FINANCIAL STABILITY BOARD

Reforming major interest rate benchmarks

Progress report on implementation of July 2014 FSB recommendations

10 October 2017

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Executive Summary

This document reports on progress made in implementing the recommendations of the 2014 FSB report *Reforming Major Interest Rate Benchmarks* (the 2014 Report).[1] In the 2014 Report, the FSB set out a series of recommendations for strengthening existing benchmarks for key interbank offered rates (IBORs) in the unsecured lending markets, and for promoting the development and adoption of alternative nearly risk-free reference rates (RFRs) where appropriate. The FSB and member authorities through the FSB Official Sector Steering Group (OSSG) are working to implement and monitor these recommendations together with benchmark administrators. Progress is reported since the last progress report in July 2016 (the 2016 Progress Report),[2] with relevant additional background.

Strengthening of IBORs

Since the 2016 Progress Report, the IBOR administrators have continued to take important steps towards implementing the recommendations of the FSB. The administrators for the three major interest reference rates – Euro Interbank Offered Rate (EURIBOR), London Interbank Offered Rate (LIBOR) and Tokyo Interbank Offered Rate (TIBOR) – have commenced a variety of measures to test and improve the robustness of their respective IBOR methodologies. Administrators, in consultation with their stakeholders, have taken steps to adjust the methodologies employed to calculate the benchmark rate.

- The European Money Markets Institute (EMMI) began developing a hybrid model for the EURIBOR that will combine transactions, related market data and expert judgement.
- The ICE Benchmarks Administration Ltd (IBA) administrator of LIBOR, and Japanese Bankers Association (JBA) TIBOR Administration (JBATA), administrator of TIBOR, have also made adjustments to their methodologies to account for a lack of substantial transaction data.

OSSG member authorities, benchmark administrators and market participants from other jurisdictions, including Australia, Hong Kong, Mexico, Singapore and South Africa, have continued to take steps to strengthen the existing interbank rates in their jurisdictions as well.

However, in the case of some IBORs such as LIBOR and EURIBOR, underlying reference transactions in some currency–tenor combinations are scarce, and submissions therefore necessarily remain based on a confluence of factors including transactions, and expert judgement.

Regulators have also taken various steps to develop new or amend current regulatory and supervisory standards governing benchmarks. For example, the UK Financial Conduct Authority (FCA) launched a consultation in June 2017 regarding their compulsion powers for mandatory contributions to benchmarks, and the European Securities and Markets Authority (ESMA) published a convergence document on this topic in June 2017.

Notwithstanding these steps, it remains challenging to ensure the integrity and robustness of benchmarks based on expert judgement submissions, and it is uncertain whether the banks

[1] Available at www.fsb.org/wp-content/uploads/r_140722.pdf.

[2] FSB (2016), *Reforming Major Interest Rate Benchmarks: Progress report on implementation of July 2014 FSB recommendations*, available at www.fsb.org/wp-content/uploads/Progress-in-Reforming-Major-Interest-Rate-Benchmarks.pdf.

asked to submit such judgements can be relied upon to continue to do so over the medium or longer term. Those concepts were the basis of the speech on the future of LIBOR[3] made by Andrew Bailey, FCA CEO, in July where he said that after 2021 the benchmark would no longer be sustained through the mechanism of the FCA persuading or obliging panel banks to stay. In other words the survival of LIBOR could not and would not be guaranteed.

Alternative nearly risk-free benchmark rates

OSSG members have made good progress in supporting the work streams focused on identifying new or existing RFRs that could be used in place of IBORs in a range of contracts, particularly derivatives, with productive engagement between authorities and relevant private sector stakeholder groups recommending RFRs, and in some cases identifying strategies to create liquidity in these newly introduced RFRs.

- In Australia, Brazil, Canada, Hong Kong, Japan, Switzerland, UK, and US, an identification or selection of an RFR has taken place.
- In the euro area, although no formal designation by a private sector working group has taken place, the Euro Overnight Index Average (EONIA) is an actively used overnight rate anchored in real transactions, which has existed since 1999. Its administrator, EMMI, is currently carrying out reforms to strengthen both the governance and the methodology of the benchmark. In addition, EMMI and market participants are exploring the feasibility of a transactions-based repo benchmark. Finally, the Belgium Financial Services and Markets Authority (FSMA), ESMA, the European Central Bank and the European Commission have announced the launch of a new working group tasked with the identification and adoption of an RFR which can serve as an alternative to current benchmarks.
- As for other jurisdictions, in Mexico[4] the official sector continues to consider data preliminary to the selection of an RFR, while the South African authorities are also working on proposals to develop a RFR. These jurisdictions, as well as other FSB jurisdictions that are not members of the OSSG, are encouraged to accelerate consideration of options and move forward towards identification of RFRs.

As for promoting transition to RFRs where appropriate, the 2014 FSB report did not set a deadline; however, questions surrounding the long-run viability of some IBORs such as LIBOR underline the importance of those transitions.

Limited progress has been made to date on migration from the major IBORs to these RFRs, even where they are available. In some currency areas, there are no plans to promote a transition to RFRs at this stage.[5] For those currencies that intend to more actively promote the use of RFRs as an alternative to IBORs for some products, it is important that momentum is maintained to fulfil the FSB's recommendations regarding RFRs.

[3] www.fca.org.uk/news/speeches/the-future-of-libor

[4] The existing regulations specify several rates that can be used by banks as benchmark rates for transactions. Some of these are based on government instrument interest rates whereas others are computed by the Central Bank based on the weighted average of actual transactions (mainly repo operations). However, there is still no official free risk interest rate, as the matter requires further analysis.

[5] As noted in the FSB's 2014 report, while there was widespread support for an approach that promoted reform of the IBORs and the availability of robust RFRs, there will necessarily be heterogeneity across currencies in terms of how and when this approach is implemented. The report noted that there were several reasons for this heterogeneity including differing availabilities of underlying transactions data necessary to produce a credible IBOR+ rate, different available risk-free rates, and different levels of willingness and authority to use supervisory or other means to encourage market participants to shift to the multiple-rate approach.

Contractual robustness

The official sector has engaged actively with the International Swaps and Derivatives Association (ISDA), which has established a series of working groups to tackle the topic of contractual robustness to the risk of permanent discontinuance of widely-used interest rate benchmarks. Progress is being made, with the objective of drafting robust fall back arrangements for new contracts referencing IBORs and a future protocol to amend existing contracts referencing IBORs to include those fall back arrangements. It is expected that this effort will bear fruit in the coming year, when counterparties will be expected to enter protocols to amend existing master agreement definitions.

The official sector places great importance on all industry stakeholders entering such protocols, wherever feasible. Selective entry of protocols could increase basis risk in the system and may leave a considerable stock of derivatives not adequately robust to the risk of permanent discontinuance of widely-used interest rate benchmarks. Where those derivatives are held by buy-side institutions a failure to make them robust to that risk may have consequences, e.g., potentially breach those institutions' own fiduciary responsibilities to their clients.

The official sector will also work with non-derivatives market participants, including infrastructures such as clearing houses and exchanges, and other industry associations, to ensure that lessons learned from the ISDA exercise are made available in relation to other products, such as mortgages, loans (including syndicated loans), floating rate notes and futures contracts, whose documentation references these IBORs.

Conclusions and next steps

While good progress has been made in strengthening some IBORs, member authorities have noted that changes in the structure of funding markets may affect the long-term sustainability of benchmarks such as LIBOR and thus need to be carefully monitored. This makes the identification of and transition planning to RFRs and the work on contract robustness more important.

RFRs have been identified in major markets, but work remains to be done on an effective transition from major IBORs to RFRs, where appropriate, both for derivatives and other products referencing IBORs more broadly.

In parallel, the private sector effort led by ISDA, at the request of and in liaison with the OSSG, is examining the issue of the robustness of ISDA contracts to risks of interest rate benchmark discontinuation. Work on contract robustness needs to be extended to other markets where contracts reference IBORs.

These various streams of work are at crucial stages in their progress, and further work is warranted, both by the public and private sectors. The OSSG will continue to monitor progress in reforms to interest rate benchmarks, and will prepare a progress report for publication in 2018.

1. Introduction

In the 2014 Report, the FSB made recommendations for enhancing existing benchmarks for key IBORs in the unsecured lending markets, and for promoting the development and adoption of nearly RFRs where appropriate. The recommendations in the 2014 Report were made in response both to cases of attempted manipulation in relation to key IBORs, and to the decline in liquidity in key interbank unsecured funding markets.

Informing the FSB's work has been the set of principles published by the International Organization of Securities Commissions (IOSCO) in July 2013 to be adopted by benchmark administrators to improve the robustness and integrity of financial market benchmarks in general, and which were endorsed by the FSB as the global standard for financial market benchmarks (IOSCO Principles).[6]

1.1 The 2014 recommendations

The 2014 Report included several recommendations to enhance major interbank interest rate benchmarks and for the development of RFRs, as follows:

- The first set of recommendations related to strengthening the IBORs, in particular by anchoring them to a greater number of transactions, where possible, and improving the processes and controls around submissions. These enhanced rates are termed "IBOR+". See chapter 2.

- The second set of recommendations related to identifying alternative near-risk free rates (RFRs), with a goal of encouraging the implementation of at least one IOSCO-compliant RFR by Q2 2016. Where suitable, it was recommended that authorities should encourage derivative market participants to transition new contracts to an appropriate RFR. See chapter 3.

1.2 Contractual robustness

The OSSG also agreed on the importance of a third workstream to reduce the risks to financial stability of reliance on the IBORs by ensuring that financial contracts referencing them include fall back provisions in case these IBORs are no longer available. The OSSG has encouraged work by market participants to increase derivative contract robustness against the risk that a widely-used interest rate benchmark could be discontinued permanently. From a public policy perspective, the FSB believes that market participants should understand the fall back 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.[7] See chapter 4.

[6] See IOSCO, *Principles for Financial Benchmarks*, 2013, available at: www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf.

[7] The Market Participants Group established by the OSSG stated in its final report, published in July 2014, "in most cases, fall back provisions are not sufficiently robust for a permanent discontinuation of a key IBOR." The MPG noted that in the case of such an event, "Without carefully considered alternatives and mitigants, claims of contract frustration could arise. In the worst case, there could be widespread valuation and accounting problems, and workout costs could be severe." FSB (2014), Final Report of the Market Participants Group on Reforming Interest Rate Benchmarks*: Final Report*, July; available at: www.fsb.org/wp-content/uploads/r_140722b.pdf.

A subgroup of the OSSG has been established to liaise on behalf of OSSG with the ISDA in relation to its work with regards to the contractual robustness issue.[8] The subgroup continues to engage with ISDA and other industry stakeholder representatives (including buy-side representatives) to discuss these issues and provide official sector guidance where appropriate.

1.3 Next steps

At the time of the FSB's July 2016 progress report, it was envisaged that a final report would be published in 2017. However, the reform process is at a crucial stage in several of the currencies and it is evident that it will not be completed this year.

Although the reform of the IBORs is well on its way in some jurisdictions, there are still several outstanding issues that will not be decided until next year.

At the same time, the work on identification of and (where appropriate) transition to RFRs has not been completed and the work is expected to make significant progress over the next year.

With regard to contract robustness, as well as continuing its engagement with ISDA, the OSSG will seek to coordinate jurisdictions' efforts with regard to non-derivative instruments such as loans or bonds that reference widely-used interest rate benchmarks.

Given that some important implementation steps are expected to be seen in the largest markets beyond 2017, and, given ongoing reforms in other markets, a further progress report will be published in 2018.

[8] This is work that ISDA is undertaking pursuant to a letter from the OSSG co-chairs to ISDA dated 7 July 2016. See Appendix C.

2. Developments in IBOR+ Benchmarks

2.1 Overview

Following on from the previous interim report published in July 2016, the IBOR administrators have been making progress towards implementing the recommendations which were proposed by the FSB in 2014 to strengthen the existing benchmarks through adapting their methodologies to underpin each rate with transaction data to the extent possible.

All three major interest rate benchmarks administrators for EURIBOR, LIBOR and TIBOR progressed with their plans to anchor the rates to transactions.

2.2 Developments at international level

IOSCO issued in December 2016 *Guidance on Statements of Compliance with the IOSCO Principles for Financial Benchmarks*[9] that seeks to increase the consistency and quality of reporting by benchmark administrators on their compliance with the IOSCO Principles, including reasonable expectations about the level of detail that should be included in these statements. The application and implementation of the Principles should be proportional to the size and risks posed by each benchmark and/or administrator and the benchmark-setting process. Based on feedback from a survey conducted in 2016, IOSCO developed guidance for administrators on statements of compliance, while seeking greater disclosure from administrators on where and how they had applied a proportional approach.

Additionally, IOSCO is working on a public statement putting forward matters for users of financial benchmarks to consider when selecting benchmarks and for contingency planning. The document will aim to increase awareness of the risks that stem from reliance on a benchmark as markets evolve and encourage active management of those risks. The publication of the statement, which will be coordinated with the FSB OSSG timetable, is expected to follow the publication of this report.

There is progress at the international level with regards to other types of benchmarks widely used by the financial community.[10]

2.3 Developments in major IBORs

2.3.1 EURIBOR

EMMI, since the 2016 Progress Report, has continued to develop a plan to gradually reform the existing EURIBOR benchmark in order to anchor it to transactions instead of quotes. The feasibility of this new transaction-based methodology was tested by EMMI in a pre-live verification exercise (PLV Programme), covering a six months period between the end of 2016 and the beginning of 2017. The conclusion of the exercise, published in May 2017 by EMMI,[11]

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[9] See IOSCO (2016), *Report on Guidance on the IOSCO Principles for Financial Benchmarks,* available at: http://www.iosco.org/library/pubdocs/pdf/IOSCOPD549.pdf

[10] For example, IOSCO published in February 2017 the *Second Review of the Implementation of IOSCO's Principles for Financial Benchmarks in respect of the WM/Reuters 4 p.m. Closing Spot Rate*.[10] The report found that administrators had made significant progress, with most of the recommendations from an earlier review having been implemented. However, some room exists to improve and refine recently implemented policies and practices. The review identifies where additional actions would help maintain or improve the effectiveness of the frameworks put in place to address the recommendations.

[11] See EURIBOR pre-live verification programme outcome notification, 2017 May, available at:

was that unsecured borrowing money market transactions were insufficient to build a robust benchmark relying on a methodology fully based on market transactions. Subsequently, EMMI has convened a Task Force with market participants in order to identify a possible hybrid methodology for EURIBOR, which would combine transactions, market data and expert judgement. In the meantime, the current quote-based methodology will continue to be used to calculate the benchmark.

Data

The PLV Programme, which ran between September 2016 and February 2017, to test the feasibility of a fully transaction-based methodology for EURIBOR assessed (i) the feasibility of a seamless transition to a fully transaction-based methodology; (ii) the methodological parameters to ensure the soundness and representativeness of the benchmark. The exercise also tested the necessary infrastructure for data submission in an accurate and timely manner, in view of a possible forthcoming daily reporting.

Overall, 31 banks representing 12 European countries voluntarily reported their individual unsecured money market transactions to EMMI. In order to benefit from the synergies in the reporting and encourage the participation in the exercise, EMMI used, to the extent possible, a reporting format close to the one used by the European Central Bank (ECB) for the Money Market Statistical Reporting. The data was to be submitted to EMMI in several bulks, before a daily submission could be envisaged at the end of the PLV Programme.

The data collection was followed by an exhaustive data analysis exercise conducted by EMMI in consultation with their competent authority the FSMA. This exercise gave EMMI an in-depth view of the market underpinning EURIBOR and in particular, it showed that unsecured transactions were concentrated in the very short-term maturities, and that funding patterns had shifted from interbank to wholesale activity, mainly as a result of the excess liquidity available to market participants and regulatory requirements. Even taking non-interbank transactions into account, the volatility of a fully transaction-based benchmark appeared to be very high in these tenors.

Changes to methodology and transition to IBOR+

EMMI published the outcome of the PLV Programme on 4 May 2017 concluding that "under the current market conditions it would not be feasible to evolve the current EURIBOR methodology to a fully transaction-based methodology following a seamless transition path."

Consequently, EMMI decided not to pursue a transition to the fully transaction-based methodology and decided to explore the feasibility of a hybrid model where the methodology is supported by transactions whenever available, and relies on other related market pricing sources when necessary. Where the aforementioned data is absent, the hybrid methodology would rely on expert judgement. A new Task Force, in which the FSMA participates as an observer, has been created to gather market participants' feedback and guidance on the new methodology. EMMI indicated the following tentative timeline[12] in relation to this task: the

https://www.emmi-benchmarks.eu/assets/files/D0247F-2017-euribor%20PLVP%20outcome-statement_final.pdf
https://www.emmi-benchmarks.eu/assets/files/D0247F-2017-euribor%20PLVP%20outcome-statement_final.pdf.

12 See EMMI report on the pre-live verification programme, available at https://www.emmi-benchmarks.eu/assets/files/D0246B-2017_PLVP%20public%20report%20and%20way%20forward_FINAL.pdf.

development of hybrid methodology for EURIBOR in the second half of 2017, an impact assessment of such methodology in the first half of 2018, and a stakeholder consultation on the hybrid methodology prior to its implementation in the second half of 2018. EMMI needs to apply for authorisation under the newly adopted EU Benchmarks Regulation (BMR) by 31 December 2019.[13]

Meanwhile, in August 2016 EURIBOR was designated as a critical benchmark by the EU Commission under the newly adopted BMR. This allowed for specific provisions to come into force, notably as regards the supervisory arrangements for EURIBOR. In September 2016, the FSMA established the EURIBOR college of supervisors in accordance with the BMR.

The EURIBOR college of supervisors contributes to: (i) the exchange in information among the competent authorities; (ii) the coordination of their activities and supervisory measures; (iii) a harmonised application of rules under the BMR, as well as the convergence of supervisory practices. The college of supervisors is also in charge of consultations about various aspects of the EURIBOR supervision. In particular, a vote from the college is required in case the FSMA were to decide the implementation of mandatory contributions to the EURIBOR under the Article 23 of the BMR.

2.3.2 LIBOR

Since the FSB Progress Report of 19 July 2016, IBA has concluded two consultations. The first launched on 29 June 2016 was on the further development of the code of conduct for contributors.[14] Subsequently the code of conduct was also approved by the FCA as industry guidance. The other was an additional ICE LIBOR Evolution consultation[15] published on 24 January 2017. The outcome of this consultation was to amend the methodology and also to modify the publication time of the benchmark. IBA published a feedback statement on both consultations on 3 March 2017.

Data

While IBA is making progress in improving the governance and the robustness of LIBOR, concerns remain about the ability for the benchmark to be based more solidly on transactions and its long term sustainability, given the lack of activity in the money market. Quarterly volumes published by IBA[16] show that submissions are heavily based on expert judgement, especially in certain currencies and tenors. However, continuing to use expert judgement is not desirable in the long term for either users or submitter banks and it is particularly challenging in a situation of financial stress. Overall the LIBOR panels remain unchanged with the exception of one bank that left the US dollar panel in summer 2016.

Change to methodologies

Following the responses to IBA's additional consultation a feedback statement[17] was published on 3 March 2017 which highlighted two main changes to the methodology for Phase 1. Firstly

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[13] The EU Benchmarks Regulation was published on 30 June 2016, and will be fully applicable in January 2018. ESMA published and submitted their draft Regulatory Technical Standards to the EU Commission on 30 March 2017.

[14] https://www.theice.com/publicdocs/ICE_LIBOR_CODE_OF_CONDUCT_CONSULTATION_NOTICE_20160629.pdf

[15] https://www.theice.com/publicdocs/LIBOR_additional_consultation.pdf

[16] https://www.theice.com/iba/historical-data

[17] https://www.theice.com/publicdocs/IBA_Additonal_Consultation_Feedback_Statement.pdf

the methodology was amended to remove the use of parallel shift[18] in "level 2" of the waterfall. This was to address the concerns raised by submitter banks that, in the current interest rate environment, the use of parallel shift could, in certain circumstances, produce results that were not seen as representative of the submitting banks. Secondly, as of 27 March 2017, the publication time has been moved from 11:45 AM to 11:55 AM to provide the banks with time to perform checks and include transactions as close as possible to 11:00 AM.

Market transition to IBOR+

Since July 2015, IBA has continued working on the transition of the submitter banks to "Phase 1". IBA's feedback statement to their additional consultation paper highlighted to users the changes which were due to be undertaken by mid-2017 in line with IBA's "roadmap",[19] however the implementation is taking longer than initially expected.

The Phase 1 changes are:

- Banks will follow the submission methodology prescribed by IBA for level 1 and 2, thus removing some of the risk inherent in their role as a benchmark submitter. For level 3, IBA has provided a framework of allowable inputs within which the LIBOR banks have developed their own internally approved methodologies agreed with IBA.
- Banks will use wholesale funding trades in determining their submission, thus anchoring ICE LIBOR in transactions to the greatest extent possible.

There will be no changes to the way IBA uses the individual banks' submissions to calculate the published LIBOR (i.e., topping and tailing).

The future of LIBOR

On 27 July 2017 the Chief Executive Officer of the FCA, Andrew Bailey, gave a key speech in which he noted that there have been significant improvements to the rate through the work of its administrator and the panel banks. However the underlying market that LIBOR seeks to measure – the market for unsecured wholesale term lending to banks – is no longer sufficiently active and therefore the journey to transaction-based benchmarks is no longer possible. Panel banks are reluctant to keep contributing using expert judgement and the FCA cannot allow the risk of the degradation of the panel and the potential unplanned disappearance of LIBOR. Mr Bailey said that after having discussed with the 20 panel banks about agreeing voluntarily to sustain LIBOR the FCA, in agreement with the relevant central banks and regulatory authorities, had decided that after 2021 it will not persuade, or compel, banks to submit to LIBOR. Work must therefore begin in earnest on planning transition to alternative reference rates that are based firmly on transactions.

International cooperation specific to LIBOR

Since the 2016 Progress Report the FCA, as supervisory authority for the LIBOR administrator and submitters, has continued to engage with the central banks of the LIBOR currencies and supervisory authorities of submitter banks from the EU, Japan, Switzerland and the US. An OSSG meeting was held in London in January 2017 which discussed the progress of reform to LIBOR and the challenges that the rate faces. Further discussions in the spring and summer

[18] Parallel shift is where, if a bank has no transactions in one tenor but one neighbouring tenor has a transaction-based rate, a rate could be constructed by the bank using the day-on-day change in value of the transaction-based tenor (see https://www.theice.com/publicdocs/IBA_Additonal_Consultation_Feedback_Statement.pdf).

[19] https://www.theice.com/publicdocs/ICE_LIBOR_Roadmap0316.pdf

with central banks and regulatory authorities focused on the uncertainty about the long term sustainability of LIBOR, the need to avoid a disorderly degradation of the panels or disorderly discontinuation of the rate, and the need to better prepare the markets for a scenario where LIBOR is no longer published. The discussions about how much time would be required for an orderly transition away from the current widespread use of LIBOR formed the basis of Andrew Bailey's announcement in July.

Regulatory environment for benchmarks

The regulatory framework for financial benchmarks in the UK has not significantly changed since July 2015. However in preparation for the full implementation of the EU Benchmark Regulation on 1 January 2018, the FCA launched a consultation[20] on 22 June 2017 to amend the FCA Handbook in preparation for changes to bring the UK regulatory framework in line with the new EU Regulation. Changes to the UK regulatory framework will include an increase in the number of administrators and benchmarks which the FCA supervises and the 20 submitting banks to LIBOR will no longer be subject to direct oversight by the FCA for their benchmark submitting activities.

The FCA also launched a consultation[21] on 12 June 2017 regarding the FCA's compulsion powers for mandatory contribution to LIBOR and also launched a data collection exercise, contacting 49 banks. The FCA's consultation follows ESMA's framework for mandatory benchmarks contributions[22] which was published on 2 June and provides for convergence across the EU and further clarifies the related provisions of the BMR. It is expected that LIBOR will be deemed to be a critical benchmark under the BMR by the end of 2017.

2.3.3 TIBOR

Since its establishment in April 2014, the administrator of TIBOR the Japanese Bankers Association TIBOR Administration (JBATA) has been promoting TIBOR reforms with a view to maintaining and enhancing the reliability and transparency of JBA TIBOR. Reflecting a wide range of public comments gathered in the past three consultations, JBATA finalised the reform and announced its implementation date as 24 July 2017.

Data

JBATA, in cooperation with the Bank of Japan (BoJ) and Japan Financial Services Agency (JFSA), has continued to collect and analyse transaction data in the underlying market of TIBOR and its related markets. The new methodology will cover not only actual unsecured call transactions in the interbank market, but also actual transactions in the wholesale funding market (i.e. negotiable certificates of deposit and large term deposits with corporates, etc.).

Change to methodologies

Following the third public consultation in November 2016, JBATA standardised and clarified the calculation and determination processes for rates submitted by the reference banks with the aim to enhance the transparency and credibility of the TIBOR benchmark. After the implementation, JBATA will extend the time window to publish JBA TIBOR rates by one hour, from "by 12:00 pm of the day" to "by 1:00 pm of the day" to ensure accurate calculation and

20 https://www.fca.org.uk/publication/consultation/cp17-17.pdf
21 https://www.fca.org.uk/publication/consultation/cp17-15.pdf
22 https://www.esma.europa.eu/press-news/esma-news/esma-publishes-framework-mandatory-benchmarks-contributions

publication of JBA TIBOR rates. Also, JBATA will discontinue the publication of the two month tenor, after the transitional period. JBATA intends to continue publication of the two month tenor until the last working day of March 2019 and discontinue it from the first working day of April 2019.

In addition, JBATA plans to terminate simultaneous publication of individual submissions from the first business day of April 2019, and such individual submissions will be published three months after the publication of JBA TIBOR rates.

Regulatory environment for benchmarks

Following the JBA TIBOR reforms for the past two years, JBATA received the approval from the JFSA on the 20 February 2017 for the revisions to the relevant Code of Conduct.

Outstanding issues

JBATA will promote the JBA TIBOR reform according to the announced timeline.

Implementation of JBA TIBOR reform Change to the timing of the JBA TIBOR publication	24 July 2017
Discontinuation of two month tenor Discontinuation of simultaneous publication of individual submission	the first business day of April 2019

JBATA is also exploring integrating Japanese yen TIBOR and euro yen TIBOR in the medium and long-term.

2.4 Developments in other markets

As mentioned in the 2016 Progress Report, although the FSB recommendations were directed at LIBOR, TIBOR and EURIBOR, other members have also taken steps to reform their existing rates in line with the advice given by the FSB and the IOSCO Principles.

Australia, Hong Kong, Mexico, Singapore, South Africa and Switzerland have all progressed their plans further since the July 2016 Progress Report to reform their rates based upon the FSB recommendations.

2.4.1 Australia

In January 2017, the Australian Securities Exchange (ASX) took over the administration of the Bank Bill Swap Rate (BBSW) from the Australian Financial Markets Association. The transition has been implemented smoothly. Progress has also been made towards the implementation of the transactions-based methodology recommended by the Australian financial regulators in February 2016, which is expected to occur in early 2018.

In addition, some enhancements to the methodology have been introduced to strengthen fall back arrangements.

Data

In August 2016, the fall back arrangements for calculating BBSW were strengthened in preparation for the move to a more robust, transaction-based methodology. A sequentially staged calculation waterfall was established, in which the existing national best bid and offer (NBBO) calculation method would be followed by the use of algorithms. The algorithmic fall back for a benchmark tenor that cannot be calculated using NBBO would use (in descending order): the movement in neighbouring tenors; the movement in the 90 Day Bank Bill Futures contract; the prior business day's BBSW rate.

Change to methodology

The ASX has established a BBSW advisory committee with broad industry representation to consult on the implementation of the new transaction-based methodology. This would involve calculating the volume-weighted average price (VWAP) of transactions during a longer rate set window from 8.30 am to 10 am, to be followed in the BBSW calculation waterfall by NBBO and the algorithms. This would require the Prime Banks to conduct the bulk of their issuance in terms of outright yields rather than the current market practice of issuing at (to be determined) BBSW reference rates, and for secondary market trading to also be negotiated in terms of outright yields. Following a transition period, the VWAP methodology is scheduled to be operational in early 2018.

Regulatory environment for benchmarks

In September 2017, the Australian Government introduced financial benchmarks legislation to the Australian Parliament.[23] The legislation has three components:

- *Rules for benchmark administration:* a new licencing regime would be established for administrators of significant financial benchmarks in Australia. The Australian Securities and Investments Commission (ASIC) would have the power to identify significant benchmarks and make rules setting out the obligations of benchmark administrator licensees.
- *Rules to compel participation in benchmarks:* In the rare circumstances where a benchmark would cease to be published due to participants or the administrator being unwilling to perform their responsibilities, ASIC would have the power to compel participants to make submissions or compel the administrator to continue to administer the benchmark.
- *Offences for manipulating financial benchmarks:* a new offence of benchmark manipulation will apply to all financial benchmarks. This would cover acts done with an intention to influence the level at which a financial benchmark is generated, and making a false or misleading statement that could affect a benchmark.

In July 2017, ASIC published proposed rules for the administration of licenced financial benchmarks and guidance on how ASIC would administer the proposed benchmark regulatory regime.[24]

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23 http://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bId=r5962

24 http://www.asic.gov.au/about-asic/media-centre/find-a-media-release/2017-releases/17-237mr-asic-consults-on-proposed-financial-benchmark-regulatory-regime/

These reforms have been guided by the IOSCO Principles and the recommendations of the FSB with regards to benchmarks. They are also informed by reforms in key foreign jurisdictions including Canada, EU, Hong Kong, Japan and Singapore.

2.4.2 Brazil

The overnight interbank offered rate (DI rate) is the average interest rate on overnight interbank deposits which are issued and traded only by financial institutions. This rate is compiled by the Brazilian Stock Exchange (CETIP/BM & FBOVESPA) in accordance with regulations issued by the Brazilian Central Bank (BCB). After 2013, the trading volume activity and the number of transactions have decreased significantly in this market and have called into question its credibility as a benchmark rate. In response, its methodology was reviewed in July 2016 by the Stock Exchange in order to propose a fall back mechanism that models the overnight interbank rate based on a linear regression from the Selic rate as the only independent variable.

The Selic rate, compiled by the BCB, is the average interest rate on overnight repurchase agreements which are collateralised by government debt securities. Therefore, the overnight interbank rate is anchored on the Selic rate.

The BCB continues to assist the Stock Exchange in their work when necessary. There is a monitoring group at the BCB to discuss other initiatives in the overnight interbank market such as consultation process, waterfall, possible changes in the calculation methodology and even scope for phasing out.

2.4.3 Canada

There are no changes currently being made to the Canadian Dollar Offered Rate (CDOR – the Canadian IBOR). In Q1 2017 Thomson Reuters, who became the CDOR administrator in 2014, in consultation with CDOR submitters and the CDOR/CORRA Oversight Committee,[25] reviewed the number of tenors currently published and concluded that no changes were necessary at this time. While the majority of the current Banker's Acceptance (BA) issuance, which is based on the published CDOR rates, is currently in the shorter tenors, the implementation of the Basel III net stable funding ratio could impact the structure of the BA market going forward by extending the term of Bas issued.

CDOR is a survey-based measure reflecting the committed rate at which each submitting bank would be willing to lend (offer) funds for specific terms-to-maturity against primary BA issuance to clients with existing credit facilities that reference CDOR i.e. it represents the bid-side rates of the primary BA market. The current panel member banks are responsible for close to 100% of the BA issuance in Canada.

The Bank of Canada is currently assessing whether a purely transaction-based calculated non-benchmark rate for certain types of secondary market BA transactions, published on a delayed basis, would be possible to produce and be beneficial for informational purposes for market participants.

[25] Thomson Reuters formed an official CDOR/CORRA oversight committee in late 2015.

2.4.4 Hong Kong

The Hong Kong Monetary Authority (HKMA) continues to facilitate the Treasury Markets Association (TMA), the administrator of Hong Kong Interbank Offered Rate (HIBOR), to review how to reform HIBOR in line with the international recommendations, having regard to local market conditions.

The HKMA has completed a special survey to collect transaction-level data on a variety of interest rate transactions from all Hong Kong's Authorized Institutions (Ais) (i.e. licensed banks, restricted licence banks and deposit-taking companies). At the same time, a new Financial Benchmark Working Group has been formed under the TMA to provide industry feedback on increasing the transaction-based element of HIBOR, among other financial benchmark issues.

When analysing the survey results and industry feedback, the HKMA has been drawing reference from the reform progress of the three major IBORs. The preliminary view is that:

- the definition of HIBOR would remain unchanged while appropriate reforms would be undertaken to underpin HIBOR to transaction data to the extent possible; and
- the benchmark determination methodology would take a "waterfall" of information as input, including transaction data and expert judgement when necessary.

The HKMA is assisting the TMA to collect more industry feedback and draft a consultation paper on the way forward for increasing the transaction-based element of HIBOR and other measures to strengthen HIBOR.

2.4.5 Mexico

The Interbank Equilibrium Interest Rate (TIIE) benchmark methodology still requires some changes in order to fulfill all the applicable IOSCO Principles. Banco de México (BdM) has been implementing a set of actions including those in relation to the existing calculation methods and procedures to be followed in the determination of the TIIE which are expected to take place in the medium term. BdM is also creating a supervising committee and a working group with market participants. This committee will start operating once the governing documents are fully drafted and approved, most likely during 2018.

BdM has focused its efforts to fully align the TIIE with the IOSCO Principles. BdM staff have endorsed some reforms to the governing documents related to the existing calculation methods and procedures to be followed in the determination of the TIIE. The reform includes the following six actions:

1. Modify the Operational Procedures Manual (MPO) Determination of TIIE.
2. Modify Resolution 3/2012 (Circular 3/2012) which aims to improve governance procedures.
3. Establish in the internal norms the retention of written records by the Administrator for at least five years (Principle 18).
4. Establish the kind of information to be stored by the Administrator, and the time it will be stored (including telephone calls) (Principle 18).
5. Create a supervision committee to enhance governance.
6. Create a Mexican Bankers' Association working group for greater collaboration with participant banks.

It is expected that these reforms will align the Mexican benchmark rate to the IOSCO Principles. However, despite the action plan IOSCO Principles 6 and 7 will not be fully fulfilled because TIIE's calculation is not anchored with observable transactions in the market.

2.4.6 Singapore

The Singapore Interbank Offered Rate (SIBOR) is administered by the Association of Banks in Singapore (ABS) and calculated from a survey of a panel of 20 banks. SIBOR is currently available in four tenors – one month, three months, six months and 12 months.

The ABS and the Singapore Foreign Exchange Market Committee (SFEMC), with support from the Monetary Authority of Singapore (MAS), completed a data collection and analysis of key Singapore dollar (SGD) wholesale funding markets. In addition, the ABS completed a survey on the usage of SIBOR to collect information on the outstanding stock and the type of contracts (e.g. derivatives, mortgages, corporate loans, etc.) that reference SIBOR.

Discussions are ongoing on possible approaches to enhance the methodology of SIBOR, as well as consideration of potential alternative benchmarks, taking into account the liquidity characteristics and needs of domestic markets, and global developments. The ABS-SFEMC working group will continue deliberations with market participants and stakeholders with a view to chart out the roadmap for interest rate benchmark reforms in Singapore by end 2017, and to undertake appropriate public consultations thereafter.

Concurrently, primary legislation to introduce a regulatory framework for financial benchmarks was passed by Parliament in January 2017.[26] The framework[27] introduces criminal sanctions and civil penalties for the manipulation of financial benchmark and empowers MAS to designate key financial benchmarks for regulation.

2.4.7 South Africa

The South African Reserve Bank (SARB) continued to deliberate on the calculation of credible money market benchmark rates to enhance the transparency and pricing in the money market, in line with the FSB recommendations and the IOSCO Principles for interest rate benchmark design.

The Johannesburg Interbank Average Rate (JIBAR) represents the domestic equivalent of IBOR+. The continuous evaluation of the effectiveness and relevance of JIBAR as the key term reference rate in the domestic market is therefore a top priority. The SARB currently calculates the South African Benchmark Overnight Rate (SABOR). This rate, however, is not widely used in the domestic market. The objective is to refine this rate as the main unsecured overnight rate (IBOR+) for the domestic market. The SARB decided that the review projects for JIBAR and for overnight benchmark rates are interlinked and should be consistent. The two projects are therefore conducted concurrently.

After discussions with the market, it was decided in October 2016 that the SARB would draft a consultation paper on interest rate benchmark reforms in the domestic market. The objectives

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26 See http://www.mas.gov.sg/~/media/MAS/News%20and%20Publications/Consultation%20Papers/Annex%20C%20Draft%20Securities%20and%20Futures%20Financial%20Benchmarks%20Regulations%202017.pdf.

27 MAS conducted a consultation on subsidiary legislation to operationalise the regulatory framework in April 2017 and intends to commence the framework in 2018.

of the SARB's consultation paper include, among others, clarity on the definitions of the broad range of benchmarks rates the SARB wishes to calculate and publish, the purpose and use of each benchmark, data collection methodology (also the collection agent and the appropriate technologies), the rate calculation methodology, and the transition to new benchmarks. The intention is to publish the consultation paper in early 2018 for public comments.

In drafting the consultation paper, discussions were held with a variety of different market participants. The SARB has also embarked on a second data collection project. The objective of this project is to collect transaction data from the banks. This data will be used to undertake back-testing and to determine whether new instruments need to be included in the calculation of JIBAR to enhance its credibility (a so-called blended or hybrid rate) or to add a new rate to the toolkit of benchmark rates. Developing alternative benchmark rates will meet the principle of encouraging "market choice".

2.4.8 Switzerland

The key forum for reform proposals in Switzerland is the National Working Group (NWG) on Swiss franc (CHF) reference interest rates.[28] The NWG was founded in 2013 and has since been guiding the reform process on CHF reference interest rates. The NWG is co-chaired by a representative of the private sector and a representative of the Swiss National Bank (SNB). It is open to representatives of domestic and foreign banks and specialists from other sectors of the finance industry. Participants use the forum to inform each other, discuss the latest international developments and decide on the next reform steps, in particular with respect to national developments.

In the CHF currency area, the CHF LIBOR is the primary reference interest rate. As reforms for CHF LIBOR are already being undertaken by ICE Benchmark Administration (IBA), the NWG has focused on reforming reference rates fixed in Switzerland, such as the Swiss Average Rate Overnight (SARON) and Tomorrow/next Indexed Swaps (TOIS) fixing. However, the SNB is active as an observer in the LIBOR Oversight Committee (OC) and supports IBA as the LIBOR administrator.

SARON is the overnight 'Swiss Reference Rates' (SRR) rate, administered by SIX Swiss Exchange. The SRR are based on transactions and executable quotes from the CHF repo market. The panel-based TOIS fixing represents the unsecured market. It is administered by ACI Suisse. TOIS fixing is still used, e.g. for discounting purposes or remunerating collateral for interest rate swaps (IRS), but will be discontinued at the end of 2017 and replaced by SARON.

Following the NWG recommendation to establish a consultative committee for the Swiss Reference Rates in order to strengthen SARON, the SRR administrator established the Index Commission for SARON (ICS) in Q1 2017. The ICS is the primary forum for discussing any SRR-related issues. As the administrator is responsible for the SRR, the objective of the ICS is to deliver proposals to the administrator. The ICS consists of representatives of the administrator, the calculation agent (SIX Repo AG), the SNB and major participants in the repo market.

With the replacement of the TOIS fixing by SARON, the latter index is the alternative to LIBOR (CHF RFR).

[28] See https://www.snb.ch/en/ifor/finmkt/fnmkt_benchm/id/finmkt_reformrates.

Based on current Swiss law, no Swiss authority has explicit statutory power to regulate reference rates. This is due to the fact that the power to set reference rates in Switzerland has traditionally been – and remains – a contractual matter and, as such, is solely at the discretion of market participants. The Swiss Federal Council published a statement on 4 March 2016 to the effect that there is currently no need for regulations on financial benchmarks in Switzerland.

3. Developments in RFR benchmarks

3.1 Overview

FSB members continue to make progress, with designated private-sector groups in many member jurisdictions/currency areas now having selected recommended RFRs, and in some cases they have identified strategies to create liquidity in newly introduced RFRs.

- In the US, the Alternative Reference Rates Committee (ARRC) has selected a broad overnight Treasuries repo rate, the Secured Overnight Financing Rate (SOFR) as its recommended alternative to US dollar LIBOR. The ARRC has mapped out an initial strategy for moving price alignment interest (PAI) and discounting to its chosen new rate as a way of creating initial liquidity, but further work will be required in planning for a full transition strategy that would move a more significant portion of the market away from LIBOR.
- While European authorities already consider EONIA[29] to be an actively used RFR, a number of steps are being undertaken to strengthen EONIA. In addition, EMMI and market participants are also exploring the feasibility of a transactions-based repo benchmark. The ECB also announced that it aims at producing a Euro unsecured overnight rate based on data already available to the Eurosystem before 2020. Finally, the FSMA, ESMA, the ECB and the European Commission announce the launch of a new working group tasked with the identification and adoption of a "risk-free overnight rate" which can serve as a basis for an alternative to current benchmarks.
- In Japan, the Study Group on Risk-Free Reference Rates identified the uncollateralised overnight call rate as the Japanese yen risk-free rate and published a report on the identification of the Japanese yen risk-free rate.
- In the UK, the Working Group on Sterling Risk-Free Reference Rates recommended reformed Sterling Overnight Index Average (SONIA) – the sterling unsecured overnight rate now administered by the Bank of England (BoE) – as its preferred RFR.
- In Switzerland, the NWG on Swiss franc (CHF) reference interest rates recommended that SARON should replace the TOIS fixing as a benchmark prior to 29 December 2017. ACI Suisse has announced to terminate the TOIS fixing at the end of 2017. SARON is also the RFR alternative to CHF LIBOR.

The progress in those five LIBOR currencies, including the planning for adoption of the selected benchmarks, has assumed greater importance after the announcement that the FCA will not sustain LIBOR after 2021 and, where LIBOR is currently relied upon, a transition to alternative rates needs to be completed by then.

In Australia, Brazil, Canada, Hong Kong and Mexico, an identification or selection of one or more RFRs has also taken place.

In Singapore, a working group will continue to review RFRs for the Singapore dollar market. In South Africa, the official sector continues to consider data preliminary to the selection of an RFR.

[29] The 2014 Report stated that EONIA is a reference overnight rate set since 1999 by the EURIBOR-EBF. It is directly anchored in the cash market (unsecured deposit market), it is based on real transactions and on a panel representing a wide range of banks across the euro area and a derivatives market based on such reference interest rate already exists (Overnight Index Swaps, also called EONIA swaps in EUR). (See footnote 1, at p. 22).

Working groups in each of the currency areas have kept in close consultation with their counterparts, and have stressed a desire to coordinate transition strategies where feasible.

3.2 US dollar

In June 2017, the ARRC selected a broad overnight Treasuries repo rate, SOFR, as its recommended alternative to US dollar LIBOR.[30, 31] The decision followed intensive deliberations over several years, seeking wide input from market participants. Building on the work of the FSB's Market Participants Group, the ARRC identified a broad range of potential candidate rates and evaluated each against several criteria.[32]

In 2016, the ARRC published an interim report and consultation narrowing its list of rates to two rates it considered the strongest potential alternatives based on these criteria: a secured overnight Treasuries repo rate and the Overnight Bank Funding Rate (OBFR), an overnight unsecured rate based on federal funds and Eurodollar transactions.[33] Since that time, the ARRC has sought input on the two rates from market participants through its consultation and through the establishment of an Advisory Group of end users.[34] A significant majority of Advisory Group members supported the choice of an overnight repo rate as the preferred alternative.

The SOFR rate identified by the ARRC will be produced by the Federal Reserve Bank of New York in cooperation with the Office of Financial Research.[35] The rate will be based on transactions-level data from the Bank of New York Mellon's triparty settlement platform, trades cleared through DTCC's General Collateral Financing (GCF) Service, and DTCC's cleared bilateral delivery versus payment repo service. Together, repo transactions from these three sources have averaged almost $ 800 billion per day in the data available for 2017 and reflect a very broad swath of the overall US dollar repo market for Treasury securities.[36] The rate is expected to begin daily publication in the first half of 2018, and will be based on a volume-weighted median of the underlying transactions data with a filter applied to the bilateral repo data to eliminate the lowest portion of rates trades in that market so that the rate is not unduly affected by "specials" trades and is instead closer to a general collateral rate.

Although the OBFR is generally very similar to the effective fed funds rate currently referenced in overnight index swap (OIS) contracts, a repo rate was seen as potentially more resilient. The volumes underlying the OBFR have declined over the past year from roughly $300 billion to about $200 billion, the market for unsecured dollar funding is concentrated amongst a set of relatively few lenders, and most activity is based on an arbitrage between market rates and the

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30 The Federal Reserve convened the Alternative Reference Rates Committee (ARRC) in November 2014 with the support of the U.S. Commodity Futures Trading Commission, U.S. Department Treasury, and the Office of Financial Research. The ARRC was convened to identify a set of alternative reference interest rates that are more firmly based on transactions from a robust underlying market and that comply with standards such as the IOSCO Principles and to identify an adoption plan with means to facilitate the acceptance and use of these alternative reference rates. The ARRC was also asked to consider the best practices related to robust contract design that ensure that contracts are resilient to the possible cessation or material alteration of an existing or new benchmarks. See www.newyorkfed.org/arrc/index.html.

31 See Alternative Reference Rates Committee (ARRC), *The ARRC Selects a Broad Repo Rate as its Preferred Alternative Reference Rate*, June 2017 (www.newyorkfed.org/medialibrary/microsites/arrc/files/2017/ARRC-press-release-Jun-22-2017.pdf).

32 The criteria were: (1) the transaction volumes and liquidity of the underlying market and its resilience to future market changes, (2) the quality of the methodology used to calculate the benchmark and whether its construction would satisfy the IOSCO Principles, (3) sound governance and accountability in the benchmark's production, (4) ease of implementation.

33 www.newyorkfed.org/medialibrary/microsites/arrc/files/2016/arrc-interim-report-and-consultation.pdf?la=en

34 www.newyorkfed.org/medialibrary/microsites/arrc/files/2016/20161116-ARRC-Anouncement.pdf

35 www.newyorkfed.org/markets/opolicy/operating_policy_170524a

36 Further information and data on the proposed rate can be found at libertystreeteconomics.newyorkfed.org/2017/06/introducing-the-revised-broad-treasuries-financing-rate.html

interest rate that the Federal Reserve pays on excess reserves. In contrast, US dollar Treasury repo markets were seen as an active source of funding for a wide range of market participants, one reason that many of the Advisory Group members expressed a preference for a repo rate, and the volumes captured in the rate proposed by the Federal Reserve Bank of New York have increased over the past several years even as activity in unsecured markets has diminished.

Transition planning

In order to build an initial level of demand and liquidity in derivatives markets that reference SOFR, the ARRC has mapped out an initial strategy for moving PAI and discounting on new cleared trades to the rate. This strategy have been crafted to avoid any changes in existing contracts – the ARRC envisions a paced transition focusing on new transactions rather than a "big bang" that would seek to change existing trades – thereby minimising market disruptions while still creating a robust source of demand for and underlying liquidity in hedging markets for the new rate.

Under this paced transition strategy, participating central clearing counterparties (CCPs) would announce that, as of a specified future date, discounting and Price Alignment Interest (PAI) on new interest-rate swaps (IRS) contracts clearing at their institutions would be based on SOFR.[37] These new trades would exist within the same clearing pools and default funds as existing legacy IRS contracts, which would continue to have discounting and PAI based on the effective federal funds rate (EFFR, the rate currently used). As the depth and tenor of the new market was gradually built out and as legacy contracts paying EFFR for PAI matured over time, the clearing pool would come to be based entirely on SOFR for discounting and PAI.

A number of outstanding issues must still be considered before this plan could be fully adopted. Among the issues that the ARRC has identified, a mechanism for closing out legacy contracts will need to be devised. The existence of a robust basis market between the EFFR and SOFR and U.S. dollar LIBOR and SOFR will likely aid pricing in such a mechanism. In light of the risks to LIBOR described in Andrew Bailey's July 2017 speech, the ARRC will expand its scope of work to include transition planning and development of strategies for addressing the risks to legacy contracts for a wider set of products than derivatives, including loans, notes, and securitisations currently referencing U.S. dollar LIBOR. The ARRC has also considered the feasibility of moving some consumer loan products that currently reference LIBOR to a backward-looking geometric average of its recommended rate (this average would correspond to the floating rate paid in OIS contracts, allowing for easy hedging) and whether a forward-looking term rate is needed for other loan products. The ARRC intends to publish another report later this year.

3.3 Euro

In line with the FSB recommendations, European authorities and market participants are also considering the development of other potential reference rates, besides taking steps to strengthen the already existing transaction-based EONIA rate. In this vein, on 21 September, the ECB announced that it will develop a euro unsecured overnight interest rate based on data

[37] Although the plan refers specifically to PAI and discounting used by the CCPs, it is expected that broker-dealers will also seek to adjust the interest on collateral specified in their bilateral credit support annex (CSAs) to the new rate. As these agreements must be negotiated on a case-by-case basis, this portion of a paced transition is expected to take a longer period of time.

already available to the Eurosystem. The transition issues towards alternative benchmarks in the euro area remain within the hands of the private sector.

EONIA

For the euro area, EONIA as an unsecured overnight benchmark, based on real transactions, remains the near risk-free alternative reference rate to EURIBOR as identified in previous reports by the OSSG. The administrator of the EONIA, the EMMI, is leading a reform process of the overnight unsecured interbank benchmark in euro, with the aim of making it compliant with the BMR, which will fully come into force in January 2018.

In April 2017, EMMI announced that it concluded the first phase of the EONIA review, which consisted in defining a governance framework compliant with the new regulatory requirements. This governance framework is composed of (i) the Governance Code of Conduct for EMMI in its role of administrator; (ii) a Code of Obligations of Panel Banks; and (iii) the EONIA benchmark determination methodology, defining among other the methodology of the benchmark and its contingency arrangements. This governance framework, which was adopted by EMMI in April 2017, should come into application in 2018.

EMMI is now leading the second phase of the EONIA review, which relates to the analysis of the market underpinning EONIA. For this purpose, EMMI launched in spring 2017 a voluntary data collection on the overnight unsecured money market transactions, with the aim at determining whether the underlying interest of the benchmark is accurately captured by the methodology and input data, in consistency with the requirements of the BMR.

In the meantime, the robustness of EONIA is becoming a source of concern among some market participants. EONIA relies on the contributions of a panel of banks which voluntarily reports their overnight unsecured interbank transactions. However, the panel of EONIA contributors has decreased from 33 banks at the beginning of the 2017 to less than 30 contributors over the summer. In addition, the EONIA volumes have occasionally reached historical lows in 2017, with volumes below EUR 1 billion in the course of May 2017 due to bank holidays in some countries. The decrease in EONIA volumes is a trend already observed over the past years, mainly on the back of lower needs due to the level of excess liquidity in the euro area.

In this context, EONIA was designated as a critical benchmark by the EU Commission under the BMR in June 2017, "in light of the crucial importance of EONIA for interbank market and the high number of derivatives in the Union referencing it".[38] EONIA is the second benchmark to be recognised as critical after EURIBOR last year. This decision implies that special provisions of the BMR start applying to EONIA immediately, including the possibility that FSMA as regulator can declare contributions to the benchmark mandatory should panel departures threaten its representativeness, under specific conditions. A college of supervisors, under the chairmanship of the FSMA, was set up in August 2017; it will also be in charge of or consulted about various aspects of the EONIA supervision. In particular, a vote of the college is required in case the FSMA were to decide on the implementation of mandatory contributions to the EONIA under the Article 23 of the BMR.

New Euro unsecured overnight interest rate

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[38] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R1147&from=EN

On 21 September, the ECB announced that it will develop a euro unsecured overnight interest rate based on data already available to the Eurosystem through the Money Market and Statistical Regulation. The ECB decided to publish an overnight benchmark because of the potential adverse impact on the transmission mechanism of monetary policy and the repercussions for financial stability that could result from the absence of a reliable private benchmark. The interest rate, which would be produced before 2020, would complement existing benchmark rates produced by the private sector and serve as a backstop reference rate. The high-level features of this new overnight interest rate will be communicated to market participants in the course of 2018. They will then be invited to provide their feedback on the suggested approach.

Repo benchmark

In line with the FSB recommendations, European authorities and market participants are also considering the development of other potential reference rates besides the already existing transaction based EONIA rate. The recent developments in the establishment of a pan-European repo benchmark seem of particular relevance for the euro area to provide a possible additional alternative reference rate.

In 2013, EMMI and the European Repo and Collateral Council launched a Secured Benchmark Indices Joint Task Force to explore the feasibility of a transaction-based repo benchmark (New Repo Index). In 2015 and 2016, EMMI conducted an exhaustive analysis to assess (i) whether the data captured by three of the most active Automatic Trading Systems in Europe were sufficient to support the determination of a new pan-European index; (ii) which design considerations ought to be taken into account at the time of the development of the index methodology. For this purpose, EMMI received transaction data from BrokerTec, MTS and Eurex, spanning 10 years of repo activity from 2006 to 2015. The study was delivered by the University of St. Gallen in November 2015, and was extensively discussed by the Repo Task Force throughout 2016.

The transactions selected for building the repo benchmark had to comply with the following criteria: (i) executed on-screen and (ii) cleared through qualified CCPs (iii) against ECB-eligible collateral, either in the form of general collateral (GC) baskets or individual securities (specifics). Overall, the volume in the dataset of EMMI covered the majority of the CCP-based euro interbank repo market. EMMI indicates that the final data set contains 18,576,813 transactions with a total trading volume of EUR 510.04 trillion. This compares to a total EONIA volume from 2006 to 2015 of about EUR 85 trillion.

On the basis of this dataset, the analysis highlighted that activity for the electronically traded repo market in euro is concentrated on the very short term of the curve, therefore allowing for the development of a purely transaction based benchmark for a one-day tenor. Indeed, the large majority of repos (around 95%) were traded with one-day maturities, with this share having remained relatively constant over time. EMMI now intends to build a one-day index, aggregating all overnight, spot-next, and tomorrow-next transactions, taking into account both GC and specials collaterals. The design put forward by EMMI would aggregate the repo trade data by aligning transactions by their settlement date and applying a filtering method to the initial trade data for the removal of outliers.

In June 2017, EMMI launched a public consultation to its stakeholders regarding the design features of this New Repo benchmark.[39] EMMI published the collected feedback in August 2017[40]. While the project is now in a quite advanced stage, the possible timeline of implementation will be communicated only later in the year.

Working group on a risk-free reference rate for the euro area

Finally, on 21 September 2017, the FSMA, ESMA, the European Central Bank and the European Commission announced the launch of a new working group tasked with the identification and adoption of a "risk-free overnight rate" which can serve as a basis for an alternative to current benchmarks used in a variety of financial instruments and contracts in the euro area. The working group, chaired by a private sector representative and with the Secretariat to be provided by the ECB, will regularly consult market participants and end-users, as well as gather feedback from other public authorities. Once it has made a recommendation on its preferred alternative risk-free rate, the group will also explore possible approaches for ensuring a smooth transition to this rate, if needed in the future.

3.4 Japanese yen

In December 2016, the Study Group on Risk-Free Reference Rates (Study Group) identified the uncollateralised overnight call rate as the Japanese yen risk-free rate and published a report on the identification of the Japanese yen (JPY) risk-free rate.[41]

In identifying the JPY risk-free rate, the Study Group considered the following three properties: (i) the risk-free nature of the rate; (ii) the depth of the market underlying the rate; and (iii) ease of use in financial transactions (particularly derivatives transactions). Regarding the risk-free nature of the rate, although some counterparty credit risk is included in the uncollateralised overnight call rate since it is an unsecured rate, that risk is limited to the extent that it is for overnight transactions, and the rate is regarded as nearly risk-free.

Regarding market depth, the uncollateralised call market is maintaining the considerable transaction volume and a diversity of trading participants. Although the amount outstanding of uncollateralised call transactions with one business day maturity plunged temporarily right after the introduction of the negative interest rate policy by the Bank of Japan (BoJ) in January 2016, it recovered to sufficient levels thereafter as information technology systems of market participants were adjusted to adapt to negative interest rate transactions and as the BoJ adopted a tiered structure of payments on outstanding balances of current accounts at the BoJ, which created an incentive to trade at negative interest rate in the call market.

Finally, with respect to ease of use in financial transactions, the uncollateralised overnight call rate has advantages. As the rate is calculated and published by the BoJ based on solely on actual transactions, market participants regard the rate robust and reliable. Furthermore, because the rate has been used as reference rates in OIS transactions, promotion of the use of the rate as the

[39] www.emmi-benchmarks.eu/assets/files/D0307H-2017Repo%20Consultation%20Paper.pdf.

[40] https://www.emmi-benchmarks.eu/assets/files/D0398-2017%20-%20EMMI%20publishes%20feedback%20statement.pdf

[41] See Study Group on Risk-Free Reference Rates, *Report on the Identification of a Japanese Yen Risk-Free Rate*, December 2016 (www.boj.or.jp/en/paym/market/sg/rfr1612c.pdf). The study group was founded in April 2015. Its terms of reference, meeting agendas, and the minutes are available on the BoJ's web site at www.boj.or.jp/en/paym/market/sg/index.htm/.

benchmark rate in financial transactions is easier than other RFR candidates that have little track record in derivative transactions.

Another issue discussed at the Study Group was the relationship of a JPY risk-free rate with risk-free rates in other currencies. Reflecting on the developments in other currencies, the Study Group examined the potential issues on derivative transactions that might be highlighted if an unsecured rate is identified as a JPY risk-free rate whilst a secured rate is identified as a risk-free rate in other currencies. Regarding this issue, the Study Group concurred that although it is desirable that risk-free rates in all the major currencies including JPY should be on the same side for the ease of financial transactions, it is not an indispensable factor. The credit risk included in the uncollateralised overnight call rate, seems to be negligible and the rate can be regarded as a nearly risk-free rate. Accordingly, it is unlikely that the subtle difference between a secured rate and the uncollateralised overnight call rate will cause an immediate impact on transactions.

As an administrator for the uncollateralised overnight call rate, the BoJ has enhanced its disclosure regarding the rate. In January 2017, the BoJ started to release more detailed data such as transaction volumes and outstanding amounts related to the rate.[42]. In addition, the BoJ released the uncollateralised overnight call rate code of conduct[43] and terms of use for the uncollateralised overnight call rate[44] in June 2017.

In January 2017, the Study Group launched a working group deliberating on measures to expand use of the risk-free rate. Issues to be addressed intensively include: (i) implementation of the reforms to OIS market conventions suggested in the public consultation paper released in March 2016,[45] and (ii) the means other than the suggested reforms to achieve the OIS market referencing the uncollateralised overnight call rate, including end-user outreach. The discussion in the working group is ongoing.

3.5 Sterling

In April 2017, the Working Group on Sterling Risk-Free Reference Rates (the Group) recommended reformed SONIA – the sterling unsecured overnight rate now administered by the BoE – as its preferred RFR.[46] In March 2017, the BoE published details of how SONIA will be reformed.[47] This followed two rounds of public consultation, in October 2016 and February 2017. [48, 49] The reform process will result in:

- the coverage of SONIA being broadened to include overnight unsecured transactions negotiated bilaterally as well as those arranged via brokers, using the BoE's Sterling Money Market Data Collection Form (SMMD) as the data source;
- the averaging methodology for calculating SONIA changing to a volume-weighted trimmed mean; and

42 www.boj.or.jp/en/statistics/outline/notice_2016/not161228a.pdf
43 www.boj.or.jp/en/statistics/outline/exp/data/exmutan1.pdf
44 www.boj.or.jp/en/statistics/outline/exp/data/exmutan2.pdf
45 The Study Group's public consultation paper is available at: www.boj.or.jp/en/paym/market/sg/rfr1603c.pdf.
46 See BoE Working Group on Sterling Risk Free Reference Rates, SONIA recommended as the sterling near risk-free interest rate benchmark, April 2017 (http://www.bankofengland.co.uk/publications/Pages/news/2017/033.aspx). The Working Group was set up by the BoE in March 2015 to recommend a RFR and promote its adoption as an alternative to sterling Libor.
47 www.bankofengland.co.uk/markets/Documents/soniareformresponse0317.pdf
48 www.bankofengland.co.uk/markets/Documents/soniareformcp1016.pdf
49 www.bankofengland.co.uk/markets/Documents/soniareformcp0217.pdf

- reflecting the change in data source and the need to process the greater volume of transactions captured, the publication of SONIA moving to 09.00 am on the business day following that to which the rate pertains.

These reforms will be implemented by April 2018. The reformed rate has on average around four times the daily transaction volume underpinning current SONIA; is on average a little more than one basis point lower than current SONIA; and is highly correlated.

As well as changes to the methodology, the Bank is introducing a new definition of SONIA. This is made up of two essential and complementary parts – a statement of underlying interest and a statement of calculation methodology. The calculation methodology sets out how the benchmark is calculated, including defining the input data. The statement of underlying interest acts as a conceptual anchor for SONIA, providing users with some certainty over the nature of their economic exposure when using SONIA should it prove necessary to evolve the benchmark in the future, under certain specified conditions.

Alongside the BoE's reform of SONIA, private sector administrators have developed benchmarks based on overnight repurchase agreements collateralised by UK gilts (so-called "gilt repo"). In March 2016, NEX Data launched its Sterling Repo Index Rate (RIR). This is an overnight rate based on gilt repo conducted across the Brokertec platform. And in March 2017 FTSE-Russell began publishing indicative rates for their Sterling SONET benchmark. This is also an overnight rate based on gilt repo transactions, but with a broader scope of transactions, covering those cleared through LCH and all delivery-by-value gilt repo transactions settled through Euroclear's CREST system.

The Group preferred reformed SONIA to these other candidate RFRs since their collective assessment was that it best met the agreed selection criteria.[50] Recognising that widespread agreement on the direction the market should take is necessary for successful adoption, the Group published a white paper in June 2017 explaining why they had recommended SONIA as the sterling RFR.[51] First, while both secured and unsecured candidate RFRs currently have generally high daily transaction volumes, the ability to evolve SONIA if the unsecured money market experienced a decline as a result of material structural change, should reassure users that the rate will be remain viable over the long-term. Second, the market for wholesale unsecured deposits is conceptually straightforward and movements in the rate are likely to be stable and highly correlated with the BoE's policy rate, Bank Rate. In contrast, movements in secured RFRs may occasionally be less readily explainable, for example where they are driven by technical factors such as the availability of collateral. Third, SONIA is currently used as the reference rate for sterling OIS, which in turn provides the standard sterling risk-free discount curve. As such, the choice of SONIA avoids the difficulty of needing to establish a secured RFR as the primary overnight reference rate – and in turn enables faster progress towards adoption.

Following the recommendation of SONIA as the RFR, the Group's focus shifted to the broader adoption of SONIA in sterling markets. The June 2017 white paper set out the Group's early thinking on adoption and invited engagement from current and potential users of SONIA. It sought feedback on:

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50 www.bankofengland.co.uk/markets/Documents/sterlingoperations/rfr/rfrselection.pdf

51 www.bankofengland.co.uk/markets/Documents/sterlingoperations/rfr/rfrwgwhitepaper0617.pdf

- the development and promotion of interest rate derivative products which reference the RFR, including the design of a futures contract;
- the appropriate scope of adoption of the RFR across broader financial markets beyond derivatives to other financial products such as loans or bonds– including whether a term RFR might be necessary; and
- the potential scope for voluntary conversion of legacy portfolios which currently reference LIBOR to reference the RFR.

The Group will produce a summary of feedback later in 2017.

3.6 Swiss franc

In Switzerland, the NWG on Swiss franc (CHF) reference interest rates recommended that SARON should replace the TOIS fixing as a benchmark prior to 29 December 2017.[52] With the discontinuation of TOIS fixing at the end of 2017, the focus of the NWG is currently on the ongoing transition from TOIS fixing to SARON, rather than on a transition away from CHF LIBOR. However, SARON is also the alternative to LIBOR (CHF RFR).

The TOIS fixing is primarily used as the floating leg for OIS in CHF and for CHF cash-collateralised derivative contracts as an applicable interest rate determining remuneration of collateral posted/received (i.e., PAI). The TOIS fixing was already on the point of being discontinued in 2013 due to a sharp reduction in the number of panel banks. However, in the following years, several reform measures were implemented. Despite these efforts, the number of panel banks decreased even further.

Due to the precarious situation and the narrow data basis for TOIS fixing, in Q1 2016 the NWG recommended that reform efforts be focused on SARON, and proposed a timeline for the transition. In the second and third quarters of 2016, NWG subgroups analysed transitional issues and possible reforms for SARON. In addition, a broader market consultation was conducted. No obstacles to a transition away from TOIS fixing towards SARON were identified. The main recommendation for SARON was to establish an index commission (ICS), which the administrator subsequently established in Q1 2017. The ICS consists of representatives of the administrator, the calculation agent (SIX Repo AG), the SNB, and major participants in the repo market. In Q2 2017, ISDA published a supplement to the 2006 ISDA Definitions, including a compound rate definition for SARON. Thereafter, the first banks started quoting prices for SARON-based OIS (SOIS) and initial transactions have taken place. Major players who are not yet participating are in the final stages of preparing to enter this market. Clearing houses announced that they will replace TOIS fixing by SARON before year-end. This is expected to increase the demand for SARON swaps and to further increase acceptance of this market.

3.7 Australian dollar

The risk free benchmark for the Australian dollar is the interbank overnight cash rate (cash rate), which is administered by the Reserve Bank of Australia (RBA). The RBA has reviewed the methodology for the Cash Rate to ensure alignment with the IOSCO Principles. Beginning in May 2016, the Cash Rate has been calculated directly from market transactions data rather than from submissions of each participant's aggregate transactions. The transition to the new

[52] https://www.snb.ch/n/mmr/reference/discontinuation_20170126/source/discontinuation_20170126.n.pdf

methodology was smooth, with the cash rate calculated from market transactions data over the past year. In response to interest from market participants, in May 2016 the RBA also commenced publishing a Cash Rate total return index as a complementary backward-looking benchmark, based on the Cash Rate benchmark.[53]

The cash rate is already widely used as a risk free benchmark in derivatives contracts such as OIS. OIS contracts with a maturity of less than one year are traded in a relatively liquid market and the volume of short-term AUD OIS contracts has been growing over time. For the cash rate to be more widely used as an alternative benchmark to BBSW would require further development of the OIS market for contracts beyond one year.

3.8 Brazilian real

In Brazil, the adoption of alternative risk-free rates such as the Selic rate, the average interest rate on overnight repurchase agreements which are collateralised by government debt securities compiled by the BCB, has been slow. Liquidity for Selic rate futures contracts is very low and heavily concentrated on very short maturities. However, the BCB has implemented some measures to boost the use of the Selic rate as reference rate, including through the establishment of FX swaps indexed to the Selic rate.[54] By offering a quantity of FX swaps, the BCB thus takes a short US dollar position in markets and expands the availability of hedging to investors with open Brazilian *real* positions. Conversely, the BCB takes long US dollar positions in reverse FX swaps. Other regulatory measures that encourage migration to the Selic benchmark have also been analysed by the BCB.

3.9 Canadian dollar

The Canadian Overnight Repo Rate Average (CORRA), is the Canadian RFR. CORRA is a transaction-based rate that has been published since 1997 and is used as the floating rate benchmark in the overnight index swap market which has existed in Canada since the late 1990s. The vast majority of the overnight index swap transactions have a maturity of less than one year.

CORRA is calculated from overnight general collateral repo trades on Government of Canada securities that take place through designated inter-dealer brokers, and is reported on a following day basis. CORRA is set at the Bank of Canada's target for the overnight rate when the transacted volume is below a predetermined threshold.

The Thomson Reuters CDOR/CORRA Oversight Committee[55] is currently assessing potential options to expand the volume of overnight general collateral repo transactions on Government of Canada securities that are used to calculate CORRA.

3.10 Hong Kong dollar

Hong Kong has an existing transaction-based rate, the Hong Kong Dollar Overnight Index Average (HONIA), which is calculated based on Hong Kong dollar overnight unsecured

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53 For more details, see www.rba.gov.au/media-releases/2016/mr-16-12.html.

54 Brazilian FX swaps are operations that, at maturity, pay the BCB's counterparts the observed exchange rate variation against the US dollar plus the ex-ante cupom cambial (the onshore US dollar rate) and receives an accumulated interest rate return.

55 Thomson Reuters took over the administration of CORRA from the Bank of Canada in March 2015, and formed an official oversight committee covering both CORRA and CDOR in late 2015.

interbank transactions conducted through selected brokers. HONIA is also the reference rate for Hong Kong dollar OIS.

The HKMA is working with the TMA, the administrator of HONIA, to enhance HONIA so that the benchmark would be IOSCO-compliant and hence be able to serve as a Hong Kong dollar RFR. The TMA is consulting stakeholders about enhancements to HONIA, as well as the feasibility of other RFRs.

3.11 Mexican peso

Although Mexico does not have an official risk-free benchmark rate, in the existing regulations Banco de Mexico clearly specifies the rates that banks can use as benchmarks in their operations. Among those benchmark rates, private banks can use the TIIE rate (the overnight interbank rate), government bonds and bills rates and the overnight interbank collateralised interest rates; Tasa de Fondeo Bancario, that uses commercial bank paper as collateral; and Tasa de Fondeo Gubernamental, that uses government paper as collateral. The overnight interbank collateralised interest rates could be a potential RFR, not only because of their long history, as Banco de Mexico has computed them since 1998, but also given that these rates are based on the weighted average of actual transactions (mainly repo operations). However, further studies are necessary to address the possibility of using the overnight interbank collateralised interest rate, or any other candidate, as a RFR.

3.12 Singapore dollar

A data collection exercise was conducted by the Association of Banks in Singapore (ABS) and Singapore Foreign Exchange Market Committee (SFEMC) to examine the liquidity of the underlying Singapore dollar (SGD) money markets. Data was also collected on the reference rate used in SGD derivatives. Unlike other jurisdictions where IBOR rates are used in derivatives, SGD derivatives mainly reference the Singapore Dollar Swap Offer Rate (SOR). SOR is an FX swap implied interest rate, computed based on actual transactions, which represents the effective cost of borrowing SGD synthetically by borrowing USD for the same maturity, and swapping out for SGD. As USD LIBOR is used in the computation of SOR, the ABS-SFEMC working group will study possible options to adapt the methodology for SOR going forward.

The working group will also continue to review alternative near risk-free rates for the SGD market. Possible options include the Singapore Overnight Rate Average (SORA),[56] administered by the MAS.

3.13 South African rand

In South Africa, a working group, chaired by the National Treasury, is investigating ways to enhance the secondary market for Treasury bills (TBs) as well as what reforms will be required to establish the TB curve as a risk-free benchmark in the domestic market. The SARB is also in discussions with the Johannesburg Stock Exchange and South Africa's central securities depository (Strate) to evaluate the feasibility of the repo market for the calculation of risk-free

[56] The SORA is the weighted average rate of all unsecured SGD overnight cash transactions brokered in the Singapore money market.

repo rates, both overnight and term. Strate is also at an advanced stage of implementing a tri-party collateral management system. This system will enhance the optimisation of collateral in the financial system as well as facilitate progress towards a secured interbank market. This initiative will potentially provide a platform for the calculation of a secured overnight rate. The latter rate may meet the requirements of the market for overnight indexed swaps and also the demands for the development of financial market infrastructure entities.

4. Contractual robustness to risks of discontinuance of widely-used interest rate benchmarks

The FSB encourages work by market participants, including ISDA and its members, to increase contract robustness for various financial products against the risk that a widely-used interest rate benchmark could be discontinued permanently. From a public policy perspective, the FSB believes that market participants should understand the fall back 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.

Accordingly, on 6 July 2016 the OSSG requested that ISDA lead an initiative to improve derivative contract robustness to address risks of discontinuance of widely-used interest rate benchmarks (see Appendix A). ISDA has welcomed the opportunity to convene discussions regarding these issues amongst its members and the public sector.[57]

While many global derivatives contracts reference widely-used IBORs, other products such as syndicated loans, floating rate notes, corporate bonds, securitisations and retail and commercial mortgages, as well as exchange-traded futures contracts, also reference these widely-used IBORs. Authorities will consequently need to engage with other market participants, including commercial and mortgage banks, which use products referencing these IBORs, as well as their relevant trade associations, including commercial and mortgage banks, where relevant and appropriate, around these issues.

The contractual robustness subgroup of the OSSG has been established initially to liaise on behalf of the OSSG with ISDA in relation to ISDA's work on this topic. The subgroup's mandate also extends to providing views from time to time to ISDA on behalf of the OSSG and to convey issues to the OSSG for resolution, as required.

While the work is market-led, the OSSG has recommended the ISDA working-group adhere to the following high-level principles as it reviews possible fall back arrangements:

1. To the extent possible, the contractual provisions should seek to avoid any discontinuity in valuations in the event that the fall back is triggered. Minimising the impact on valuations will help to avoid any potential for disruptions to financial stability.
2. At the same time, the contractual provisions must be robust, sensibly safeguarding against any potential for manipulation or potential for noisy data or the methodological construction of the spread itself to allow the fall back to clearly deviate from what most market participants would construe as a reasonable or fundamental value for an IBOR swap.
3. Any method should not impede, to the extent possible, any efforts towards voluntary transition.

The OSSG and the ISDA working group have discussed a number of possible suitable arrangements for a fall back methodology and associated issues such as selection of a calculation agent and availability and access to data sources.

[57] The ISDA working group includes a wide range of stakeholder groups including banks, broker-dealers, buy-side firms and benchmark administrators.

The ISDA working group considers that there are significant risks if a wide range of market participants do not adopt the new fall back methodologies. In particular, there are some concerns that buy-side firms would not be incentivised to include the new fall back methodology absent regulatory intervention. If only dealers amend their contracts to include the new fall back methodology, there could be sharp disruptions in markets stemming from disagreements among counterparties. Further, basis risk may be introduced to the extent that fall backs are not widely adopted.[58] The FSB understands the risks involved and strongly encourages market-wide adoption of agreed robust contractual fall backs across all products that reference these benchmarks.

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 fall back) 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.[59] 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.[60] In circumstances where national rules do not reflect this provision or are unclear, 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.

[58] Basis risk is the risk that offsetting products in a hedging strategy will not experience price changes in an aligned way and thus the portfolio may experience overall price changes which were not intended.

[59] http://www.bis.org/bcbs/publ/d317.pdf

[60] ibid, footnote 20 on page 25

Appendix A – List of Abbreviations and Acronyms

2014 Report	See footnote 1
2016 Progress Report	See footnote 2
ABS	Association of Banks in Singapore
ARRC	Alternative Reference Rates Committee (US)
ASIC	Australian Securities and Investments Commission
BA	Banker’s Acceptance (Canada)
BBSW	Bank Bill Swap Rate (Australia)
BCB	Brazilian Central Bank
BCBS	Basel Committee on Banking Supervision
BdM	Banco de México
BMR	EU Benchmarks Regulation
BoJ	Bank of Japan
CDOR	Canadian Dollar Offered Rate
CFR	Council of Financial Regulators (Australia)
CORRA	Canadian Overnight Repo Rate Average
ECB	European Central Bank
EFFR	Effective Fed Funds Rate
ESMA	European Securities and Markets Authority
EMMI	European Money Markets Institute
EONIA	Euro Overnight Index Average
EURIBOR	Euro Interbank Offered Rate
FCA	Financial Conduct Authority (UK)
FSB	Financial Stability Board
FSMA	Belgium Financial Services and Markets Authority
GC	General collateral (in relation to repos)
HIBOR	Hong Kong Interbank Offered Rate
HKMA	Hong Kong Monetary Authority
HONIA	Hong Kong Dollar Overnight Index Average
IBA	ICE Benchmarks Administration Ltd.
IBOR	Interbank Offered Rate – in particular, EURIBOR, LIBOR and TIBOR
IOSCO	International Organization of Securities Commissions
IOSCO Principles	IOSCO *Principles for Financial Benchmarks*
JBA	Japanese Bankers Association
JBATA	JBA TIBOR Administration
JFSA	Japan Financial Services Agency
JIBAR	Johannesburg Interbank Average Rate
LIBOR	London Interbank Offered Rate
MAS	Monetary Authority of Singapore
NWG	National Working Group (Switzerland)
OBFR	Overnight Bank Funding Rate (US)

OIS	Overnight Indexed Swap
OSSG	FSB Official Sector Steering Group
PAI	Price Alignment Interest
RBA	Reserve Bank of Australia
RFR	nearly risk-free reference rate
SARB	South African Reserve Bank
SARON	Swiss Average Rate Overnight
SFEMC	Singapore Foreign Exchange Market Committee
SIBOR	Singapore Interbank Offered Rate
SRR	Swiss Reference Rates
SOFR	Secured Overnight Financing Rate
SONIA	Sterling Overnight Index Average
Strate	South Africa's central securities depository
TB	Treasury Bills (South Africa)
TIBOR	Tokyo Interbank Offered Rate
TIIE	Equilibrium Interbank Interest Rate (Mexico)
TMA	Treasury Markets Association (Hong Kong)
TOIS	Tomorrow/next Indexed Swaps (Switzerland)
VWAP	Volume Weighted Average Price

Appendix B – Members of the FSB OSSG Benchmark Group

Co-Chairs	**Andrew Bailey** Chief Executive Officer Financial Conduct Authority UK
	Jerome Powell Member Federal Reserve Board of Governors
Australia	**Chris Kent** Assistant Governor, Financial Markets Reserve Bank of Australia
Brazil	**Claudio Henrique da Silveira Barbedo** Deputy Advisor, Open Market Operations Department Central Bank of Brazil
Canada	**Paul Chilcott** Advisor to the Governor Bank of Canada
Hong Kong	**Henry Cheng** Executive Director, Monetary Management Department Hong Kong Monetary Authority
Japan	**Ryota Hattori** Head, Market Infrastructure Division, Financial Markets Department Bank of Japan
	Kenji Oki Director for International Banking Regulations Financial Services Agency
Mexico	**Rodrigo Cano** Director of Operations Support Bank of Mexico
Singapore	**Cindy Mok** Director, Monetary and Domestic Markets Management Monetary Authority of Singapore
South Africa	**Leon Myburgh** Head, Financial Markets Department South African Reserve Bank

Switzerland	**Marcel Zimmermann** Head, Money Market and Foreign Exchange Swiss National Bank
UK	**Chris Salmon** Executive Director, Markets Bank of England
US	**Chris Giancarlo** Acting Chairman Commodity Futures Trading Commission
ECB	**Cornelia Holthausen** Principal Adviser, General Market Operations
EBA	**Adam Farkas** Executive Director
ESMA	**Fabrizio Planta** Head, Markets Division
IOSCO	**Jean-Paul Servais** Vice Chairman of the Board (Belgium Financial Services and Markets Authority)
FSB Secretariat	**Laurence White** Member of Secretariat

Appendix C – Letter from Co-chairs of Official Sector Steering Group to International Swaps and Derivatives Association

FSB FINANCIAL STABILITY BOARD

CO-CHAIRS
OFFICIAL SECTOR STEERING GROUP

7 July 2016

Mr Scott O'Malia, Chief Executive Officer
Mrs Katherine Tew Darras, General Counsel

International Swaps and Derivatives Association
360 Madison Avenue, 16th Floor
New York, NY 10017

By email

Dear Mr O'Malia and Mrs Tew Darras

Derivative contract robustness to risks of interest rate benchmark discontinuation

Thank you for the recent briefings you have given our offices about ISDA's potential work to increase derivative contract robustness against the risk that a key interest rate benchmark could be discontinued permanently.

We are writing as Co-chairs of the Financial Stability Board's Official Sector Steering Group (OSSG) of regulators and central banks to welcome this initiative, and to encourage your engagement in this important work to enhance the robustness of contracts referencing widely used interest rate benchmarks and to mitigate potential financial system risks in this area.

We would welcome a dialogue with you, as part of our engagement with industry participants, on how to structure and promote work to address this issue. As a starting point, it may be helpful for you to have our views in more detail on the desirable outcomes from a public policy standpoint, and some initial thoughts on possible ways in which those outcomes could be achieved. Some background to our interest in this issue is set out in a brief annex.

From a public policy perspective, we believe that key goals should be that market participants understand the fall back arrangements that would apply if a permanent discontinuation of a key interest rate benchmark occurred, and that these arrangements should be robust enough to prevent potentially serious market disruption in such an event. This should include the possible scenario where an administrator is no longer able to determine a reference rate. Applicable contractual fall backs should ideally be used for existing derivatives contracts as well as future ones, and, in the EU, it will effectively be a regulatory requirement that they do so in some circumstances.

Suitable arrangements could include a series of fall back rates, using one or more of the following elements, as examples:

- The rate chosen by the groups working with OSSG members to help identify alternative rates for each relevant currency area could potentially be a fall back, plus or minus a designated spread, where applicable.
- Other alternatives could include one or more other rates, each of which might be used directly or by applying an adjustment factor based on the historical pattern between the fall back and the discontinued reference rate. Specific fall back reference rates set out in an administrator's published contingency plans could be used.
- Although other alternatives could be considered, a decision-making body with ultimate authority to implement a benchmark succession plan could be convened or established, if this was needed as a final backstop. The decision-making body could, for instance, choose to implement an interim successor rate (in order to minimise market disruption), followed by a more permanent rate designation at a later date, following appropriate industry consultation.

Following the G-20 commitments on financial regulatory reforms, various jurisdictions have implemented requirements for mandatory clearing of certain types of swaps or OTC derivatives. Many transactions not subject to these clearing requirements continue to be supported by ISDA documentation. For such OTC derivatives, we believe that ISDA is well placed to lead an initiative to improve contract robustness.

If ISDA were to take this initiative forward, we contemplate that the work involved would be carried out with the support and participation of a range of market participants. Participation in the work should be as open as is practicable, and determined using clear, open and transparent criteria, observing relevant competition law requirements. We would also invite you to liaise closely with the OSSG and interested authorities, especially authorities from the home markets of each key interest rate or which oversee the entities that are leading contributors to the rate.

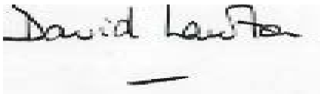
In addition to what is described above, we contemplate that you would:

- engage in outreach to a wide range of stakeholder groups;
- co-ordinate activities with other relevant trade associations in order to endeavour to develop an approach for derivatives documentation which is also consistent with documentation for other instruments; and
- develop an implementation plan, with timelines, to adopt the agreed fall back provisions, potentially by way of a protocol, amongst a broad group of market participants, and to create ways to measure adoption.

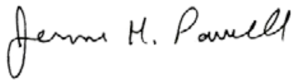
You may be aware that some market participants face requirements to put in place fall back provisions by the end of 2017. In order for any work by the industry in this area to be as useful as possible, it could be useful for this to also be completed by the end of 2017.

We look forward to hearing from you.

Yours sincerely,



David Lawton
Director of Markets Policy & International
UK Financial Conduct Authority



Jerome Powell
Member, Board of Governors of the
Federal Reserve System

ANNEX

The FSB, in connection with a G20 request, published a report on interest rate benchmark reform in July 2014 in which it made a number of recommendations developed by the OSSG.[61]

The FSB has mandated the OSSG to monitor and oversee the implementation of benchmark reforms pursuant to those recommendations. The OSSG will also undertake any other tasks requested by the FSB to support the strengthening of interest rate benchmarks.

As part of its deliberations in developing its July 2014 recommendations, the OSSG established and guided the work of a Market Participants Group (MPG). In its final report to the OSSG, published in July 2014, the MPG stated that, "in most cases, fall-back provisions are not sufficiently robust for a permanent discontinuation of a key IBOR."[62] The MPG noted that in the case of such an event, "Without carefully considered alternatives and mitigants, claims of contract frustration could arise. In the worst case, there could be widespread valuation and accounting problems, and workout costs could be severe."[63] In our opinion, these findings call for work to ensure that contract fall backs are more robust to this form of risk.

There is also support for the potential work being considered by ISDA from other initiatives, including, for example:

- The IOSCO Principles for Benchmarks: Principle 13 provides that benchmark administrators should encourage users to have robust fall back provisions in contracts or financial instruments that reference a benchmark in the event of cessation of the referenced benchmark.
- The EU Benchmark Regulation[64] provides that supervised entities that use a benchmark must produce and maintain robust written plans setting out their actions in the event that a benchmark ceases to be provided, which, where feasible and appropriate, shall nominate one or several alternative benchmarks that could be referenced to substitute the benchmarks no longer provided and indicating why such benchmarks would be suitable alternatives; those entities shall reflect the plans in their contractual relationship with clients.

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61 FSB (2014), *Reforming Major Interest Rate Benchmarks*, July; available at: http://www.fsb.org/wp-content/uploads/r_140722.pdf.

62 FSB (2014), *Final Report of the Market Participants Group on Reforming Interest Rate Benchmarks*, July; available at: http://www.fsb.org/wp-content/uploads/r_140722b.pdf.

63 Ibid

64 See Article 28 of the Regulation; text available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.171.01.0001.01.ENG&toc=OJ:L:2016:171:TOC