. It will be important, therefore, for firms to ensure they have a clear understanding of which derivative hedges which cash product. If cash products are slower to adopt alternative RFRs, however, it could mean that derivatives continue to reference IBORs at a time when liquidity in the derivatives market has moved to the alternative RFR.

Development of cash products that reference term versions of the alternative RFRs but derivatives only reference the overnight alternative RFRs

There is ongoing debate over whether any derivatives should reference term alternative RFRs. Those against are concerned that the term rates being constructed are not robust enough to support the potential weight of derivatives transactions that may gravitate towards the term version of the alternative RFR rather than the alternative RFR itself. Some fear this would result in a similar situation to that which currently exists for certain IBORs – transaction volumes on the underlying being dwarfed by volumes that reference the term benchmark. In its second report, the ARRC noted:

“For the framework underlying the term rate to work well and to have enough underlying transactions to construct a term rate, the bulk of derivatives transactions would need to be based on OIS and futures markets....If the volumes of transactions referencing the term benchmark exceeded or even rivaled trading in the underlying OIS or futures market, then there would not be enough activity on the underlying market to support the term benchmark.”

Others have expressed the view that derivatives should be permitted to reference term alternative RFRs to the extent that they are used to hedge exposure to term alternative RFR cash products. If this latter view prevails, then there would be no basis risk for end users caused by use of different rates on different products. To the extent the former view prevails, basis risk may be minimal because the underliers for the rates will be the same (though users would nevertheless need to analyze the potential basis risk).

If the cross-currency swap market adopts the alternative RFRs in different currencies on different timelines

Respondents were concerned that timing differences in the transition to alternative RFRs in each currency could prove disruptive and complex in relation to cross-currency swaps, particularly as a result of jurisdictions selecting alternative RFRs that are no longer determined on the basis of a common methodology (as was the case with LIBOR in various currencies). Survey participants noted particular concern that there could be a valuation impact in adopting the proposed combination of secured and unsecured alternative RFRs when transacting in multiple currencies. This is an area in which further research is required.

Clearer Sense of Direction Desired

Survey participants are concerned they lack a clear, global view of the desired end state, or a standardized roadmap with steps on how to transition.

This may be due to the dynamic nature of the process, which has resulted in the desired end state for some IBORs evolving over time and differences between the RFR working groups on certain key issues.

Multi-Rate vs Single Rate Approach

It is expected that EURIBOR and TIBOR may continue alongside alternative RFRs indefinitely, while the same may no longer be true for LIBOR.

Transitioning Legacy Trades to alternative RFRs

The RFR working groups have not adopted a unified approach with respect to legacy positions, other than the FSB OSSG's global guidance on including more robust fallbacks in such positions. For example, the ARRC's paced transition plan does not contemplate amending USD LIBOR contracts to reference SOFR. On the other hand, the Working Group on Euro Risk-free Rates has indicated that one of its key deliverables is a plan for amending legacy positions so they reference the identified alternative RFR.¹³

Zombie and Synthetic or Proxy IBORs

There have been fleeting references to zombie IBORs¹⁴ and proxy or synthetic LIBOR¹⁵ in the press and regulatory speeches, but no clear explanation to date of what they mean or the impact they may have on transition strategies.

It may be difficult for market participants to understand and/or rationalize these points given the disparate nature of the various RFR working groups' output. As noted later in the report, coordinating, standardizing and centralizing the information produced by the RFR working groups may provide better clarity and enhance understanding.

In addition to proving an impediment to internal planning and implementation, the lack of certainty in firms' minds has prevented many market participants from initiating any form of client outreach regarding transition issues.

“Before we begin conducting client outreach, we need to better understand the potential impacts and the desired end state of the transition”

–Survey participant from an asset manager

Products Required for Widespread Market Adoption

Once market participants have understood the nature and duration of their IBOR exposures, the availability of alternative RFR products will likely impact their next steps. Survey participants identified those products that they believe are critical to their institutions' ability to adopt alternative RFRs. Some of these products are still under development or at a stage of development that is unclear. It is vital that market participants proactively demand, design and supply these products so that they can effect plans to transition to alternative RFRs. As shown in [Exhibit 5.3.4](#) on page 23, 86% of survey participants indicated that the development of single currency swaps referencing alternative RFRs would be required for a successful transition. Eighty percent require basis swaps and 67% said RFR cash instruments are required. [Exhibit 5.3.5](#) on page 23 indicates that liquidity in option products referencing alternative RFRs is important for approximately 50% of respondents. See [breakout box 5.4.4](#) on page 32 for updates on alternative RFR products.

¹³ Source: ECB – [Work stream #3 High Level Roadmap](#), April 2018

¹⁴ A zombie IBOR may refer to a rate produced on the basis of submissions from a contributor panel only consisting of a small number of banks

¹⁵ Sources: FCA – [Recent developments in financial markets](#), March 2018 and [Minutes of the Working Group on Sterling Risk-Free Reference Rates](#), March 2018

Exhibit 5.3.4: Products Required to Support a Successful Transition

Q: Indicate which of the following products your business would require in order to successfully transition to alternative RFRs.

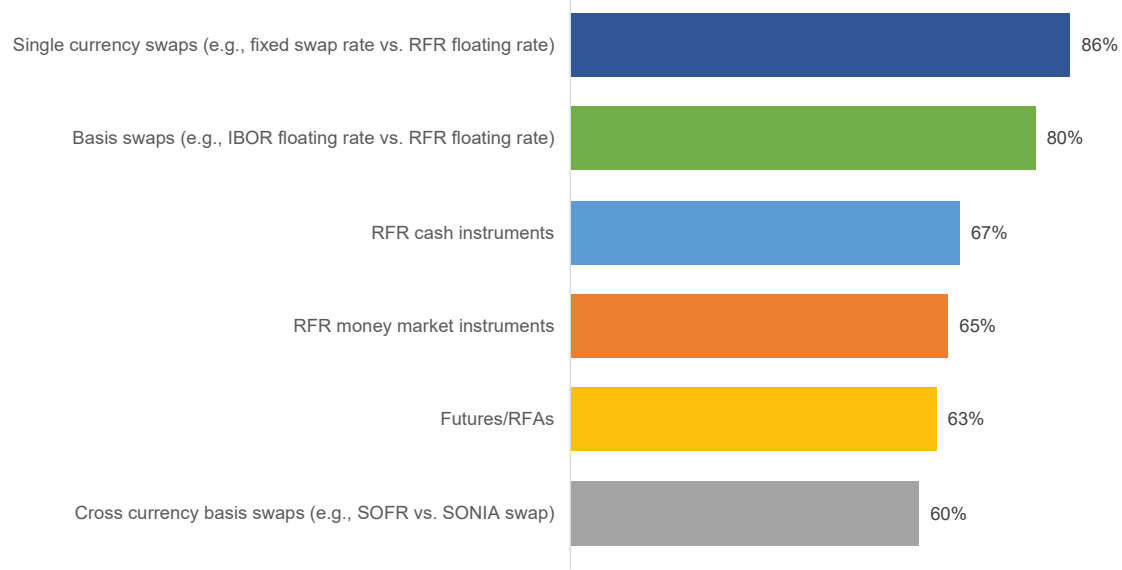
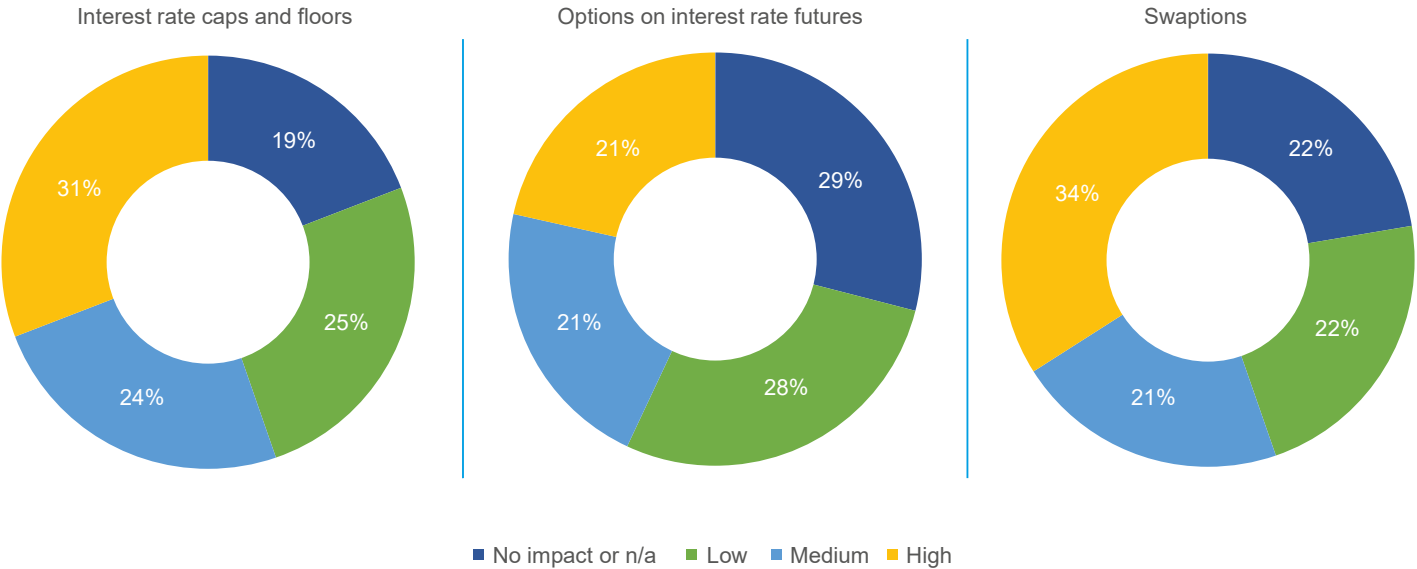


Exhibit 5.3.5: Criticality of Liquidity in Option Products

Q: Is liquidity in option products that reference alternative RFRs critical to your organization’s transition?



Difficulties Amending Legacy Positions

Valuation Issues

Amending legacy positions that reference IBORs to reference the alternative RFRs while the relevant IBORs still exist will require parties to negotiate and agree commercial terms to address, among other things, differences between the IBOR (which includes a bank credit premium and is available in different tenors) and the alternative RFR (which is nearly risk-free and is an overnight rate). Some institutions are concerned that, even when negotiated in good faith and at arm's-length, they may run the risk of a claim from a counterparty who will be able to see (for as long as the IBOR continues) what the outcome would have been had they remained on their original terms. This level of concern increases to the extent that a fiduciary duty, retail investor or borrower is involved.

Re-papering Issues

Parties' ability to amend documentation in relation to legacy positions in order to reference alternative RFRs varies from product to product.

Regulatory, Tax and Accounting Issues

Amending legacy transactions in order to reference an alternative RFR may trigger various regulatory, tax and accounting issues (refer to [breakout box 5.4.5](#) on page 34 for further details).

Each of these issues have already been identified by the various RFR working groups. Work is already underway to look at the regulatory, tax and accounting issues in various jurisdictions.

Contract Amendments Vary Across Products¹⁶

Derivatives

Amending contractual language in large volumes of legacy derivatives positions has become a fairly standardized process due to the use of “protocols,” which can be used to multilaterally make contract amendments between adhering parties. However, survey participants noted that there would nevertheless be considerable challenges due to the sheer volume of affected contracts. A protocol may not be appropriate if commercial terms need to be agreed between the parties bilaterally and on an arm’s-length basis. It has also historically been the case that not all counterparties adhere to multilateral protocols. Therefore, bilateral amendments are still likely to be required. ISDA can publish bilateral amendment templates in order to standardize the process to the greatest extent possible.

Commercial Loans

Commercial loan contracts are not generally standardized and will likely require bilateral negotiation between the borrower and the lender on a contract-by-contract basis. With respect to syndicated loans, there may be several lenders, an agent and a borrower involved in the loan arrangement, who will need to agree the relevant amendment provisions. A change in the reference rate most likely requires a unanimous lender consent. In Europe, the Loan Markets Association (LMA) has produced a revised “Replacement of Screen Rate” to provide further flexibility in light of uncertainty over the future of LIBOR.¹⁷

Consumer Loans and Mortgages

The nature of consumer loan and mortgage contracts varies across jurisdictions, product types and agreements. Consumer loan contracts often require the lender and the borrower to bilaterally renegotiate amendments to the terms of existing contracts. Contract language for most mortgages may give the owner of the loan the right to choose a successor rate, but may not contemplate a separate adjustment for credit spread or margin.

Bonds

Bond terms and conditions generally require the consent of bondholders to alter the economic terms of the contract. The level of consent required can vary by instrument and across jurisdictions. For example, some bonds require that bondholders be provided with 21 days’ notice of any meeting to approve amendments of this nature. Others require consent from a quorum (i.e., 75% of bondholders), while others require unanimous consent. If this is not achieved, issuers could attempt to buy back the current notes and issue new ones, although there may be capital implications if the FRNs are being used by the issuers as capital instruments. To help address the complications with legacy FRN contracts, the ARRC noted that an industry-wide solution could help.

Securitizations

The terms of securitization contracts, such as CLOs, non-agency MBS and ABS, often require consent from a minimum quorum of investors for amendments to be made. In many cases, securitizations require up to 100% noteholder consent to amend terms such as a change of reference rate. This poses significant challenges to market participants, as noteholders may be anonymized and difficult to identify. Even if identified, they may lack the incentive to vote to amend the contract if the status quo is economically favorable. Although securitizations can have longer durations, some contracts, such as CLO indentures, typically refinance every two years. Survey participants indicated that the refinancing period may provide a window to make the necessary amendments to these contracts.

In Europe, AFME has already developed Model Securitization wording for new issues of European securitizations, available at www.afme.eu. This new wording, developed by bank, investor and law firm members of AFME, is available for immediate use by securitization issuers if they so choose. The wording for securitization legal documentation anticipates that existing IBORs will no longer be available.

¹⁶ In its [second report](#), the ARRC has produced analysis on the amendment procedures for various product types from which the analysis in this breakout box is drawn

¹⁷ Source: LMA - [Replacement of Screen Rates](#), May 2018

5.4 Key Elements for Achieving a Successful Transition

The survey results highlight some essential components of a successful transition to alternative RFRs.

Regulators and the RFR working groups have already recognized the importance of many of the identified components and have recently launched initiatives to address them. Where information on these initiatives is publicly available, summaries have been included in this section. There are, however, regional variations in the approaches taken by the RFR working groups, and market participants might benefit from additional coordination.

Clear Regulatory Messaging

Survey participants noted that Andrew Bailey's July 2017 speech provided the market with helpful information about why a transition away from LIBOR is necessary. Survey participants would welcome similarly informative communication from the relevant regulatory bodies with respect to other the IBORs. They emphasized that clarity from regulators globally would support transition planning. There was significant uncertainty among respondents about whether existing rates, particularly LIBOR, will continue to exist post-2021. Survey participants with exposure to the euro market also noted heightened concern about the continuing availability of EURIBOR once the BMR transition period expires on December 31, 2019.

“Currently, market participants are very much in the dark about whether or not IBORs will continue to exist post-2021, or if they should start amending legacy contracts. It would be helpful for regulators to provide clear messaging around this as soon as possible”

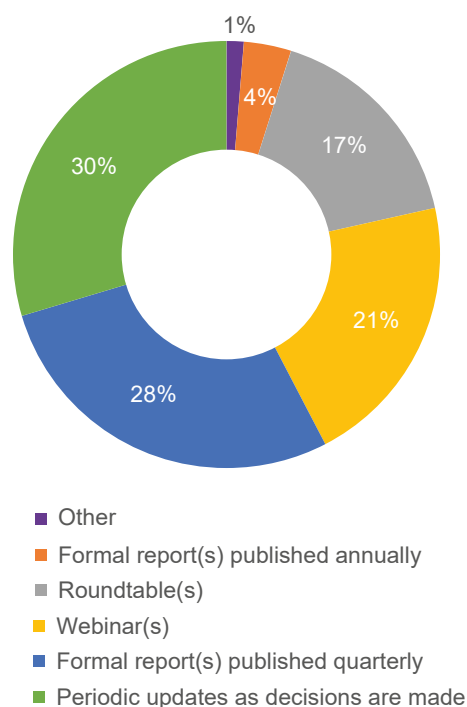
—Survey participant from an investment bank

Regular and Globally Coordinated Information

As shown in Exhibit 5.4.1, survey participants displayed an appetite for RFR working groups to provide more frequent updates.

Exhibit 5.4.1: Recommended Methods of Communication for RFR Working Groups

Q: How can RFR working groups best communicate with market participants regarding plans for transitioning to alternative RFRs?



More explicit global coordination between the RFR working groups was also recommended. Survey participants would like the timing and other aspects of the RFR working groups' deliverables to be considered from both a global and regional perspective. Respondents considered that having such reports, updates and other information made available centrally would greatly assist those trying to keep abreast of new developments and enhance their ability to respond accordingly. This may be something that the FSB OSSG could consider providing, given its role in monitoring and overseeing efforts to implement interest rate benchmark reforms. It is something that has been recognized by RFR working groups. In the minutes from the meeting on March 28, 2018,¹⁸ the Working Group on Sterling Risk-free Reference Rates noted:

"The Group discussed the need for international coordination, with three key aims:

- ▶ *To improve and ensure consistency of education and communications;*
- ▶ *To achieve consensus on technical issues which have relevance across currencies;*
- ▶ *To ensure consistency of approach and objectives when discussing transition issues with global regulatory bodies.*

The Chair had spoken to the chairs of the other currency RFR working groups who were eager to coordinate on these issues. In addition, the Bank and FCA noted that steps are being taken to correct the perception that there was a lack of international coordination between authorities."

Clear and Globally Coordinated Timelines

Survey participants viewed the clear and detailed milestones in the ARRC's paced transition plan as providing a model for other RFR working groups to follow. It was recognized that the ARRC produced the plan in order to promote a phased adoption of SOFR as a new benchmark, which is not applicable to all of the other identified alternative RFRs. However, survey participants noted that a roadmap with clearly defined goals and timelines for the other currencies would greatly assist participants with their own planning.

Some survey participants with exposure to IBORs in more than one currency noted that challenges may arise if the timelines for transitioning to the alternative RFRs differ across each relevant currency. They specifically noted the following:

- ▶ The potential for additional basis risk in the cross-currency swap markets, asset and liability mismatches and less effective hedges if the market adopts alternative RFRs at different times;
- ▶ Multi-currency facilities may need to include a mix of alternative RFRs and IBORs until alternative RFRs are identified and liquid in each relevant currency. This could exacerbate complexities associated with transitioning loans and securitized products in particular.

Others, however, believe a big-bang approach involving multiple currencies would be too burdensome for firms with a global footprint to execute.

¹⁸ Source: Bank of England - [The Working Group on Sterling Risk Free Reference Rates Meeting Minutes](#), March 2018

RFR Working Group Progress Towards Developing Milestones and Timelines

United Kingdom

On June 15, 2018, the Sterling RFR Working Group published a “Timeline with Milestones” setting out a provisional timeline for transition in the sterling markets. It contemplates steps such as: (i) agreeing metrics of success; (ii) conducting a public consultation on term rates; (iii) outlining best practice guidance for SONIA products; (iv) providing recommendations on fallbacks; (v) developing operational capability for SONIA-linked FRNs, loans and other instruments. It also sets out steps that market participants could undertake immediately, including assessing SONIA referencing product offerings available to meet their needs, producing information for SONIA referencing product offerings and assessing the benefits and risks of benchmark migration.¹⁹

This timeline will be updated on a regular basis with amendments and additional detail to reflect ongoing progress on plans for benchmark transition.

United States

In October 2017, the ARRC adopted the paced transition plan, which outlines key steps and timelines to promote the voluntary adoption of SOFR. The steps of the plan include: (i) putting in place infrastructure for futures and/or OIS trading in SOFR; (ii) trading in futures and/or bilateral, non-cleared, OIS that reference SOFR; (iii) trading in cleared OIS that reference SOFR in the current effective federal funds rate (EFFR) price alignment interest (PAI) and discounting environment; (iv) CCPs begin allowing market participants a choice between clearing

new or modified swap contracts into the current PAI/ discounting environment or one that uses SOFR for PAI and discounting; (v) CCPs no longer accept new swap contracts for clearing with EFFR as PAI and discounting, except for the purpose of closing out or reducing outstanding risk in legacy contracts that use EFFR as PAI and a discount rate; (vi) creating term reference rates based on a SOFR derivatives market once there is enough liquidity.²⁰

Europe

The Working Group on Euro Risk-free Rates is expected to present contingency plans for EURIBOR-linked legacy contracts by mid-September 2018. A concrete transition plan for the eurozone has not yet been published.²¹

Switzerland

The National Working Group on Swiss Franc Reference Rates has established two sub-groups: the loan and deposit market sub-group and the derivatives and capital markets sub-group. The main objectives of both groups are to identify the affected products and stakeholders, evaluate the appropriateness of SARON-based benchmarks as alternatives and develop a transition plan and metric.²²

Japan

In March 2018, the Study Group on Risk-free Reference Rates discussed the next steps in supporting financial benchmark reform, which will include identifying market practices and contract design for the adoption of TONA.²³

¹⁹ Source: Working Group on Sterling Risk Free Rates - [Timeline with Milestones](#), June 2018

²⁰ Source: ARRC – [Second Report](#), March 2018

²¹ Source: [Working Group on Euro Risk Free Rates Meeting Minutes](#), February 2018

²² Source: [Sub-Working Group “Loan and Deposit Market” Terms of Reference](#), January 2018

²³ Source: [Study Group on Risk-free Reference Rates Meeting Minutes](#), March 2018

Long Runways for Transition

Survey participants noted that both the adoption of new overnight rates in their own right and as alternatives to IBORs are extremely burdensome and will require significant time to plan and successfully deliver. Survey participants were particularly concerned that the Working Group on Euro Risk-free Rates’ timeline is tightly compressed. An alternative RFR has yet to be

identified and the administrator of one of the candidate rates has not committed to publishing the rates before the fourth quarter of 2019. Survey participants expressed concern that market participants will not have sufficient time to prepare and transition. More information about the background and issues causing concern for respondents regarding EURIBOR is available in [breakout box 5.4.2](#) on page 29.

Concerns About EURIBOR

The EU Benchmarks Regulation

The BMR prohibits the use of benchmarks in the EU unless their administrators have been authorized or registered by the relevant EU national competent authority (NCA). A two-year transitional period during which EU and third-country administrators are required to attain authorization or registration will expire on January 1, 2020.

EURIBOR

In May 2017, EMMI announced that its initial attempts to reform EURIBOR's methodology, which were designed to make it purely transaction-based, had not succeeded due to illiquidity of the underlying market:

"EMMI's analysis has concluded that under the current market conditions it will not be feasible to evolve the current EURIBOR methodology to a fully transaction-based methodology following a seamless transition path. These findings have been corroborated by analysis carried out by the Belgian Financial Services and Markets Authority."

—EMMI²⁴

EMMI is currently undertaking a new consultation on reforms designed to introduce a "hybrid" methodology and make EURIBOR compliant with BMR.²⁵

Survey respondents were concerned that if the reforms fail, EURIBOR would not be compliant with the BMR after December 31, 2019 and the market could suffer significant disruption. As with LIBOR, even if EURIBOR is successfully reformed and deemed compliant, its continued publication is contingent on the willingness of contributors to provide input data. The EURIBOR panel has fallen from 44 to 20 contributing banks since 2012. The BMR gives national competent authorities the power to compel contributions to critical benchmarks, such as EURIBOR, but only for a two-year period. The lack of a

voluntary agreement by contributing banks similar to the one secured by the UK's FCA with respect to LIBOR is a cause of significant concern.

Alternative RFR for EURIBOR

EONIA²⁶ had been expected to act as the alternative RFR in relation to EURIBOR, but its administrator recently announced that EONIA will not comply with the BMR.

In his address to the inaugural meeting of the Working Group on Euro Risk-free Rates, Benoît Cœuré, member of the ECB, explained the implications of the BMR timeline:

"The BMR sets a demanding timeframe for the reform. It has set January 1, 2020, as a deadline for benchmarks designated as critical to comply with its provisions. These provisions are also relevant for contracts based on the EONIA benchmark. While users of such contracts are compelled to provide for a fallback solution, there is currently no alternative benchmark rate that is suitable for both new and outstanding contracts. In early February 2018 the EONIA administrator – the European Money Markets Institute (EMMI) – announced that it would no longer pursue a thorough review of the EONIA. The future use of the EONIA will hence depend on the willingness of both the panel banks and EMMI to support the continuity of the benchmark, as well as on the existence of viable alternatives. In the absence of a solution for legacy transactions ... market participants are exposed to legal and operational risks. The issue of the legal transition must be addressed."

—ECB²⁷

²⁴ Source: EMMI - [EURIBOR Pre-live Verification Program Outcome](#), May 2017

²⁵ Source: EMMI - [First Stakeholder Consultation on Hybrid Methodology for Euribor](#), May 2018

²⁶ The Euro Overnight Index Average

²⁷ Source: ECB - [The importance of euro interest rate benchmark reforms](#), February 2018

Breakout Box 5.4.2 (continued)

The impact of EMMI's announcement means that EONIA will not be permitted to be used in new products in the EU after January 1, 2020. It will only be permitted for use in legacy products if the Belgian regulator, Financial Services and Markets Authority (FSMA) is able to exercise powers under Section 51(4)²⁸ of the BMR and cannot act as the alternative RFR for EURIBOR.

As Mr. Cœuré notes, however, even in circumstances in which the FSMA does exercise the power under 51(4), the continued availability of EONIA for legacy trades (or in calculating interest payments or as a discount curve, neither of which are in scope of the prohibition under the BMR) is contingent on the continued willingness of panel banks to contribute to the rate.

The Working Group on Euro Risk-free Rates' objectives include recommending an alternative RFR for EURIBOR, and it is currently undertaking a public consultation.

Further information on the Working Group on Euro Risk-free Rates' progress in identifying an alternative RFR to replace EONIA and act as a fallback and/or alternative to EURIBOR is set out in the [Working Group on Euro Risk-free Rates](#) section on page 44.

28 This provides that the benchmark may only be permitted for continued use in legacy positions if preventing it would result in a force majeure event, frustrate or otherwise breach the terms of any financial contract, financial instrument or rules of any fund

Regulatory Clarity for Legacy Positions

Certainty that legacy contract amendments would not bring contracts into the scope of certain regulatory requirements was identified by survey participants as being critical if transition of such positions is to commence. They highlighted various types of regulations in this respect.

Margin, Trading and Clearing Obligations for Non-centrally Cleared Derivatives

Survey participants required clarity that existing positions that are modified solely to reference alternative RFRs or include fallbacks will not be brought into scope of requirements such as margin requirements under the European Market Infrastructure Regulation (EMIR) or Title VII of the Dodd-Frank Act.

Potential Regulatory Conflict with Consumer Protection Law

Survey participants indicated that consumer protection laws may become a significant factor in determining which legacy contracts can be amended to reference alternative RFRs (or to include as fallbacks) and how to do it without violating the rights of consumers. This is particularly important in relation to products such as mortgages, for which transition could result in an increase or decrease in payments for a very large number of retail consumers. Survey participants viewed regulatory clarity and guidance in this respect as a key aspect of their ability to amend legacy positions.

Regulatory Implications on Capital and Liquidity Ratios

Survey participants also indicated that clarity on the implications of any transition on capital and liquidity ratios would be a critical component in their planning.

Survey participants recognized that the RFR working groups are already working on many of these aspects, and global regulators have indicated a willingness to provide the requisite clarity.

Steps Taken by Regulators

Non-cleared Margin

Regulators have recognized the concerns raised by market participants about the loss of safe harbors in relation to margin requirements to non-cleared derivatives transactions. In its update of the *Reform of Major Interest Rate Benchmarks* report in October 2017, the FSB OSSG noted:

“There has been some concern expressed that an amendment to an existing contract to change a definition relating to a widely used interest rate (whether primary or fallback) could have the effect that a margin requirement is imposed as a result pursuant to national rules implementing the Basel Committee on Banking Supervision (BCBS) and IOSCO margin requirements. The margin requirements, as they are implemented, apply to new contracts, and there is a potential concern that an amended contract could be treated in the same way as a new contract and thus attract the margin requirements. The BCBS and IOSCO requirements provide that genuine amendments to existing contracts should not qualify as a new contract.”²⁹

In the meeting minutes published by the Working Group on Sterling Risk-free Reference Rates on February 19, 2018, the FCA indicated that it does not believe margining requirements would be triggered as a result of amendments to legacy derivatives contracts. In addition, at the 2018 ISDA Annual General Meeting, senior adviser to the Board of Governors of the US Federal Reserve, David Bowman, indicated that the US is also discussing margin implications. However, margining requirements have been implemented differently across jurisdictions and further work will be required to ensure this approach is adopted in all relevant jurisdictions.

“Relevant authorities may where appropriate and possible make changes to those rules, issue guidance and/or provide relief or regulatory forbearance such that a change in interest rate, made for the purposes of increasing contract robustness, would not, in itself, impose a margin requirement.”³⁰

ARRC Working Group

The ARRC has established a regulatory issues working group to identify where regulatory support is required to assist with the transition. The working group has developed a regulatory issues list that contains considerations for the official sector in resolving regulatory challenges to adopting alternative RFRs, and has indicated plans to write a letter to US regulators describing specific areas where clarity is necessary.

Insurance Obligation Discounting

The European Insurance and Occupational Pensions Authority (EIOPA) is responsible for approving the discount curve required by insurance companies to calculate technical provisions for insurance obligations. Given the discount curve currently references LIBOR swap rates, market participants may be slow to adopt alternative RFRs, as it could lead to basis risk. In response, the pension fund and insurance company adoption sub-group of the Working Group on Sterling Risk-free Reference Rate has considered options for amending the discount curves to reference SONIA, including transitional matters.

²⁹ Source: FSB – [Reforming major interest rate benchmarks](#), October 2017

³⁰ Source: FSB – [Reforming major interest rate benchmarks](#), October 2017

Development of Key Products

As discussed above, survey participants identified products that were viewed as critical to their institution's ability to adopt alternative RFRs, including a liquid RFR futures and FRA market, along with cash products based on RFRs and RFR money market instruments. Survey participants also indicated the need to evolve existing basis swap markets and establish new basis swap markets where they do not exist. They noted that the current basis market between GBP LIBOR and SONIA could serve as a model. Furthermore, survey participants noted that cross-currency swaps would need to go through a multi-leg transition process due to the phased approaches being adopted by the global RFR working groups.

This need for basis products has been explicitly acknowledged by the RFR working groups as a requirement. In its second report, the ARRC said:

"Basis markets would also help to facilitate the voluntary closing out of legacy contracts. Cross-currency swaps and options referencing SOFR will also need to be established to help market participants hedge risks. The ARRC has formed a Market Structures working group to help establish basis prototypes for these new contract structures referencing SOFR and is working with ISDA and the Securities Industry and Financial Markets Association's Asset Management Group to consult with market participants in designing them."³¹

Steps have also been taken toward facilitating and launching key products over the past year.

Momentum

As indicated in [Exhibit 5.3.3](#) on page 20, when asked to rank challenges that would have the greatest impact to their organizations in terms of facilitating transition, the most highly ranked choice was widespread market adoption of the alternative RFR. This introduces a conundrum. Firms only want to move when others in the market have moved or they can be sure of widespread market uptake. The ARRC has recognized this need to build momentum in its second report, in which it stated:

Recent Market Developments

OTC Derivatives

ISDA has published floating rate option definitions for SARON (2017), reformed SONIA (2018) and SOFR (2018) in order to facilitate trading in the alternative RFRs in cleared and non-cleared derivatives. Further definitions for alternative RFRs will be published as required.

Cleared Derivatives

- ▶ LCH is expected to start clearing outright OIS and basis swaps referencing SOFR by the third quarter of 2018.
- ▶ CME Group is expecting to start clearing OTC swaps referencing SOFR in 2018.

Futures

- ▶ Intercontinental Exchange (ICE) launched a 1-month SONIA futures contract in December 2017, and is expected to launch a 3-month SONIA futures contract in June 2018.
- ▶ CurveGlobal launched a 3-month SONIA futures contract in April 2018.
- ▶ CME launched 1-month and 3-month SOFR futures contracts in May 2018.

³¹ Source: ARRC – [Second Report](#), March 2018

“Successful implementation...will require voluntary trading by ARRC member banks and other market participants in order to achieve a critical mass of liquidity in futures contracts and/or derivatives that reference SOFR.”³²

Survey respondents had different views regarding whether a regulatory mandate would be appropriate to ensure widespread market adoption; 33% indicated that they would see it as the primary driver of adopting alternative RFRs for new products and amending legacy positions to reference alternative RFRs, but others stated that a mandate would not be helpful.

Bank Credit Premium for New Transactions Referencing RFRs

The current construct of IBORs contains both a risk-free component and an embedded credit premium to reflect the credit risk associated with term bank borrowing. Although the risk-free component of IBORs will be embedded in the alternative RFRs, survey participants raised concerns that the absence of a credit premium would add to the complexities associated with adopting the alternative RFRs. It is worth noting in this respect, concerns that certain IBORs no longer offer an accurate reflection of bank credit risk. Bank of England Governor Mark Carney recently stated:

“LIBOR is meant to measure the short-term unsecured funding costs of banks, but the reality is that, since the financial crisis, LIBOR really has become the rate at which banks don’t lend to each other.”³³

Survey participants cited the possibility of using CDS spreads to proxy the bank credit premium. However, some survey participants raised concern that CDS spreads do not have sufficient transparency and liquidity in shorter tenor points (i.e., 1-month, 3-month) to calculate the credit premium across the entire term structure.

Term Structures

Unlike IBORs, the alternative RFRs are primarily overnight rates. Roughly 86% of survey participants believe term reference rates are required, with corporates and financial end users having the strongest views on this subject. Survey participants noted that term rates are most critical for cash products, mortgages and securitizations, while derivatives could generally reference overnight rates. The majority of

survey participants also noted that tenors of up to 3-month would be sufficient for the USD LIBOR market. However, tenors up to 6-month are expected to be required to the sterling, euro and yen markets.

Some survey participants raised concerns about insufficient liquidity in the underlying markets to develop a robust term structure for the alternative RFRs. They also highlighted that the existence of term reference rates would make this concern more acute because liquidity would be diverted from markets for transactions that reference the overnight version of the alternative RFR.

This concern has been noted by many of the RFR working groups, with the ARRC, the Working Group on Sterling Risk-free Reference Rate and the Working Group on Euro Risk-free Rates all planning to provide forward-looking terms structures for certain cash products.

Trade Association Leadership and Standardized Model Contract Terms

Survey participants agreed that the involvement of trade associations is necessary to help promote a proper and appropriate exchange of opinions and analyzes, and a smooth and efficient transition to alternative RFRs. Survey participants believe trade associations should facilitate widespread market awareness and development of potential solutions that are objective and reasonable for all market participants.

New contractual language aimed at standardizing products that reference the alternative RFRs is seen as a key deliverable for trade associations, not only for bilaterally negotiated derivatives but also for the cash markets, where contractual terms have been historically less standardized. Survey participants also noted an important role for the trade associations in developing standardized means of amending legacy transaction documentation (where feasible, desirable and appropriate) and including more robust fallbacks. Trade associations are well-suited to develop recommendations for standardized practices and documentation when they follow the appropriate safeguards and when the efficiencies of such standardization are warranted.

³² Source: ARRC [Second Report](#), March 2018

³³ Source: Bank of England - [Staying Connected](#), March 2018

Tax and Accounting Alignment

Survey participants noted that the provision of guidance, direction and transitional relief by global accounting bodies would help preserve the tax and accounting treatments that might otherwise be jeopardized by

changes to the nature of the hedged risk and/or changes in the critical terms of derivatives. Breakout box 5.4.5 below outlines accounting and tax considerations on a high-level, non-exhaustive basis.

Breakout Box 5.4.5

Hedge Accounting

Survey participants are concerned that the IBOR transition may impact hedge accounting, under both US Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS), when their hedging instruments, hedged risk and/ or hedged items are indexed to IBOR. To address this risk, global standard setting bodies are initiating alternative RFR projects for hedging purposes.

In February 2018, the Financial Accounting Standards Board (FASB) proposed amendments to Accounting Standards Codification (ASC) 815 to add the OIS rate based on SOFR as a new US benchmark interest rate for hedge accounting purposes. The proposal appears to be an important step for those market participants subject to US GAAP. Under IFRS 9, it is expected that SOFR will qualify as a component that may be hedged as it is both separately identifiable and reliably measurable. Furthermore, the International Accounting Standard Board (IASB) does not need to add alternative RFRs as approved benchmarks as IFRSs are principle-based rather than permissioned for hedge accounting purposes.

Other impacts that need to be addressed include: whether the amendment of hedge designations to refer to a new benchmark would be viewed as a de-designation of the old hedge and the designation of a new one, or whether IBOR cash flows in longer-term cash flow hedges are still highly probable of occurring and also, whether there will be sufficient liquidity in the alternative RFR to perform hedge accounting testing.

Fair Market Valuation

Valuation and Discounting: To avoid an immediate change in the hedge basis adjustment upon transition to alternative RFRs, the benchmark component interest cash flows for fair value hedges of interest rate risk could be reset at the relevant time to an amount that maintains the current basis adjustment but now reflects that they will be remeasured by the alternative RFR rather than the IBOR.

Modification or Extinguishment of Financial Instruments

Instruments: Survey participants expressed concerns for existing FRNs and cash products (including securitization structures). Under US GAAP and IFRS, if FRNs, cash products and derivatives based on IBORs are amended to reference an alternative RFR, an entity may need to assess whether a modification or extinguishment has occurred.

Other Accounting and Tax Findings

Financial Statement Reporting: Some market participants noted that there may be impacts to financial statements as a result of the transition. For example, changes in rates connected to certain bonds may trigger changes in financial statement disclosures.

Acceleration of Payments: Amending contract terms of a debt issuance to reference alternative RFRs may be deemed a modification to the existing debt instrument. These modifications and subsequent impact to yields associated with the debt issuance may trigger tax events and accelerate payments that an institution may have in connection with the debt.

Inter-affiliate Contracts: Survey participants indicated that amendments to loan terms between affiliates could produce indirect effects on internal pricing and tax treatment. These contracts may require amendments to the economic terms that result in increased tax payments. In order to prevent inter-affiliate tax liabilities, market participants may have to amend transfer pricing agreements.

Treatment of Certain Debt Issuances: Survey participants that own interest in real estate mortgage investment conduits (REMICs) highlighted that certain underlying mortgages affected by the transition away from IBORs may no longer be eligible for use in the REMIC. In addition, the tax-exempt status for variable rate demand obligations (VRDOs) could be affected, and potentially lead to loss of tax-exempt status.

6. Planning for IBOR Transition

The survey results have indicated that some institutions are yet to fully commence planning and implementation of steps to transition from IBORs to alternative RFRs. Below are suggestions for key steps that firms can take

today. Although intended to be useful suggestions, they are not comprehensive, and institutions should develop their own plans with their professional advisors as necessary.

Table 6.1: Individual Market Participant Practical Implementation Checklist

Have you mobilized a formal IBOR transition program?	
✓	Appoint a senior executive to own and manage a multi-year IBOR transition program for your organization. This individual should be responsible for overseeing implementation of all IBOR transition activities within the organization and coordinating engagement and communication with clients, regulators, rating agencies and other relevant external parties.
✓	Establish a robust program governance structure to oversee the successful transition to alternative RFRs, inclusive of a program management office and implementation leads across core business lines, enterprise functions and support functions. A steering committee of senior executives should oversee the implementation efforts and provide regular updates to appropriate board and management committees.
✓	Allocate budget and confirm staffing needs to execute implementation activities. Initial staffing should comprise a small core team to oversee planning and conduct an impact assessment, with heightened staffing expected throughout implementation. The required staffing is expected to significantly vary by organization and market segment.
✓	Establish program workstreams/project charters with clear objectives, tangible milestones and work products and predefined success criteria. Program workstreams may be comprised of core business lines or specific functional areas. It is expected that the majority of large organizations will employ a federated rather than centralized execution approach.
✓	Initiate internal stakeholder outreach and education. Leverage RFR working group publications, the IBOR Global Benchmark Transition Roadmap and other publicly available resources to achieve a consistent level of awareness and education across your organization.
Have you assessed your exposure to IBORs?	
✓	Develop an inventory of products, financial instruments and contracts linked to the IBORs. Institutions should develop a strategy to centrally manage the inventory throughout the transition period, considering the digitization of contract terms and other document management best practices.
✓	Quantify the exposure to IBORs across core business lines and products. Institutions should develop the capability to assess the gross and net exposure across all on-and off-balance-sheet products on an ongoing basis, including reference rate, spread, contractual and residual maturity, counterparty type and optionality. In addition, firms should be able to report their IBOR exposure based on robust data to internal and external stakeholders on an ongoing basis.
✓	Calculate financial exposure anticipated to roll off prior to the end of 2019, 2020 and 2021. Institutions should forecast their exposure to the IBORs throughout the transition horizon based on contract maturity date and a set of underlying assumptions on business profile/growth, economic conditions and transition approaches.
✓	Evaluate operational exposure to IBORs by assessing impacts to processes, data and technology. A standard taxonomy and assessment criteria should be leveraged to evaluate processes across the organization. Transition activities should be prioritized based on the level of effort and criticality of the process, with consideration of required data and technology build.
✓	Implement reporting to monitor exposure to the IBORs throughout the transition period. A common product hierarchy and reporting structure should be utilized across the organization to facilitate management and monitoring of financial exposure and transition efforts.

Table 6.1: Individual Market Participant Practical Implementation Checklist (continued)

How would a permanent cessation of IBORs impact you and your clients?	
✓	Review existing contracts and assess current fallback provisions by product and contract type. Financial exposure metrics and estimated roll off by product can be leveraged to prioritize and size this effort.
✓	Determine required re-papering and client outreach. Institutions should assess longer-dated contracts and isolate the population where current fallback provisions are inadequate in the event of an IBOR cessation. Firms should consider client outreach and the amendment of provisions where necessary.
✓	Collaborate with market participants and industry working groups to define enhanced fallback provisions and contract disclosures.
✓	Mobilize efforts to implement required contract amendments. Institutions should engage with trade associations and other market participants to consider guidelines, best practices and potential protocols to amend legacy contracts.
What is your external communication strategy?	
✓	Define a communication strategy to educate clients on benchmark reform efforts. Institutions should initiate client outreach and education on benchmark reform to provide increased transparency and reduce future contract amendment timelines.
✓	Identify other external dependencies (e.g., technology vendors) that will need to be involved in transition planning.
✓	Develop an advocacy plan to share the organization's viewpoints and perspective with regulators, RFR working groups and trade associations.
Have you defined a transition route map?	
✓	Review OSSG and RFR working group publications, the IBOR Global Benchmark Transition Roadmap and other publications. OSSG and RFR working group publications and other available information can be leveraged as the foundation for a route map, which should then be appropriately tailored to produce a transition plan that is specific for the organization and limits any market disruption. The transition route map should set out key assumptions, internal and external milestones, and other dependencies.
✓	Apply to participate in relevant RFR working groups.
✓	Contribute to the demand for, design of, and trading in new products that reference alternative RFRs.
✓	Determine the required infrastructure and process changes to support transition to alternative RFRs, and prioritize enhancements. Project charters should be developed to support planning and provide a structure for delivery efforts, inclusive of a clearly defined scope, timing and ownership.
✓	Develop an implementation route map inclusive of key projects, milestones and ownership. A holistic transition route map should be developed to guide transition efforts and promote coordinated delivery across an organization and with external parties.

7. Conclusion

Since benchmark reform initiatives got under way, significant progress has been made by regulators, RFR working groups, benchmark administrators and others to reform IBORs, select alternative RFRs and facilitate the adoption of the new rates. When Andrew Bailey indicated that the survival of LIBOR post-2021 could not be guaranteed, he sparked a new sense of urgency among market participants, especially those involved in the markets for cash products, who up to that point, had not been alerted to the need to transition to alternative RFRs. These market participants are now discussing and assessing the impact of the discontinuation of IBORs on their organizations.

While significant progress has been made, much more work is required to implement industry transition plans. Given varying business models and levels of exposure to IBORs across the market, institutions should rapidly assess firm-specific transition implications, including the different issues associated with amending legacy positions to reference alternative RFRs, entering into new alternative RFR issues or trades and ensuring contracts that continue to reference IBORs have robust fallbacks.

The RFR working groups will continue to support market education and outreach.

As the market becomes more aware about industry progress and potential transition challenges, institutions should remain actively engaged in industry working groups to shape transition solutions and guidelines.

Involvement and cooperation from a broad range of market participants is pivotal in ensuring solutions are appropriately tailored to reflect the interests of each market segment. The Trade Associations will continue to actively work with the regulatory community and RFR working groups to do as much as possible to facilitate a smooth transition to the alternative RFRs.

8. Appendix 1

8.1 Overview of RFR Working Groups

The summaries of the RFR working groups below provide insight into the continuing efforts of each working group since February 1, 2018, based on published information to date. For more information on the key milestones, objectives, deliverables, rate selection and transition plans of the working groups, please refer to the relevant RFR working group websites and the [IBOR Global Benchmark Transition Roadmap](#).

The Working Group on Sterling Risk-free Reference Rates³⁴

Having recommended reformed SONIA as the alternative RFR for GBP LIBOR, the Working Group on Sterling Risk-free Reference Rates is now focusing on developing a plan to support its successful adoption across the bond, loan and derivatives markets. More specifically, it is focused on:

- ▶ Educating users about the need to transition and devising communication plans for the market;
- ▶ Identifying best practices for references to SONIA in financial contracts and coordinating with those that have the authority to amend the templates;
- ▶ Promoting the use of new financial products referencing SONIA;
- ▶ Identifying potential impediments and workable solutions to the adoption and transition;
- ▶ Agreeing and publishing observable metrics that reflect the adoption of SONIA;
- ▶ Coordinating with similar working groups in other jurisdictions on recommendations and communications on cross-currency issues.

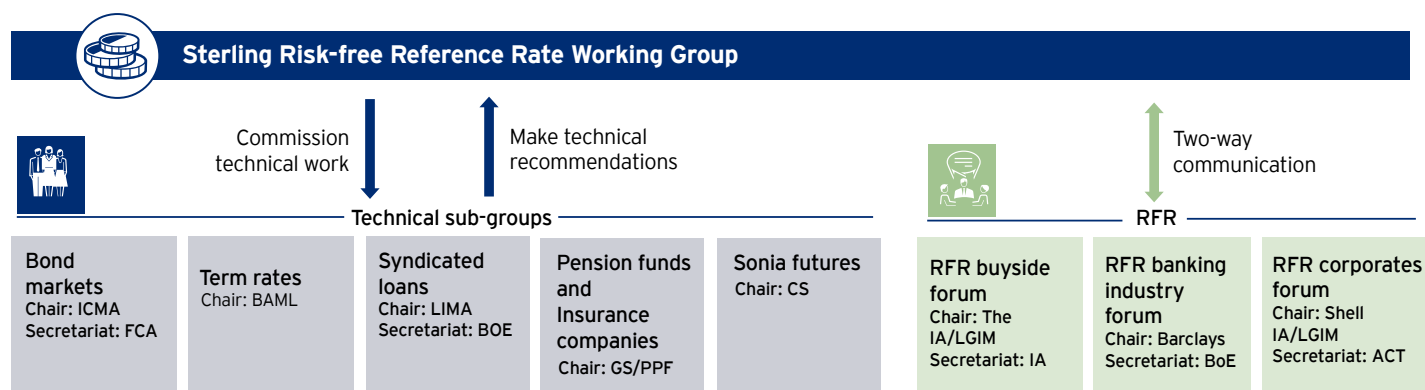
Expanded Membership and Sub-working Groups

In February 2018, the Working Group on Sterling Risk-free Reference Rates expanded its membership to include participants across various sectors and markets. Membership includes banks, dealers, buy-side institutions, infrastructure providers, non-financial corporates and key industry associations. In addition, there has been representation from the Bank of England and the FCA. The latest list of member institutions can be viewed on the Working Group on Sterling Risk-free Reference Rates' [website](#).

³⁴ Source: [Working Group on Sterling Risk-free Reference Rates Terms of Reference](#), February 2018

The structure of the Working Group on Sterling Risk-free Reference Rates as it is currently established is depicted in Exhibit 8.1.1 below.

Exhibit 8.1.1: Working Group on Sterling Risk-free Reference Rates Organizational Structure



The **Sub-group on Term SONIA Reference Rates** was convened to:

- ▶ Identify and assess relevant potential use cases for term SONIA reference rates and the significance of each for a range of sterling market participants;
- ▶ Identify and review potential data inputs and calculation methodologies for term reference rates (e.g., based on pricing data from SONIA futures contracts, OIS order books on MTFs, or transaction data from swap data repositories) in order to assess:
 - Consistency with the IOSCO principles for financial benchmarks (e.g., requirement for sufficient market data to produce a robust and reliable index);
 - Compliance with applicable regulatory requirements for benchmarks, including under the BMR;
 - Robustness to changes in market structure;
 - Resistance to manipulation.
- ▶ Recommend whether, for which applications, and for what tenors term SONIA reference rates may be appropriate;
- ▶ Propose measures with the aim of avoiding systemic reliance on these indices – for example, promoting broad outreach and education on usage of risk-free reference rates;

- ▶ Agree design criteria for potential administrators and data providers to develop term reference rates, as appropriate.

The Sub-group is expected to launch a market consultation on its findings in mid-2018.

The **Sub-group for the Development of SONIA futures** published recommendations for SONIA-referencing futures contract(s) as well as the Sub-group's analysis.³⁵ This indicated that:

- ▶ SONIA futures should settle against a realized SONIA rate as opposed to a forward-looking term SONIA rate.
- ▶ The primary contract for SONIA futures trading should be a 3-month contract, expiring on IMM dates out to at least five years. This would be consistent with current Short Sterling contracts which should promote liquidity through basis trading, as well as facilitating transition out of current Short Sterling contracts.
- ▶ A 1-month contract settling on calendar dates, out to at least one year, would complement this 3-month contract and give more granularity at the front end of the curve.
- ▶ There should be a fixed tick value across the futures strip, with a minimum tick value of £12.50 and a minimum bid/offer spread of 0.5 basis points. This should support liquidity by allowing trading across short sterling and SONIA futures on a comparable basis.
- ▶ Contracts should be named as the month at the start of the period as per the current convention for OTC derivatives.
- ▶ Cross-margining of futures exposures against OTC derivatives exposures at the central counterparty was viewed as desirable.
- ▶ Any options contracts developed would require delivery of a futures contract on expiry.

These findings were shared with exchanges ahead of the launch of SONIA futures described elsewhere in this report.

The **Sub-group for the Adoption of SONIA by Pension Funds and Insurance Companies** was convened to:

- ▶ Develop a strategy to promote the widespread adoption of SONIA as an interest rate hedging and trading instrument by pension fund managers and insurance companies;

- ▶ Identify any potential obstacles to the adoption of SONIA and propose corresponding solutions. The sub-group's initial investigations have found no material impediments to adoption of SONIA by the pension fund specifically. It found that insurance companies, on the other hand, were disincentivized from adopting SONIA because the discount curve mandated by EIPOA was constructed using LIBOR swap rates;
- ▶ Develop a strategy to encourage the conversion of existing portfolios, which currently reference LIBOR, to instead reference SONIA.

The **Sub-group for Transition issues in Bond Markets** was convened to:

- ▶ Facilitate and encourage benchmark transition in bond markets and mitigate the risks stemming from the potential discontinuation of LIBOR;
- ▶ Highlight challenges created by a switch to SONIA (or a term SONIA reference rate) and mitigate those problems;
- ▶ Propose amended documentation for GBP LIBOR referencing bond issuances in order to facilitate discretionary transition to SONIA (or a SONIA term reference rate where appropriate);
- ▶ Develop template documentation for new bond issuances referencing SONIA (or a SONIA term reference rate);
- ▶ Propose contingency plans for legacy bond issuances to mitigate the risk of LIBOR discontinuation;
- ▶ Undertake outreach and education to promote the adoption of SONIA in bond issuances;
- ▶ Consider the coordination of the transition from non-GBP LIBORs to other relevant alternative RFRs in order to support a coherent global approach.

The **Sub-group on Benchmark Transition Issues in Syndicated Loan Markets** was convened to:

- ▶ Facilitate and encourage benchmark transition in syndicated loan markets;
- ▶ Mitigate risks stemming from the potential discontinuation of LIBOR;

³⁵ Source: [Working Group on Sterling Risk-free Reference Rates Terms of Reference](#), December 2018

- ▶ Propose amended documentation for GBP LIBOR referencing loan facilities in order to facilitate discretionary transition to SONIA (or a term reference rate based on SONIA);
- ▶ Develop template documentation for new loan facilities referencing SONIA (or a term reference rate based on SONIA);
- ▶ Propose contingency plans for legacy GBP LIBOR loan facilities to mitigate the risk of LIBOR discontinuation;
- ▶ Undertake outreach and education to promote the adoption of SONIA in syndicated loan facilities;
- ▶ Consider the coordination of the transition from non-GBP LIBORs to other relevant alternative RFRs;
- ▶ Highlight challenges created by a switch to SONIA (or a term reference rate based on SONIA) and work with market practitioners, and those developing a term SONIA new benchmark, to mitigate those problems.

In March 2018, the Working Group on Sterling Risk-free Reference Rates agreed to further build out its current structure to include two additional sub-groups: one to consider communication, education and outreach issues, and another to design and produce metrics of success for SONIA adoption.

Furthermore, the Working Group on Sterling Risk-free Reference Rates is also contemplating creating new sub-groups focused on technology, accounting and infrastructure for legacy transition to SONIA.

On June 15, 2018, the Sterling RFR Working Group published a Timeline with Milestones setting out provisional series of milestones for RFR transition in sterling markets with dates.³⁶

Contact Information

For more information on the Working Group on Sterling Risk-free Reference Rates or to become more involved, market participants can email: RFR.Secretariat@bankofengland.co.uk.

³⁶ Source: Working Group on Sterling Risk Free Rates – [Timeline with Milestones](#), June 2018

Alternative Reference Rates Committee

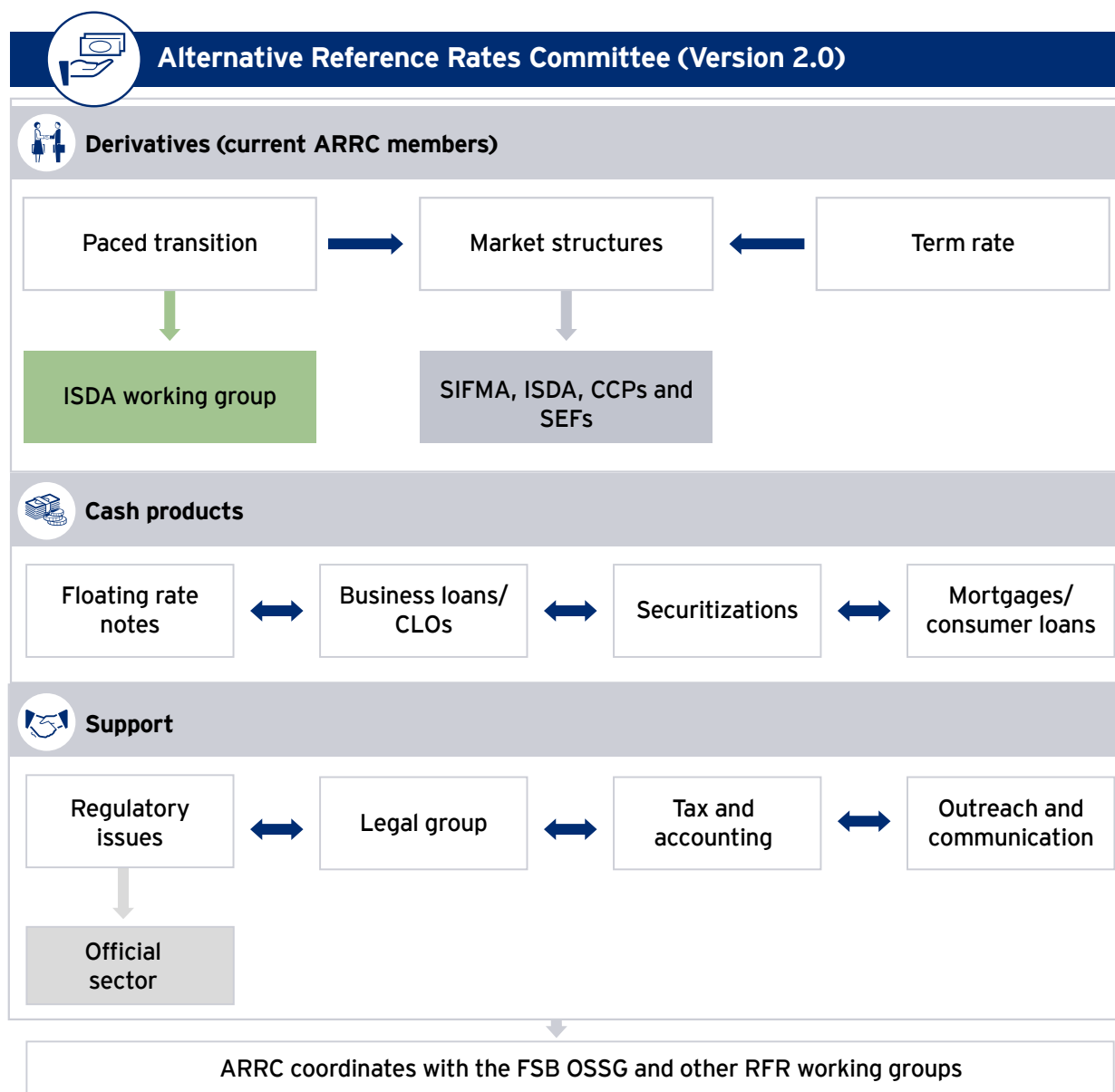
Having identified SOFR as the alternative RFR for USD LIBOR, the ARRC is now focusing on ensuring the successful implementation of its paced transition plan. In addition, the ARRC is serving as a forum to coordinate and track adoption of SOFR across a broad range of market participants and products. The ARRC will also seek to deliver recommendations for addressing risks in contract language.

Expanded Membership and Sub-working Groups

In March 2018, the ARRC was reconstituted to include a broader set of market participants. Membership includes US regulators and policymakers, member firms (including a broad range of market segments such as banks, buy-side institutions, corporations and CCPs) and key industry associations. The latest list of member institutions can be viewed on the ARRC's [website](#).

The recently reconstituted ARRC working group structure, referred to as ARRC (Version 2.0), is depicted in Exhibit 8.1.2 below.

Exhibit 8.1.2: ARRC Organizational Structure



The **Regulatory issues** sub-group has developed a regulatory issues list that contains considerations for the official sector in resolving regulatory challenges to adopting alternative RFRs, and recently wrote a letter to US regulators describing specific areas where clarity is needed.

The **Market structures** sub-group is examining key issues for a number of derivatives products that are expected to reference SOFR, including futures, forward rate agreements, overnight index swaps, basis swaps, cross-currency swaps and options. This group recently engaged in broad market outreach regarding preferred specifications for SOFR OIS and basis swaps.

The sub-groups covering the issues related to cash products (**Business loans/CLOs, FRNs, Securitizations, Mortgages and other Consumer loans**) have already conducted initial research into USD LIBOR exposures and the common forms of contract language for each of their relevant products. The chairs of the four cash product sub-groups presented preliminary work plans and timelines for the development of recommendations on more robust language for newly written contracts referencing USD LIBOR. They also agreed to continue developing their work plans and suggested they would aim to finalize potential new contract language that the ARRC could consider before the end of 2018.

The **Outreach and communication** sub-group was established to:

- ▶ Have a line of sight into the work of the other sub-groups in order to inform and leverage their work;
- ▶ Formalize a process to communicate actively through the sub-groups;
- ▶ Identify and develop strategies to reach a broad set of external stakeholders;
- ▶ Apply unique strategic and technical skill sets to stakeholder education and outreach;
- ▶ Create a narrower and executable scope of stakeholder outreach.

The **Paced transition** sub-group will address issues related to implementation of the ARRC's paced transition plan.

The **Term rate** sub-group is investigating the feasibility of creating a forward-looking term reference rate for cash products as a last step in the ARRC's paced transition plan. The sub-group has discussed several different potential methods, including methods based on futures, OIS and actionable market quotes.

The **Legal** and **Tax and accounting** sub-groups serve as resources to the ARRC and the other sub-groups.

Contact Information

For more information on ARRC or to become more involved, market participants can email: arrc@ny.frb.org.

The Working Group on Euro Risk-free Rates

In September 2017, the ECB, FSMA, ESMA and the European Commission announced the launch of the Working Group on Euro Risk-Free Rates (the EU Working Group). The EU Working Group met for the first time on 26 February 2018.

Current Membership and Sub-working Groups

The latest composition of the EU Working Group can be viewed on the Group's official website.³⁷

The EU Working Group has established three dedicated work streams. The structure of the Working Group on Euro Risk-free Rates as it is currently established is depicted in Exhibit 8.1.3 below.

Sub-group Workstream No. 1 has been established to identify and recommend alternative RFRs by:

- Mapping current usage of EONIA and EURIBOR;
- Defining the criteria against which all candidate alternative RFRs will be assessed;
- Selecting and recommending alternative RFR candidates;

- Determining whether recommended alternative RFR candidates are suitable for all products.

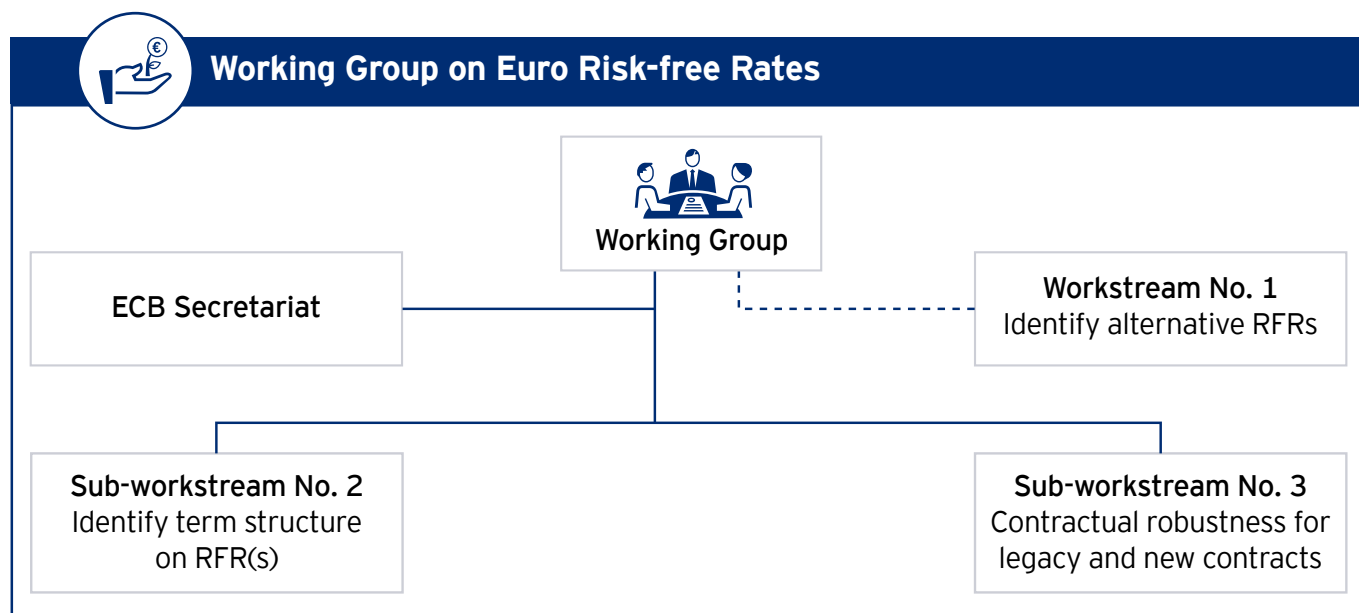
Sub-group Workstream No. 1 has produced a preliminary mapping of the quantitative usage of EONIA and EURIBOR³⁸ and of the various legal frameworks within the EU in which EONIA and EURIBOR-linked products are sold or traded.³⁹

The EU Working Group is currently assessing a number of potential alternative RFRs against the agreed criteria.⁴⁰

Following EMMI's announcement in February 2018 that it would no longer pursue its thorough review of EONIA (see [breakout box 5.4.2](#) on page 29), it is clear that EONIA cannot be considered as a candidate in its current form.

The EU Working Group launched a public consultation on three candidate rates that had been assessed against a list of agreed criteria. They are the ECB's unsecured rate (ESTER – Euro Short Term Rate), as well as two secured rates (the RepoFundsRate produced by Nex and the GC Pooling Deferred index produced by STOXX).⁴¹

Exhibit 8.1.3: Working Group on Euro Risk-free Rates Organizational Structure



38 Source: Working Group on Euro Risk-Free Rates - [Update on Quantitative Mapping Exercise](#), April 2018

39 Source: Working Group on Euro Risk-Free Rates - Workstream #1A - [Insight in Legal Framework for Embedding Fallbacks in Contracts within Eurozone](#)

40 Source: Working Group on Euro Risk-Free Rates - [EUR RFR - List of Criteria for the Selection](#)

41 Source: [Working Group on Euro Risk-Free Rates](#), June 2018

37 Source: [Composition of the Working Group on Euro Risk-Free Rates](#)

The EU Working Group will launch a public consultation on a shortlist of potential alternative RFR candidates by the end of Q2 2018. It is expected that the EU Working Group will make their recommendation of the alternative RFR in Q3 2018.

Sub-group Workstream No. 2 has been established to identify and recommend term structures on the alternative RFR(s) recommended by the EU Working Group. The sub-group workstream is tasked with:

- ▶ Exploring possible fallback arrangements for EURIBOR;
- ▶ Determining and recommending term structure methodology on alternative RFR(s) as a fallback for EURIBOR-linked contracts.

As part of its mandate, Sub-group Workstream No. 2 will ensure that any recommended term structure methodology:

- ▶ Is compliant with the EU Benchmark Regulation;
- ▶ Is applicable to the alternative RFR recommended by the EU Working Group in the event that EURIBOR does become Benchmark Regulation compliant (see [breakout box 5.4.2](#) on page 29);
- ▶ Can be used in all financial products referencing existing interest rate benchmarks.

In organizing its work, Sub-group Workstream No. 2 has established three sub-structures:

- ▶ Sub-group 2A is tasked with assessing available methodological approaches to constructing term rates for selected alternative RFR(s);
- ▶ Sub-group 2B is tasked with evaluating the legal and compliance implications of assessed methodologies, including their compliance with IOSCO principles and the provisions of the EU Benchmark Regulation;
- ▶ Sub-group 2C is tasked with identifying requirements that enable a broad-based adoption of a new term structure and working out framework proposals ensuring their implementation. The group will also look at issues related to the potential spread adjustment.

Further sub-structures may be established (or existing sub-structures decommissioned) as required to deliver the work of Sub-group Workstream No. 2.

Sub-group Workstream No. 2 intends to identify and produce an assessment of potential term structure methodologies by the end of 2018.

Sub-group Workstream No. 3 has been established to assess contractual robustness for legacy and new contracts, which might be impacted as a result of the transition to the alternative RFR. The sub-group workstream is tasked with:

- ▶ Analyzing the legal risks and impact of embedding fallback provisions referencing newly defined alternative RFRs, or, where appropriate, a replacement of references to EONIA and EURIBOR with references to newly defined alternative RFRs (and term/credit spreads where appropriate) in legacy contracts;
- ▶ Defining solutions to embed fallbacks, and replacements where appropriate, for EONIA and EURIBOR. The proposed solutions might include advice to amend bilateral documentation, multilateral protocols as well as national or European legislation to safeguard consumer protection and support contract continuity balancing interests of contract parties when replacement rates are introduced;
- ▶ Suggesting measures to enhance the legal soundness of references to newly defined alternative RFRs (and term/credit spreads where appropriate) in new contracts, taking into account consumer protection interests.

By end of Q3 2018, the sub-group workstream intends to:

- ▶ Provide a report based on a deep-dive analysis on the preliminary legal mapping performed as part of Sub-group Workstream No. 1;
- ▶ Identify possible options and submit an action proposal to the EU Working Group on the best options to (i) embed the alternative RFR in legacy EONIA-linked contracts and (ii) embed the alternative RFR as a fallback in legacy EURIBOR-linked contracts.

The composition of Sub-group Workstreams No. 2 and No. 3 and their respective terms of reference can be found on the EU Working Groups' website.⁴²

Contact Information

For more information on the Working Group on Euro Risk-free Rates or to become more involved, market participants can email: EuroRFR@ecb.europa.eu.

⁴² Source: Working Group on Euro Risk-Free Rates - [Working Group on Euro Risk-Free Rates](#)

The National Working Group on Swiss Franc Reference Rates

Having recommended SARON as the alternative RFR for CHF LIBOR in October 2017, the National Working Group on Swiss Franc Reference Rates established the loan and deposit market and derivatives and capital market sub-groups in 2018, which are focusing on identifying the products and stakeholders affected by CHF LIBOR, evaluating the appropriateness of SARON as an alternative benchmark and developing transition plans and metrics for the specified markets.

Dewet Moser, Alternate Member of the Governing Board of the Swiss National Bank, gave a speech on September 22, 2017 on the international reform initiative.⁴³

Current Membership and Sub-working Groups

The National Working Group on Swiss Franc Reference Rates is composed of member firms, including banks, buy-side institutions, corporations, infrastructure providers, key industry associations and Swiss regulators.

The structure of the National Working Group on Swiss Franc Reference Rates as it is currently established is shown in Exhibit 8.1.4 below.

Exhibit 8.1.4: National Working Group on Swiss Franc Reference Rates Organizational Structure



Contact Information

For more information on the National Working Group on Swiss Franc Reference Rates, market participants can email: nwq@snb.cn.

⁴³ Source: Swiss National Bank – [Dewet Moser Speech](#), September 2017

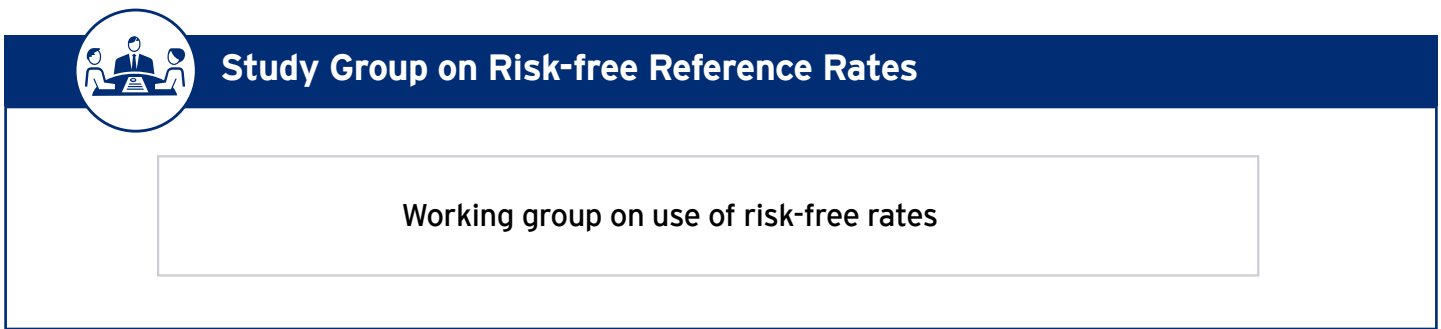
The Study Group on Risk-free Reference Rates

In March 2018, the Study Group on Risk-free Reference Rates announced that it had achieved its primary objective of recommending TONA as the alternative RFR for Japanese yen. The group will continue to support financial benchmark reform by identifying market practices and contract design to help with the successful adoption of the rate.

Current Membership and Sub-working Groups

The Study Group on Risk-free Reference Rates is composed of financial institutions, infrastructure providers, key industry associations and Japanese regulators. The latest list of member institutions can be viewed on the Study Group on Risk-free Reference Rates [website](#).
The structure of the Study Group on Risk-free Reference Rates as it is currently established is depicted in Exhibit 8.1.5 below.

Exhibit 8.1.5: Study Group on Risk-free Reference Rates Organizational Structure



The Study Group on Risk-free Reference Rates agreed that it will need to establish a new body consisting of a broad range of market participants that are users of financial benchmarks to promote transition in line with the multiple rate approach. However, prior to the establishment of such a group, it will conduct outreach, including to buy-side institutions and non-financial corporates.

Contact Information

For more information on the Study Group on Risk-free Reference Rates or to become more involved, please refer to the [website](#).

9. Appendix 2

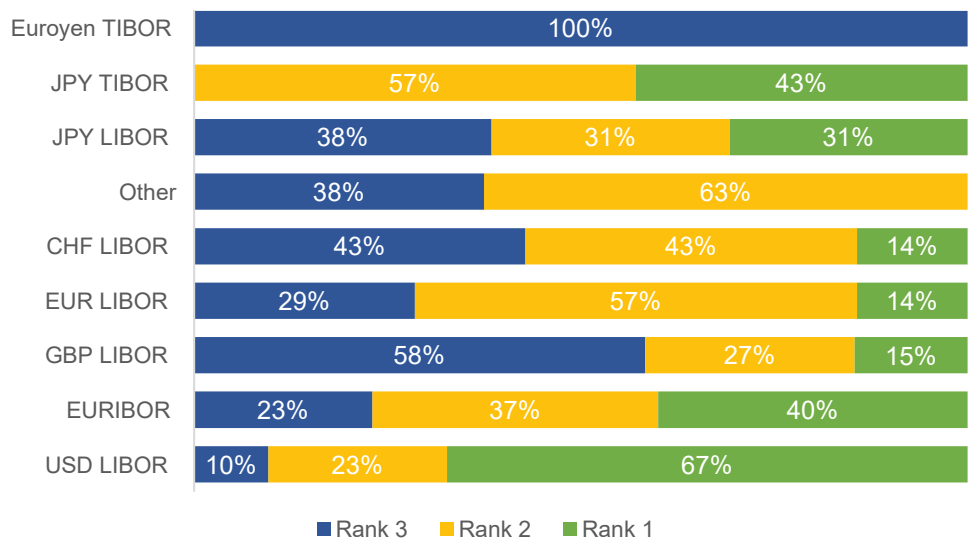
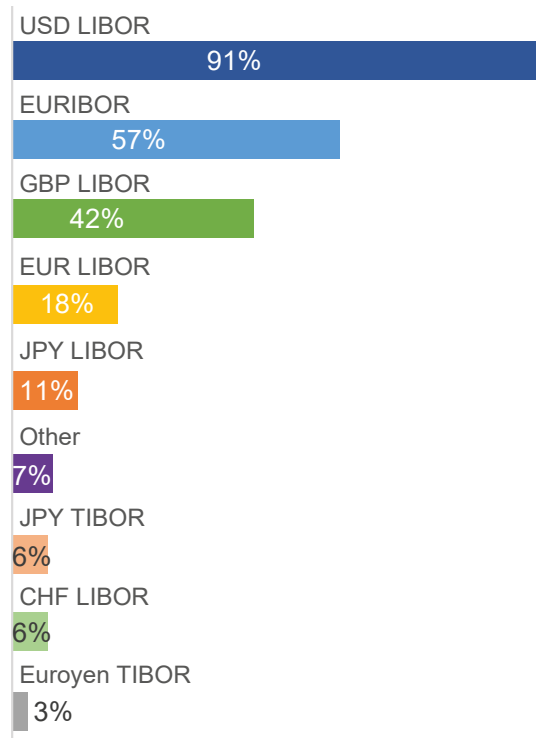
9.1 Survey Participants' IBOR Profiles

The Most Important IBORs to Survey Participants' Business Interests

As part of the survey, we asked participants to select the top three IBORs that are most pertinent to their organizations. Among survey participants, USD LIBOR was viewed as the most important, with 91% of survey participants including it in their top three. Of the survey participants with exposure to USD LIBOR, 67% indicated that it was the most relevant IBOR to their organizations. EURIBOR was regarded as the second most important benchmark, with 57% of institutions including it in their top three. GBP LIBOR was noted as the third most pertinent benchmark, with 42% of survey participants including it in their top three. Of those with JPY TIBOR exposure, 43% indicated that it was the most relevant to their organizations, and 57% indicated that it was the second most pertinent. Exhibit 9.1.1 presents an overview of the most relevant IBORs to survey participants.

Exhibit 9.1.1: Most Commonly Referenced IBORs by Currency

Q: Indicate which IBORs are the three most pertinent to your organization's business.

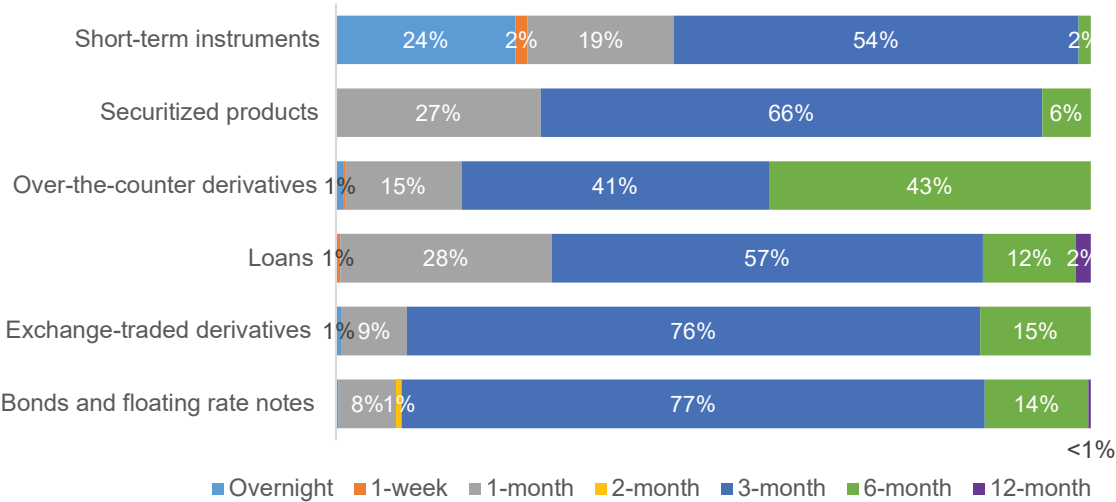
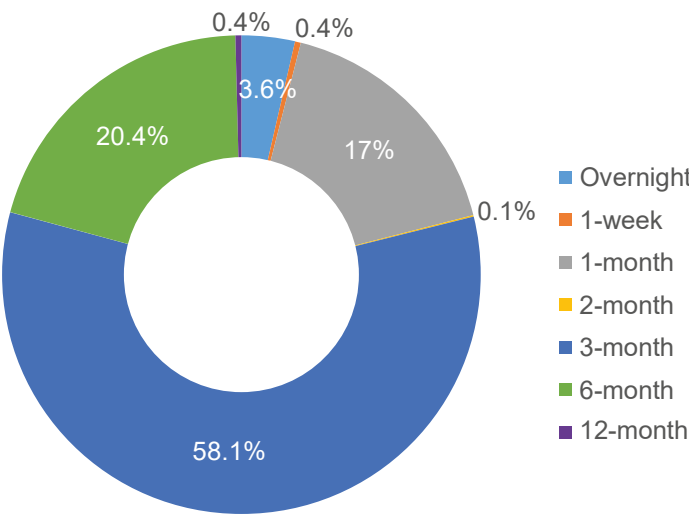


Survey Participants' Most Commonly Referenced Tenors

Survey participants were asked to select their most commonly referenced IBOR tenor across the key currency markets. Survey participants noted 1-month, 3-month and 6-month tenors to be the most commonly referenced, with the 3-month tenor being the most commonly referenced in aggregate. Although the 3-month tenor was the most common in aggregate, survey participants noted that the 6-month tenor was more commonly referenced in the euro market. Exhibit 9.1.2 presents a breakdown of the most commonly referenced tenors by product.

Exhibit 9.1.2: Most Commonly Referenced Tenors by Product

Q: Select your organization's most commonly referenced IBOR tenor for each of the products listed below.



Survey Participants' Exposure Profile

When asked to indicate aggregate market value exposure to IBORs, 30% of survey participants noted that they have exposure between \$1 billion and \$100 billion for at least one product.

9.2 Survey Demographics

The survey was designed to engage a broad spectrum of market participants, with coverage across currencies (GBP, USD, EUR, CHF and JPY), market segments and products. Survey participants represent 153 institutions worldwide across six market segments and five key jurisdictions. These participants also represent organizations operating both regionally and globally, with varying sizes and scales. Refer to Exhibits 9.2.1, 9.2.2, 9.2.3 and 9.2.4 for an overview of survey participants' demographics.

Exhibit 9.2.1: Market Segment Overview

Q: Provide the market segment your organization represents.

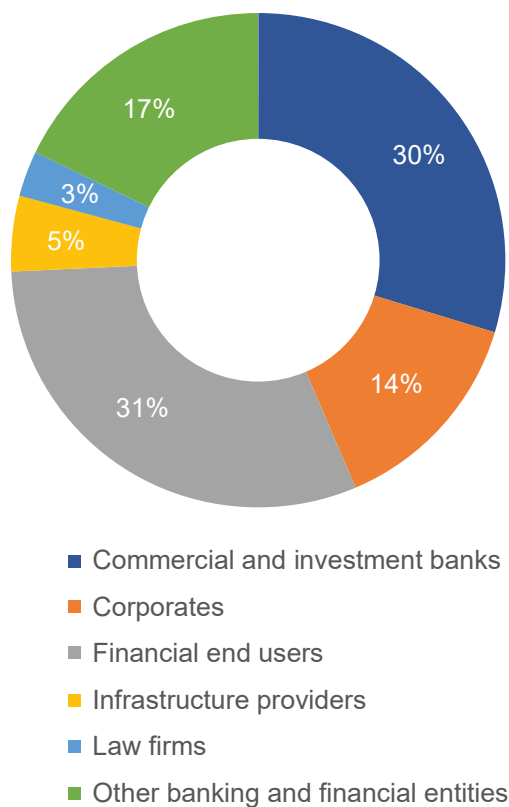


Exhibit 9.2.2: Geographic Location Based on Headquarters

Q: Select the geographical location in which your organization is headquartered.

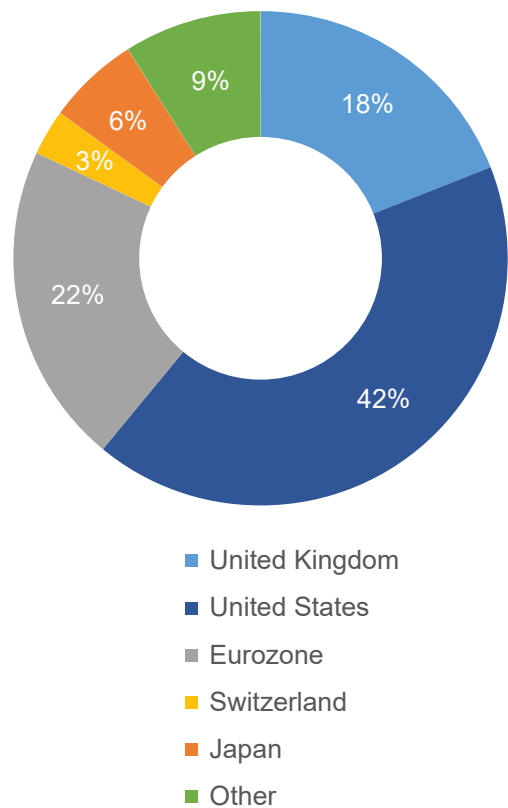
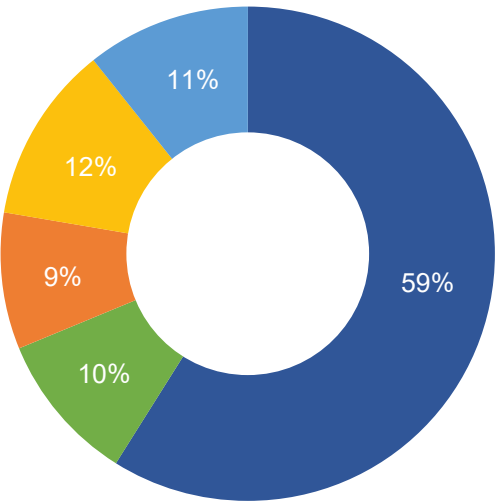


Exhibit 9.2.3: Organizational Size Based on Full-time Employees

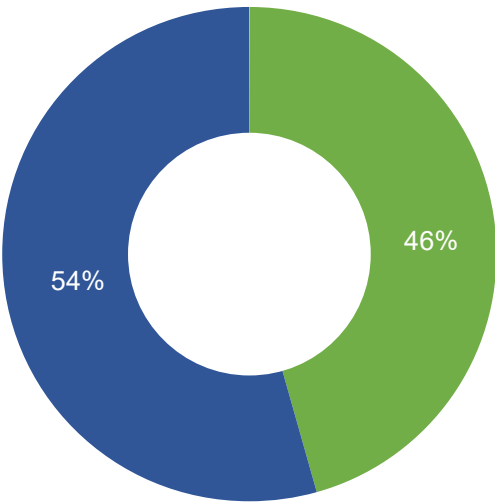
Q: Approximately how many full-time equivalent resources are employed by your organization?



- <10,000
- 10,000-25,000
- 25,001-50,000
- 50,001-100,000
- >100,000

Exhibit 9.2.4: Regional vs. Global Operating Model

Q: Does your organization operate regionally or globally?



- Regionally
- Globally

Important Note and Disclaimer

This document aggregates the views of a broad set of survey participants, including commercial and investment banks, other banking and financial entities, financial end users, corporates, infrastructure providers and law firms, that participated in the Global IBOR Transition Survey and does not constitute legal, accounting or financial advice. These views may not reflect the views of ISDA, AFME, ICMA, SIFMA, SIFMA AMG and/or EY. Any observations, interpretations or

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