

Reforming Major Interest Rate Benchmarks

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Reforming Major Interest Rate Benchmarks

I. Executive Summary

The major interest reference rates (such as LIBOR, EURIBOR, and TIBOR) are widely used in the global financial system as benchmarks for a large volume and broad range of financial products and contracts. The cases of attempted market manipulation and false reporting of global reference rates, together with the post-crisis decline in liquidity in interbank unsecured funding markets, have undermined confidence in the reliability and robustness of existing interbank benchmark interest rates. Uncertainty surrounding the integrity of these reference rates represents a potentially serious source of vulnerability and systemic risk. Against this background, the G20 asked the FSB to undertake a fundamental review of major interest rate benchmarks and plans for reform to ensure that those plans are consistent and coordinated, and that interest rate benchmarks are robust and appropriately used by market participants.

To take the work forward, the FSB established a high-level Official Sector Steering Group (OSSG) of regulators and central banks. The OSSG was assigned responsibility for coordinating and maintaining the consistency of reviews of existing interest rate benchmarks and for guiding the work of a Market Participants Group, which was in turn tasked to examine the feasibility and viability of adopting additional reference rates and potential transition issues. The FSB decided that the OSSG should focus its initial work on the interest rate benchmarks that are considered to play the most fundamental role in the global financial system, namely LIBOR, EURIBOR and TIBOR (the “IBORs”).

The OSSG was asked by the FSB to take forward the following strands of work:

- 1. To review standards and principles for sound benchmarks and prepare recommendations for conducting assessments of the governance and processes that relate to existing interest-rate benchmarks using a single consolidated set of standards and principles. Assessing the relevant benchmarks against internationally agreed standards is intended to demonstrate to the market and the general public that the deficiencies in benchmark design and the absence of robust governance processes that contributed to past abuses involving these benchmarks are being effectively addressed. On the recommendation of the OSSG, the FSB endorsed the adoption of the IOSCO Principles for Financial Benchmarks. The FSB asked IOSCO to conduct a review of EURIBOR, LIBOR, and TIBOR against the Principles and report its findings to the OSSG. The IOSCO Board agreed to this request.*
- 2. To encourage the private sector to identify additional benchmark rates and to analyse the transition issues arising in the event of a move to an alternative rate. As requested by the FSB, the OSSG established a Market Participants Group (MPG) to take this work forward. The MPG was chaired by Darrell Duffie, Professor of Finance at Stanford University. The Vice-Chair was Stephen O'Connor, the Chair of the International Swaps and Derivatives Association (ISDA).*

The IOSCO review (mentioned under 1.) found that all three relevant administrators have made significant progress in implementing the majority of the Principles. Given the short timeframe, administrators have made good progress in implementing most of the governance-related Principles and have mostly implemented the transparency and accountability Principles. However, the Review found that further progress is needed in ensuring that the Principles on benchmark design, data sufficiency and transparency of benchmark determinations are implemented. Regarding data sufficiency, the three administrators did not provide sufficient data or information to the Review Team to allow it to rate any of the administrators. The administrators have subsequently been asked to perform a thorough analysis on the activity of the interbank and wholesale funding markets that their benchmarks seek to represent and to share this information with IOSCO. Administrators are expected to comply with this request (and submitting banks to assist them), but it is also recognised that fully meeting the Principle of data sufficiency may require administrators to consider a wide set of methodological changes to or clarification of the market the benchmark is intended to represent. The FSB strongly urges both administrators and submitting banks to begin this process.

The Market Participants Group provided its report to the OSSG in March 2014. The OSSG has assessed the feasibility and viability of the reformed and alternative benchmark rates proposed by the MPG as requested by the FSB. To support this assessment, the OSSG formed five currency subgroups – Euro, British pound, Swiss franc, U.S. dollar, and Japanese yen – to consider and make recommendations, taking into account the market structure, institutions, legal and regulatory framework within each home currency area. A global subgroup was also formed and asked to consider steps other jurisdictions could take to promote an orderly transition to alternative benchmarks proposed by the currency subgroups. Based on these recommendations, and the input from the MPG and IOSCO, this report sets out concrete proposals, plans and timelines for the reform and strengthening of existing benchmarks and for additional work on the development and introduction of alternative benchmarks. The recommendations and implementation plans have been fully endorsed by the FSB Plenary.

While each currency area faces particular conditions that influence the specific recommendations, members agree on the general principles to guide the reform and transition to alternative benchmarks. These principles suggest a multiple-rate approach that is very much in line with the MPG's recommendations:

- (1) Strengthening existing IBORs and other potential reference rates based on unsecured bank funding costs by underpinning them to the greatest extent possible with transactions data (the MPG calls these enhanced rates “IBOR+”).*
- (2) Developing alternative, nearly risk-free reference rates. Members believe that there are certain financial transactions, including many derivatives transactions, that are better suited to reference rates that are closer to risk-free. Developing such alternative reference rates meets the principle of encouraging market choice.*

While there is widespread support for the multiple-rate approach, there will necessarily be heterogeneity across currencies in terms of how this approach is implemented. There are several reasons for this heterogeneity including differing availability of underlying transactions data, different markets for near-risk-free rates, and different levels of willingness

and scope to use supervisory or other means to encourage market participants to adapt to the multiple-rate approach.

The OSSG recommends implementation of the multiple-rate approach in line with the agreed principles to guide transition. The currency subgroups should work with and guide the private sector to implement new designs and methodologies for IBOR+; and, where currently absent, identify viable near-Risk Free Rates (RFR) supported by robust methodologies in their currency areas. Each group should focus on the feasibility of new rate methodologies, including identification of suitable administrators and any necessary infrastructure to support these rates.

The FSB has endorsed the recommendations and mandated the OSSG to monitor and to oversee the implementation of the benchmark reforms. Going forward, the main duties of the OSSG will be to monitor progress against the recommendations of this report, to promote effective information exchange and to coordinate international transition efforts. A final monitoring report would be delivered 24 months after publication of the FSB report – an interim progress report would be provided after 12 months.

II. Introduction

The cases of attempted market manipulation and false reporting of global reference rates, together with the post-crisis decline in liquidity in interbank unsecured deposit markets, have undermined confidence in the reliability and robustness of existing interbank benchmark interest rates. As it is well understood, without sustainable liquidity in unsecured interbank markets and strong governance frameworks the price discovery process in those markets will remain vulnerable to manipulation, thus affecting the credibility and reliability of the benchmarks that draw on them. Because the major reference interest rates (LIBOR, EURIBOR, and TIBOR) are widely used in the global financial system as benchmarks for a large volume and broad range of financial products and contracts, uncertainty surrounding the integrity of these reference rates represents a potentially serious systemic vulnerability and systemic risk.

The official sector has a role to play in ensuring that widely-used benchmarks are held to appropriate standards of governance, transparency and reliability. A number of measures have been proposed by national regulators, international standard setting bodies and central banks – including the Wheatley Review of LIBOR, and reviews by EBA/ESMA, IOSCO, and the BIS ECC Governors of reference rates as a whole – to restore the governance and oversight processes of benchmark rates. Against this background, the G20 asked the FSB to undertake a fundamental review of major interest rate benchmarks and of plans for reform, to ensure that plans are consistent and coordinated, and that interest rate benchmarks are robust and appropriately used by market participants.

The FSB specified the relevant criteria that should be used to ensure reference rates command widespread private and official sector support:

1. The benchmark rates should minimise the opportunities for market manipulation.

2. The benchmark rates should be anchored in observable transactions wherever feasible.
3. The benchmark rates should be robust in the face of market dislocation and should command confidence that they remain resilient in times of stress.

Whilst recognising the need for careful management of any transition, the FSB agreed that the work to identify benchmark rates which meet these criteria could and should start promptly. This analysis was intended to consider both on-going work to strengthen existing interest rate benchmarks and also identification of suitable alternatives. The official sector was asked to initiate the process to identify and subsequently review benchmarks for their consistency with agreed principles and financial stability needs, with the first stage conducted in conjunction with market participants. In addition, the FSB highlighted the necessity to address issues that would arise in any transition.

To take this work forward, the FSB established a high-level Official Sector Steering Group (OSSG) of regulators and central banks. The OSSG was assigned responsibility for coordinating and maintaining the consistency of reviews of existing interest rate benchmarks and for guiding the work of a Market Participants Group, which was in turn tasked with examining the feasibility and viability of adopting additional reference rates and potential transition issues.

The OSSG work was co-chaired by Martin Wheatley, CEO of the UK's Financial Conduct Authority, and Jeremy C. Stein, Member, Board of Governors of the Federal Reserve System¹ and comprised senior representatives of central banks and regulatory agencies from the home markets of the most widely used interbank benchmark rates or that oversee the banks that are leading contributors to those benchmarks (Annex [1] lists the membership of the OSSG). The FSB decided that the OSSG should focus its initial work on the interest rate benchmarks that are considered to play the most fundamental role in the global financial system, namely LIBOR, EURIBOR and TIBOR.

An initial task for the OSSG was to review the standards and principles for sound benchmarks developed by the relevant standard setting bodies and recommend to the FSB whether adoption or endorsement of a single consolidated set of principles would be desirable. Following the recommendation of the OSSG, the FSB endorsed the IOSCO *Principles for Financial Benchmarks* (IOSCO Principles) published in July 2013 which cover the important issues of benchmark governance, integrity, methodology, quality and accountability.²

The OSSG was asked by the FSB to take forward two main strands of work:

1. To prepare recommendations for conducting assessments of the governance and processes that relate to existing interest-rate benchmarks using the endorsed IOSCO Principles. Assessing the relevant benchmarks against internationally agreed standards is intended to demonstrate to the market and the general public that the deficiencies in benchmark design and the absence of robust governance processes that contributed to past abuses involving these benchmarks are being effectively

¹ Professor Stein resigned from the Board of Governors with effect from May 28, 2014 to return to Harvard University. Jerome Powell, Member, Board of Governors of the Federal Reserve System was appointed as the co-chair of the OSSG to replace him from 13 June 2014.

² <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf>

addressed. The FSB accepted the OSSG recommendation that IOSCO be commissioned to conduct an initial review of the most widely used benchmarks against its Principles and that the assessment process should provide for public dissemination of its findings. The FSB is very grateful to IOSCO for accepting this commission and for preparing the assessment to the tight deadline (see Annex [2]).

2. To encourage the private sector to identify additional benchmark rates and analyse the transition issues arising in the event of a move to an alternative rate. As requested by the FSB, the OSSG established a Market Participants Group (MPG) to take this work forward. The MPG was chaired by Darrell Duffie, Professor of Finance at Stanford University. The Vice-Chair was Stephen O'Connor, the Chair of ISDA. The composition of the MPG sought to achieve a balance among currencies, jurisdictions, types of financial intermediary and the buy-side and sell-side. The terms of reference for the group covered two main areas³:
 - a. To propose options for robust reference interest rates that could serve as potential alternatives to the most widely-used, existing benchmark rates. The proposed rates should be consistent with the IOSCO Principles.
 - b. To propose strategies (testing, protocols, and timing) for any transition to new reference rates and for dealing with legacy contracts in the national or regional currency. This should include identifying problems that could arise in moving to new benchmark rates, and how these can be addressed.

The MPG provided its report and recommendations to the OSSG in March 2014, building on an interim report circulated in December 2013. The MPG report is available as an annex to this report (Annex [3]). The FSB is very grateful to the MPG for preparing a thoughtful and extraordinarily detailed report in a very tight timetable.

The OSSG was charged with reviewing the recommendations of the MPG and forwarding its observations to the FSB Steering Committee and Plenary. The OSSG has assessed the feasibility and viability of the reformed and alternative benchmark rates proposed by the MPG as requested by the FSB. This report identifies the issues that may arise in a transition to reformed or new proposed interest rate benchmarks, drawing on the MPG analysis and assessment, and make recommendations for addressing them. Based on this analysis, and the input from the MPG and IOSCO, this report sets out concrete proposals, plans and timelines for the reform and strengthening of existing benchmarks and for additional work on the development and introduction of alternative benchmarks. The recommendations and implementation plans have been fully endorsed by the FSB Plenary. The FSB has provided a new mandate to the OSSG to oversee and co-ordinate the implementation of the recommendations by the respective national and regional authorities to the timelines set out in this report. Implementation of the recommendations will ensure that financial benchmarks meet high quality standards of governance, integrity, methodology, quality and accountability which are necessary to address the identified problems and to command the confidence of users.

³ The full terms of reference and membership of the MPG are published as Annex 2 and 3 of the "Progress report on the oversight and governance framework for financial benchmark reform Report to G20 Finance Ministers and Central Bank Governors" available at http://www.financialstabilityboard.org/publications/r_130829f.pdf

III. The Role of Reference Interest Rates

A. Different uses of reference interest rates

Reference interest rates underpin a wide array of financial instruments used in global financial markets. The use of reference rates to price financial contracts reduces their complexity and facilitates standardisation. This lowers transaction costs and enhances liquidity, especially if particular reference rates are widely used. As a result, certain reference rates are now deeply embedded in financial systems, especially in loan and interest rate derivative contracts.⁴ Reference interest rates based on unsecured interbank term lending and borrowing have become dominant, partly because they facilitate the management of bank funding risk, but primarily because they were the first types of rates to be introduced, when bank credit spreads were low, and over time have emerged as the market standard facilitating the development of some of the most liquid financial instruments. As a result, LIBOR, EURIBOR and TIBOR (the “IBORs”) are now used in a wide array of instruments, including credit products and derivatives, as well as a number of corporate contracts, accounting, tax, capital and risk valuation methods.

As indicated in the estimates shown in Table 1, LIBOR is the most referenced benchmark in USD, GBP and CHF. EURIBOR is the dominant rate in EUR products. JPY LIBOR and TIBOR are the most referenced in JPY. The total notional outstanding amounts for LIBOR are estimated by the MPG at around \$220 trillion. For EURIBOR the outstanding amount is around \$150–180 trillion and TIBOR the figure is about \$5 trillion.

Table 1

Reference rate estimated notional volumes and maturity concentrations

Rate	Currency Type	Notional o/s (\$TN) ¹	Main Maturity Concentration
LIBOR	USD	\$150–160 TN	1 week, 1m and 3m and 6m
	GBP	\$30 TN	3m; then 1m & 6m
	JPY	\$30 TN	3m and 6m
	CHF	\$6.5 TN	3m and 6m
	EUR	\$2 TN	Low across all tenors
EURIBOR	EUR	\$150–180 TN	1m, 3m and 6m
TIBOR	JPY	\$5 TN	6m and 3m

Source: MPG Final Report currency Market Footprint overviews.

¹ Gross Volume

⁴ For further discussion, see BIS ‘Towards Better Reference Rates Practices: A Central Bank Perspective’, March 2013, pages 3, 4 and 5.

Most reference rate activity is concentrated at the shorter tenors, with the 3 month tenor being the most active across currencies. The 6 month tenors are used more in EURIBOR and CHF LIBOR; whilst EURIBOR also has important volumes in the 12 month tenor.

1. *Credit products*

IBOR reference rates are used in a variety of different credit-based products governed by very different arrangements. As described in Table 2, this includes loans, structured products, money market instruments, and fixed income products.

Table 2
Credit Products that reference Interest rate Benchmarks

Credit products		
Loans	• Commercial loans • Syndicated loans • Floating rate bank loans • Term loan market • Leveraged facilities • Intercompany loans	• Agricultural loans • Student loans • Credit card loans • Home equity loans • FHLB advances
Structured products	• Asset backed securities (ABS) • Mortgage backed securities (MBS) • Commercial mortgage backed securities (CMBS)	• Collateralised loan obligations (CLOs) • Collateralised mortgage obligations (CMOs) • Hybrids and synthetics
Short term money markets	• Foreign office deposits • Time deposits • Checking accounts • Money market deposit accounts • Demand deposit products • CDs	• Commercial paper • Medium-term notes (MTNs) • Securities lending
Bond other	• Corporate bonds • Auction rate securities • Agency notes • Exim bonds • Affordable housing bonds • Trust preferred securities • Covered bonds • Solvency II liabilities reference rate definition • Subordinate debt • Liquidity facilities • Penalty rates	• Senior notes • Capital leases • Trade finance • FA-backed notes • Direct fund agreements • Commercial leases • Interest calculations on I/C accounts of group companies • Pricing and accounting of money market, debt and derivatives • Benchmarks for asset management mandates

The totals outstanding of such products are much lower than those of derivatives; however a large proportion of these products are linked to each IBOR. Table 3 shows the proportions of IBOR linked products by currency and product types.

Table 3

Selected Credit Product linked to Reference rates

PRODUCT TYPE	USD	% of LI-BOR	EUR	% of EURI BOR	GBP	% of LI-BOR	CHF	% of LI-BOR	JPY	% of LI-BOR
Syndicated Loans	\$3.4 TN	97%	\$0.5 TN	90%	\$0.1 TN	100%	\$0.1 TN	50-70%	<\$0.1 TN	high ¹
Business Loans	\$2.9 TN	30-50%	\$5.8 TN	60%	\$3.3 TN	68%	\$0.2 TN	40-60%	\$0.3 TN	20%
Commercial Mortgages	\$3.6 TN	30-50%	—	60%	\$0.3 TN	low ¹	\$0.2 TN	15-25%	—	—
Retail Mortgages	\$9.6 TN	15%	\$5.1 TN	28%	\$1.7 TN	1-2%	\$0.7 TN	10-20%	—	—
Consumer Loans	\$2.9 TN	low ¹	\$1.9 TN	low ¹	\$0.3 TN	low ¹	—	—	—	—

Source: MPG Final Report currency Market Footprint overviews.

¹ no breakdown available within the source data.

2. *Derivatives*

Beyond credit products, IBOR rates have become widely referenced in major interest rate derivatives such as swaps, options, and forwards (Table 4). These types of derivatives have some of the largest outstanding notional volumes of all financial products.

Table 4

Derivative Products that reference Interest rate Benchmarks

Derivatives		
	• Swaps • Swaptions • Options	• Forward rate agreements • Swap futures • Interest rate futures and options

Whilst the largest outstanding volumes of IBOR related products relate to Over the Counter (OTC) derivatives, Exchange Traded derivatives (ETD) form a non-negligible proportion of reference rate linked derivatives. The MPG has estimated that between 60% and 90% of all interest rate OTC derivatives and ETDs are linked to LIBOR, EURIBOR, or TIBOR.

Table 5
Selected derivatives linked to reference rates

	Notional outstanding volume of OTC ¹	Volume linked to IBOR	Notional outstanding volume of ETD ²	Volume linked to IBOR
USD	\$171 TN	65%	\$32.9TN	92%
EUR	\$186TN	High ³	\$9.8TN	100%
GBP	\$46TN	62%	\$3.5TN	98.5%
CHF	\$6.1TN	98–100%	\$0.2TN	100%
JPY	\$24.3TN	58.3%	\$0.4TN	100%

Source: MPG Final Report currency Market Footprint overviews.

¹ OTC category consists of Interest Rate (IR) swaps, FRA's, IR options and cross currency swaps products.

² ETD category consists of both IR options and IR futures products. ³ no percentage breakdown available in source data.

Interest Rate Swaps (IRS) are the most transacted product within the OTC market. Percentages vary across currency type but IBORs broadly account for about 60 percent of outstanding volume (Table 5). Well over 90 percent of interest rate futures and options in the ETD market reference IBORs.

3. *The use of reference interest rates in other products*

While mainly used in financial instruments, IBOR reference rates are embedded in the global financial system through other applications. A partial list of the ways that reference rates are used, beyond pricing, includes:

- Valuation purposes: as discount rates for pension liabilities and some financial instruments;
- Accounting: fair value calculations for discounting provisions, impairments and financial leases;
- Performance benchmarks for asset managers;
- Project finance and trade finance;
- Taxes;
- Late payment clauses in commercial contracts. price escalation and adjustment clauses; and
- Regulatory cost of capital calculations: Discount rate for property valuations, Capital Asset Pricing Model (CAPM) to calculate regulatory cost of capital.

B. Market demand for different types of rates

Given the wide-ranging purposes which LIBOR, EURIBOR and TIBOR are used for, there is a potential market need for different types of reference rates that have, up to now, been met by these unsecured, interbank reference rates. Indeed, one of the findings of the MPG report (pp. 79) was that no “*single alternative benchmark rate that exists today that could fully replace LIBOR (or similar benchmarks).*”

The desire expressed in the MPG report for multiple rates lies behind the recommendation for at least two rates, one of which should be a risk-free or nearly risk-free rate, and another of which should include bank credit risk. Market interest rates can be decomposed into a risk-free rate and several risk premia, including a term premium, a liquidity premium, and a credit risk premium as well as potentially a premium for obtaining term funding. Reference rates such as the IBORs that are based on unsecured interbank markets reflect a premium for the credit risk of their contributing banks as well as potential term, liquidity, and funding premia. However, rates based on secured borrowing markets or for unsecured borrowing by sovereigns with little default risk would not contain this type of credit risk premium, and to the extent that they were based on more liquid markets, their liquidity premia would also likely be smaller. These rates would be credit risk-free or nearly so, though they could still contain other premia.⁵

Market participants noted that a credit risk-free or nearly risk-free rate would make sense for many derivatives transactions. The desire for a credit risk-free or nearly risk-free rate may reflect, in part, an expectation of continued greater reliance on secured funding, as well as ongoing structural changes in derivatives markets requiring greater use of collateral and shifts to central clearing. In some currencies, derivatives referencing these rates have been available for some time, but markets in these instruments are currently overshadowed by IBOR instruments because of the depth and liquidity in those markets (see pp. 17–18 of the MPG Report or Table 4 Market footprint by reference rate and asset class on p. 19). The MPG report included a number of risk-free rates in their menu of potential reference rates including term OIS rates, compounded overnight interest rates, government bond rates (in some currencies), policy rates and secured funding rates (see p. 21 Table 5 Summary Menu of Recommended Reference Rates for a complete list).

Market participants have also expressed a continued need for a reference rate with bank credit risk. This is seen as more appropriate for products where there is a need to hedge general bank credit risk such as bank-provided credit products. The report points out that the ‘IBOR’ family of reference rates originated with the use of LIBOR as a loan-pricing benchmark that allowed banks in London to hedge their cost of funds with their floating rate loan revenues and that its use for this purpose is still popular. Because rates with credit risk are likely to continue to be traded, there will be a need for basis markets between them and the risk-free rates that may develop in order to allow market participants to properly hedge their risks.

⁵ The premiums embedded in risk-free rates will differ by instrument; for example, while GC repo rates would still likely contain a premium for obtaining term funding, OIS rates, which do not involve the exchange of any principal, would not.

C. Fit for purpose (official sector's viewpoint)

The previous sections illustrate the wide range of uses of existing reference rates and the various demands that users of the rates attempt to satisfy with a single type of reference rate. This suggests that having a range of reference interest rates might offer more appropriate options that better fit the needs of heterogeneous market participants. A market convention with a range of reference rates increases flexibility for users to choose the rate that best fits their economic needs, e.g., a nearly risk-free rate for many derivatives and a rate with credit risk for bank lending products. In addition, the financial system would likely be somewhat more robust to operational risk and other disruptions with a wider range of commonly-used and familiar reference rates.

With respect to derivatives contracts, in terms of the economic exposures to which the counterparties would ideally be exposed, many transactions do not need a reference rate that includes bank credit risk. From a systemic perspective, having such a large stock of contracts settle on a rate based on a relatively small market creates undesirable incentive problems, and the MPG acknowledges this adds to the risk of manipulation (see. p. 23). Hence, shifting a material proportion of derivative transactions to a risk-free rate would reduce the incentive to manipulate rates that include bank credit risk and would reduce the risks to bank safety and soundness and to overall financial stability. Of course, the risk-free rates must be based on robust underlying markets and have proper design and governance to ensure that they themselves are adequately safeguarded against attempts at manipulation.

However, the market has functioned and developed with a dominant reference rate for some time. Coupled with the expressed desire for multiple, more widely used reference rates in the MPG report, the lack of movement by market participants to a multiple reference rate solution suggests agency problems, externalities or coordination problems. In particular, market participants are attracted to the fact that markets in products that reference the IBORs are deep and liquid and hence easy to transact in. In addition, the ubiquitous nature of these reference rates provides flexible hedging opportunities. Alternatives, even if they are better suited to the needs of market participants, are not liquid enough to be as widely used as would be desirable. This suggests a role for the official sector in facilitating a move to a multiple reference rate world in which the available rates would better meet the markets' demand. Without official sector leadership, there may well be no action by market participants, despite their desire for a greater range of reference rates. The MPG also acknowledges the need for an official sector role precisely because the various externalities with benchmark use are not internalised by individual market participants (see. p. 23 or p. 54).

IV. Framework for Change

A. Guiding principles

This section outlines objective criteria to guide public authorities and administrators in promoting reform to reference rates or to encourage a transition to alternative rates. These principles are useful to promote consistency across different currencies and jurisdictions. The aim of these principles is not to develop new standards for reference rate benchmarks; rather they are intended to underpin the framework for change and guide transition to alternative, additional or reformed rates.

1. IOSCO's principles for financial benchmarks

The starting point for any robust reference rates should be the agreed international standards created by IOSCO.

The July 2013 *IOSCO Principles for Financial Benchmarks* ('IOSCO Principles') set out an overarching framework of recommended practices for benchmarks used in financial markets. They address the governance, quality of the benchmark design, methodology and accountability of these benchmarks.

Implementation of these Principles by the administrators of current and any proposed alternative reference rate is necessary as the IOSCO principles provide the key elements for robust rates:

- The governance and accountability provisions are intended to ensure arrangements are in place to protect the integrity of the benchmark determination process.
- The design provisions are intended to ensure that any reference rate reliably reflects a credible market for the interest measured by the benchmark and is anchored in transactions.
- Transparency provisions are intended to support users to better understand the features of the benchmark, and of the underlying interest, which should aid their choice.

2. Additional principles for change

Whilst each currency faces specific conditions that will determine recommendations for the appropriate reference rates, there are some general factors and criteria that should be applicable across each jurisdiction to guide the reform and transition to alternative benchmarks. These guiding principles for change should be seen as additional to the core IOSCO Principles. In developing their recommendations, authorities should work with and guide the private sector.

- The overarching objective should be to transition to rates which are anchored in transactions. More precisely, in the first instance, reference rates should be based exclusively in actual transactions. However, in many cases insufficient transactions will be available to do this and so the exact degree of dependence on transactions should vary by currency and will depend on market liquidity, depth and data sufficiency. When the conditions in the local market do not allow pure transaction rates, i.e., ones derived mechanically from transacted data without use of expert judgement, authorities should work with and guide the private sector to promote rates which are derived on a waterfall of different data types: underlying market transactions first, then transactions in related markets, then committed quotes, and then indicative quotes.
- In pursuing the objective of moving to transactions-based rates, transition risks and costs should be minimised as much as possible. These risks and costs can include legal risks arising from litigation and contract frustration and increased hedging costs resulting from reduced liquidity in instruments referencing the alternative rate or from the greater volatility that may naturally occur in more transactions-based reference rates. However, whilst risks and costs arising from legacy contracts should

not be ignored, they should not be used to prevent changes regarded as necessary from a systemic perspective.

- Authorities should work with and guide the private sector to seek to ensure that any costs arising from transition are borne in a proportionate way amongst market participants and should not unduly impact the real economy.
- Public authorities have a responsibility for ensuring that the financial institutions they regulate do not use reference rates in ways that pose undue risk to the institutions themselves, to market integrity or to overall financial stability. Hence authorities should work with and guide the private sector to reduce overall risks posed by linking very large amounts of financial instruments to reference rates that they deem fragile. This notwithstanding, market participants should be able to choose among rates meeting the IOSCO Principles and use those rates in ways suited to their specific purposes so long as those uses do not pose a threat to the financial system or its integrity.
- Administrators should design benchmarks which are resilient to market stress and adaptable to varying conditions in the underlying markets.
- Finally, authorities should seek, to the extent possible, to promote international coordination in any recommendation for alternatives and transition paths. Given the international nature of capital markets, and the local nature of regulation and supervision, consideration should be given to rate reform in other jurisdictions when deciding on what changes to make in any particular jurisdiction, recognising that equivalent policy outcomes can be achieved through different legal, regulatory, or supervisory responses. In particular, work should be done to ensure that cross-currency hedging transactions are not unduly affected and that regulatory arbitrage is avoided.

B. Implications

A benchmark can only be as robust as its underlying market. Therefore, benchmarks should evolve with the market they intend to measure. However, while bank funding models have been evolving radically over the past decade – unsecured interbank market activity in many jurisdictions has declined noticeably as banks have increased their reliance on broader wholesale unsecured and secured financing – reference rate designs have not kept up with the developments in the wholesale funding market. A result of this, together with the growth in derivatives volumes, is that a significant divergence has occurred between the use of IBORs and the degree of activity in their underlying markets, and an increasing level of expert judgement and governance has been needed to fill the gap. This may increase the costs and the risks of using the IBORs not only to submitting banks but to the broader market.

A high concentration of contracts linked to the same reference rate may have important benefits particularly in terms of liquidity and ease of hedging, but may pose high risks to the overall system. Firstly, the sheer amount of contracts using a single reference rate increases the impact to financial stability if a dislocation occurs. Secondly, it increases the incentives for manipulation. Lastly, it reduces the incentives for market participants to make changes to the benchmark or to find alternatives that are more appropriate. The risks to the financial system are particularly acute when the reference rate in question is based on a market with

low levels of underlying activity. The key to any transition therefore should be to encourage a system of reference rates and their use that is less fragile and more able to evolve with changing market dynamics, in order to reduce overall risks to markets and to increase the choice of appropriate rates for participants.

These considerations and the principles set out above jointly suggest a multiple-rate approach that is very much in line with the MPG's recommendations. Members recognise the importance of working to strengthen existing IBORs by underpinning them to the extent possible with a greater amount of transactions data (the MPG calls these enhanced rates "IBOR+"), both because certain financial transactions may be better served by a reference rate incorporating credit risk and because the difficulties in transitioning legacy contracts strongly argue for an approach that seeks to preserve the continuity of existing contracts. At the same time, developing alternative, nearly risk-free reference rates meets the principles of encouraging market choice. As outlined in Section III, OSSG members believe that there are certain financial transactions, including many derivatives transactions, that may be better suited to reference rates that are closer to risk-free. These alternatives could be based on secured or government funding markets or on central-bank rates that are more immune to periods of financial stress than unsecured bank borrowing markets, further meeting the principle of encouraging robust reference rates.

A multiple-rate approach has several benefits to recommend it:

- It would provide flexibility to users by allowing them to choose amongst a range of reference rates, selecting one that best fits their economic needs.
- By moving away from a reliance on a single, dominant reference rate, the financial system as a whole would be more resilient in the face of operational risks or market disruptions involving a given reference rate.
- By seeking to preserve a set of rates with bank credit risk, the multiple-rate approach would help to avoid or minimise a costly transition of existing legacy contracts to a risk-free rate.
- Moving some transactions, in particular a large number of derivatives transactions, to alternative rates has the virtue of reducing the reliance of so many parts of the financial system on the much smaller, less liquid, and more fragile unsecured, interbank funding market.
- By linking these transactions to alternative rates, the incentives to manipulate benchmarks derived from the unsecured interbank market would be reduced considerably and financial stability may be strengthened. Of course, the alternative rates must be based on robust underlying markets and have proper design and governance to ensure that they themselves are adequately safeguarded against attempts at manipulation.

While there is widespread support for the multiple-rate approach, there will necessarily be heterogeneity across currencies in terms of how and when this approach is implemented. There are 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 markets participants to shift to the multiple-rate approach:

- Market liquidity, depth, and data sufficiency vary greatly by currency. In some currencies and tenors there may be sufficient transactions to support a purely transactions-based measure of IBOR+ if desired. In other currencies and tenors this is unlikely to be the case. Alternative approaches, for example that take into account judgement and quotes as well as transactions are favoured by some members. The OSSG is exploring the implications of heterogeneity across currencies and tenors. Different jurisdictions are collecting transactions-level data for bank borrowing, at least in part to examine the feasibility of constructing alternative reference rates.
- The range of potential risk-free rates that might be used as an alternative reference rate varies by currency. In some markets OIS rates are preferred by the official sector, but in other markets, such as U.S. dollar markets, the official sector has a number of concerns in regard to the current structure of OIS markets, or, in the case of the euro, on the currently prevailing design methodology for a new OIS reference rate. Some markets could make use of Treasury bill rates, such as the U.S. dollar and Japanese yen, but in other markets, this would likely prove impossible, such as in the euro. It is also possible that the range of available tenors may differ across currencies; in some currencies it may be sufficient for investors' purposes to have only a risk-free overnight reference rate, while term risk-free reference rates may be desired in others. OSSG members are continuing to explore a range of options within each currency, taking into account market liquidity and susceptibility to manipulation.
- Members have different statutory authorities and legal powers in relation to interest rate benchmarks. For example, the UK FCA has regulatory powers to enforce bank participation in LIBOR, while in Japan, the regulatory framework for financial benchmarks was enacted and will be enforced within a year, and relevant legal instruments have been proposed for legislation in the EU. Members are continuing to review the case for public sector intervention and in what form. Initial discussions have revealed a range of views. Although all members support promoting compliance of benchmarks with the IOSCO Principles, some members consider that it is much harder to justify intervention beyond that and favour market choice among IOSCO-compliant benchmarks. Other members, particularly the U.S. dollar currency group, note the possibility of coordination failures in the private sector, for example collective action problems in derivative markets preventing participants moving to a better (risk-free) benchmark, and the Federal Reserve has indicated a stronger willingness to intervene to facilitate a solution. Members agree that it would be useful to spell out clearly the various arguments for policy intervention but allow for different approaches across currencies given the differing political and economic constraints faced in various jurisdictions.

Although the FSB supports the concept of the multiple-rate approach, it also recognizes that it is not without some costs. Market liquidity is improved when the use of benchmarks is highly concentrated and overall market liquidity may decline if the market is fragmented across multiple reference rates. The impact of this type of fragmentation could be greater in jurisdictions where markets are smaller in overall size. Benefits from the current system of a single dominant benchmark include lower frictional hedging risks and costs, risk transfer synergies amongst a wide range of markets, simpler back office operations, valuation

consistency for risk, capital and tax purposes and improved transparency. Basis markets between the different rates would also need to be developed in order to allow market participants to hedge risks incurred as their assets and liabilities may reference different rates. The costs (and benefits) of the multiple-rate approach may also differ across participants. Although the market as a whole may benefit from a multiple-rate approach, some participants may not be willing to migrate their contracts to another alternative if their transition costs are too high or the new alternative is not appropriate for their needs. Some participants may not have the ability to change their contracts. As benchmark use moves to alternatives, those participants may suffer from reduced liquidity and transparency and increased hedging costs. Consistent with the principles, any transition will need to be carefully considered in order to minimise its costs and to make sure to the extent possible that those costs do not fall disproportionately on a single sector or group. Transition plans should specifically consider consumers and nonfinancial corporations and not simply focus on the financial sector.

In principle, a smooth transition from IBOR to IBOR+ could be made by having administrators adopt incremental changes in definition and methodology of the existing IBORs while retaining the legacy name of the reference rate. This transition should be smoothed by applying incremental step changes to reduce discontinuities between the values of the new and old rates at transition points, and where possible, would seek to adapt definitions (or interpretations thereof) and methodologies of existing IBORs to the current bank funding markets. Moreover, this transition method could make existing contracts less subject to legal challenge to the extent that plans are communicated in advance and each step change leads to a rate that is close to the previous IBOR fixing in value and volatility, thereby helping to minimise transition costs. However, optimal transition preparations depend on the planned changeover, existing provisions and other factors. If making incremental changes to existing IBORs proves inappropriate or too difficult or too slow, other forms of transition may be more suitable. Although transition costs should be minimised to the extent possible, the widespread existence of legacy contracts referencing IBORs should not be allowed to prevent a transition.

The transition to an entirely new rate for some products (derivatives) should also take transition costs into consideration. Such costs may be minimised by encouraging a substantial proportion of new contracts to be written on the new rate. By encouraging large numbers of contracts to reference the new rate, liquidity in the new rate may increase, which would reduce transaction costs. Once a critical mass of contracts using the new rate has been achieved, some market participants may wish to convert legacy contracts to the new rate (for example by way of an industry protocol for standardised derivative instruments). Such a conversion should be incentivised if it can be achieved at a low cost.

V. Currency Reports

A. Summary

As part of the assessment of policy preferences, the OSSG formed five currency subgroups – euro, British pound, Swiss franc, U.S. dollar, and Japanese yen – and a sixth global subgroup to consider factors specific to the market structure, institutions, legal and regulatory

framework within each jurisdiction relevant to interest rate benchmarks. Each currency subgroup was asked to consider:

- The objective of proposed interest rate benchmark reforms within their jurisdiction;
- Background and local features relevant to the use of interest rate benchmarks;
- Detailed proposals for alternative interest rate benchmarks, including requirements for implementing proposals; and
- Steps to implement proposals, along with actions to mitigate risks to implementation.

The global subgroup was asked to consider steps they could take to promote transition to alternative benchmarks proposed by the currency subgroups.

This section offers a high-level assessment of the most meaningful similarities and differences between the currency reports. The following section presents the complete currency reports. In addition, the accompanying table provides a comparison across reports in terms of objectives, broad proposals, details around potential alternative rates, authority to act, potential issues, and next steps.

The reports all strongly emphasise the need to develop interest rate benchmarks that are robust, reliable, and less prone to manipulation than existing, widely-used interest rate benchmarks linked to unsecured, interbank markets and they all agree that interest rate benchmarks should, at a minimum, meet IOSCO's *Principles for Financial Benchmarks*. In addition, the reports stress the critical importance of creating greater choice among a set of robust interest rate benchmarks. The preference for the development of a set of robust and reliable interest rate benchmarks to meet the varied needs of market participants is a long-running theme, including being expressed by both the BIS Economic Consultative Committee and the Market Participants Group. Consistent with enabling market choice of interest rate benchmarks that are the best fit for purpose, the currency reports largely support the “multiple-rate” concept: offering at least one interest rate benchmark that includes bank credit risk and at least one that is nearly risk free.

Another commonality across the reports is the realisation that considerable work needs to be done – by both the private and official sectors – to assess the feasibility and viability of potential alternative interest rate benchmarks, and to develop the market infrastructure to operationalize those ideas. The most immediate issues identified centre on the collection and analysis of transaction-level data and development of new trading platforms to support the production of interest rate benchmarks anchored in transactions.

There is widespread support for the broad contours of the framework for change, but the currency reports reflect important differences. One key difference is the role of the official sector in influencing private-sector choice of appropriate interest rate benchmarks. The U.S. dollar and British pound reports, for example, highlight a policy objective of shifting interest rate derivatives contracts – in particular those intended solely to manage duration risk – to referencing a nearly risk-free interest rate. The rationale for this preference includes reducing incentives to manipulate interest rate benchmarks linked to unsecured, interbank markets and better aligning the characteristics of interest rate benchmarks with the needs of particular instruments – i.e., a better fit for purpose. Other reports put more weight on the role of the private sector in creating market choice among a set of robust interest rate benchmarks, espousing a less active official sector role.

Currency-Specific Assessments of Reference Interest Rates

	Euro	British Pound	Swiss Franc	US Dollar	Japanese Yen	Global
Key Objectives and Principles	Private sector choice; Set of alternative rates that are fully compliant with EU laws, best practices, and regulations including IOSCO.	Wider set of robust interest rate benchmarks that enable participants to use the appropriate benchmark for each financial instrument.	Market choice; Consistency and standardization between currencies; More stringent minimum requirements for transparency and governance; Benchmarks should be better anchored in actual transactions; Prefer incremental changes and reforms.	Resistant to potential manipulation; Private sector choice among rates meeting official sector standards; Should not create financial stability risks.	The private sector should be responsible for making the choices and carrying out necessary steps; Widening the variety of reference rates that best fit needs may be useful; Discontinuation of TIBOR and JPY LIBOR should be avoided; Reference rates must be resistant to manipulation.	Users should have access to a variety of benchmark alternatives; Strong international coordination and communication on proposals to change major interest rate benchmarks.
High-Level Proposal	Supports at least two IOSCO-compliant reference rates: 1) include bank credit risk and 2) risk free.	Develop and maintain at least two categories of reference rates for different purposes: a rate with bank credit risk (LIBOR+) and a (near) "risk free" rate (RFR); Transition the majority of derivatives to risk-free rates, while credit products may retain a link to a rate with bank credit risk.	Reform CHF LIBOR and open to CHF IBOR+ and CHF OIS if feasible and viable.	Supports multiple-rate approach with risk-free rates serving as the dominant benchmark for new derivatives transactions and a LIBOR+ rate serving as the benchmark for credit products.	Supports multiple-rate approach with near risk-free rates and a proposed rate with bank credit risk component.	Need for additional communication, clarity, and transparency; advance warning; and clear timetables with long transitions.
Proposed (Near) Risk-Free Rate	EONIA; Encourage market participants to develop other risk-free rates such as OIS and repo.	Bank Rate, assuming market participants are prepared to develop the market and infrastructure and find a way to accommodate any future potential change in monetary policy framework that could lead to a change in the definition of the Bank Rate; If the Bank Rate is not deliverable, then OIS and SONIA rates.	Reformed TOIS (unsecured) with SARON (secured) as a fallback for overnight; Potentially CHF OIS depending on results of data collection efforts.	US Treasury rates, secured rate like Treasury GC repo or administered rates like IOER or RRP facility; Not OIS or FFER due to thin markets.	Consider OIS/OIR and Treasury Discount Bill rates: OIR could be uncollateralized O/N rate from BOJ	
Proposed Rate with Bank Credit Risk	Highest priority given to reforming EURIBOR; EURIBOR+, with design and transition plan by 1Q15.	Developing LIBOR to anchor it in a wider data set, e.g., a rate that more fully represents panel banks' wholesale funding costs.	Preferred solution is to significantly improve and strengthen current LIBOR; If CHF LIBOR is not sustainable, consider developing CHF IBOR+ with broader wholesale transactions.	Feasibility of LIBOR+ to be assessed after analysis of FR 2420 data.	Feasibility of TIBOR+ and JPY LIBOR+ be assessed after data collection.	

Definition of IBOR+	Fully anchored in wholesale unsecured borrowing transactions, but across a broader set of instruments and away from the concept of "prime banks" to include more firms.	Wider set of transactions in unsecured wholesale funding markets; Likely anchored in transactions, but not a mechanical or fully-automated approach given current market volumes.	Waterfall approach with interbank and wholesale transactions, followed by quotes, and then submissions from a panel of banks.	Defined by MPG as "term unsecured borrowing rates based on wholesale funding transactions beyond merely interbank loans"; Could include more banks, broader set of transactions, or different funding location.	Include transactions from interbank market and with corporate sector such as CDs and deposits; Incorporate a waterfall with quotes and judgement.
Future Data or other Work	Analyze EEBF/ECB data; Consultation with market participants; Precisely define data collection, calculation, publication and governance framework; Assessment of "Money Market Statistical Reporting Regulation"; Develop EUR Transition Task Force.	FCA tasking LIBOR administrator to work towards implementing an expanded LIBOR definition that would strengthen the anchoring in transactions. This will involve (i) working with market participants to collect more data on wholesale funding transactions and (ii) an assessment of whether maturities greater than six months should be discontinued; A group to be set up, coordinated by the Bank of England, to develop robust risk-free rates that could be used to support derivatives (either Bank Rate or SONIA/OIS as above).	Voluntary market survey of Swiss banks and SNB counterparty banks for data related to IBOR+ planned for 2Q14; Strengthen governance TOIS and SARON.	Evaluate FR 2420 data, likely by 2Q15; Work with U.S. Treasury to assess constant maturity treasury (CMT) rate; Assess Treasury GC repo markets; Work with market participants to shift a substantial portion of new derivatives transactions to risk-free reference rate.	Collecting data on banks' borrowing in unsecured markets, followed by data analysis, discussion with the industry, consideration of fixing and transition, and consideration on potential administrators; Public consultation, coordination and planning with the industry and the administrator would be needed.
Main Identified Concerns	Systemic importance of EURIBOR.	For LIBOR+, there are risks of contract frustration if the definition changes too far, too fast; Pure transactions are likely to be more volatile, which market participants will not welcome; For risk-free rates, there are risks of derivatives users continuing to favour existing liquidity and not developing or using appropriate alternatives.	Willingness of market participants to switch to a new money market trading platform; Data sufficiency; If CHF LIBOR reforms are effective, limited desire to reform or establish alternatives.	Unclear data sufficiency for LIBOR+ concept; Ability to shift derivatives.	Fragmentation of market liquidity; Data sufficiency. Consider impact on cross-currency basis swap markets if large changes; Some concerns on potential implications for local currency benchmarks.

Authority	EBA/ESMA Principles for Benchmark-Setting Processes and forthcoming regulation of the European Parliament and of the Council on indices used as benchmarks; Public authorities can guide and facilitate private sector work, but final responsibility with private sector.	LIBOR is a regulated benchmark in the UK; For risk-free rates, consider whether it is feasible to issue recommendations to UK-regulated firms to move derivatives to a risk-free rate; Use moral suasion on dealers to facilitate a voluntary transition of legacy derivative books once sufficient traction has been gained and shorter-run contracts have expired.	Swiss authorities have no explicit statutory power to regulate reference rates; Swiss authorities cannot prohibit the use of benchmarks which do not fully comply with IOSCO principles; The legal basis for regulation is currently under discussion.	Responsibilities for regulated financial institutions and U.S. financial stability; the Commodity Exchange Act and CFTC rules require regulated entities to ensure that listed derivatives, including those based on reference rates, are not readily susceptible to manipulation.	While the regulation sets out general supervisory measures on the administration of financial benchmarks, it does not grant the authorities the power to force market participants to use or prohibit the use of any particular financial benchmark. The desirability of such power is also questionable. The best that can be done would be moral suasion.	Global group largely "takers" of benchmarks and little direct influence; Official sector could encourage coordination and communication.
Main Transition Issues Identified	Acceptance of market participants; Banks need to remain in panel and avoid disorderly transition; Robust and timely data collection; Risk of panel discontinuity; Contract frustration; Termination of existing contracts, phase-in/phase-out, and contract continuity.	Need for the current administrator to consider performing incremental changes in consultation with the industry; LIBOR should be retained and used for legacy books until alternatives exist; For the risk-free rate, market participants will need to assess how the associated infrastructure would need to develop, including how a term fixing could be best calculated.	CHF LIBOR cannot be reformed to be IOSCO compliant; Necessary setup is not ready within timeframe; Alternative rates not widely accepted; Litigation risks; Current CHF LIBOR ceases to exist during transition.	Focus on underlying rates for risk-free alternatives; Extent to which current LIBOR can be improved and strengthened; Discussion of contingencies if LIBOR+ is not feasible.	Difficulty in seamless transition if the horizon of data widens; Incremental expansion could be a mitigant to transition risks; Decision-making and action on the transition by the administrator and users are essential; Possible manipulation even with actual transactions; Limited volume of actual transactions for long tenors; Transition issues remains if incentives for users are not sufficient.	Reasonably lengthy, but finite transition period should be defined by authorities; Active outreach and consultation with market participants; Leverage industry associations; Need parallel benchmarks during transition period.

B. Individual currency reports

1. Euro currency report

1. Objectives and background

The use of reference rates in private contracts is a matter of private choice and agreement between the parties. To allow for such a choice, it is essential that a set of robust alternative reference rates, which could meet with their needs, are available to private agents. Such reference rates shall be fully compliant with international and European best practices, laws and regulations that cover them. For the European Union, they will need to observe:

- the EBA/ESMA Principles for Benchmark-Setting Processes in the EU issued in June 2013 and the *Principles for Financial Benchmarks* issued by IOSCO in July 2013 which are the state of the art international standards for such reference rates, and
- the forthcoming regulation of the European Parliament and of the Council on indices used as benchmarks in financial instruments and financial contracts.

The administrators of the largest systemically relevant reference rates in various currencies have made concrete and commendable improvements in the establishment, calculation and publication of reference rates, especially in the respective governance frameworks. The current work of IOSCO, as mandated by the FSB, to assess the degree of compliance of such reference rates with the international principles is crucial to define the scope of what still needs to be done in reforming reference interest rates.

It should also be stressed that if alternative reference rates replace the reference rates currently used in the market then there will be a problem with the legal continuity of contracts. The transition to these alternative rates therefore needs to be managed. This can be done for instance, by means of protocols to agreement issued by the market associations and other forms of private sector coordination. See further considerations in section 3.c.

2. Detailed proposals for interest rate benchmarks

On the basis of the analyses carried out by the BIS in 2012 and the MPG in 2013/2014, market participants have expressed a clear need for at least two categories of reference interest rates:

- one that includes a bank-credit-risk component and thus reflects bank funding costs, and
- another one that is as (bank credit) risk-free as possible.

While there is indeed still a large demand in the financial system and the real economy for the first category of reference interest rates (for EUR, EURIBOR as the most predominantly used and systemically-relevant index), a reference rate incorporating a bank-credit-risk component might not necessarily be appropriate for financial contracts that express trading on interest rate expectations and indeed it seems that parts of the financial market, like the derivatives industry, are considering transitioning out of the current EURIBOR and LIBOR references for interest rate swaps and related instruments.

In order to concretely implement the principle that private agents should have available various IOSCO-compliant reference rates to choose from, it is recommended that for each category of reference interest rates at least one IOSCO-compliant reference interest rate is available to private agents.

The recent investigations and sanctions in the field of reference interest rates have dramatically increased the attention of market participants (as well as official institutions) to reference rates and the appropriateness of their use in specific contracts and for specific purposes (e.g. determination of payoffs, re-valuation of positions, risk management). Several market initiatives have been started in the European Union to reform, improve or devise new reference rates from different segments of the money market. As most of such initiatives are on-going, it is difficult at the current stage to have a clear opinion on all of them and, therefore, to make definitive recommendations on the appropriate reference interest rates for EUR, beyond those which exist and are either IOSCO-compliant or are being reformed to be IOSCO-compliant.

In the on-going developments of alternative reference interest rates for the euro, market participants are urged to:

- Thoroughly analyse the financial market segment on which a possible new reference interest rate would be based, by collecting empirical evidence to assess data sufficiency and ascertain the feasibility of transactions-based reference rates;
- resort to rate setting methodologies different from real-transactions-based ones (e.g. committed quotes or expert judgement) only when empirical evidence does not support the feasibility of transactions-based reference rates; and
- develop indices that reflect market conditions across the whole euro area.

a. Proposed risk-free or near-risk free rate

A viable and actively used nearly-credit-risk-free reference interest rate, supported by a robust governance framework that is now being strengthened by the European authorities and its administrator is already available: EONIA, i.e. the reference overnight rate set since 1999 by the EURIBOR-EBF⁶. 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) and is extremely relevant for the euro market.

Other nearly-credit-risk-free alternatives, e.g. OIS or repo reference rates, would in principle be also possible alternatives, but specific reference interest rates are not recommended at the current stage of the development of robust reference rates anchored in transactions. Market participants are encouraged to continue developing such alternatives, notably in the context of the current work by the EBF and market participants to improve EUREPO and the EONIA Swap Index⁷, in line with the approach recommended above, in particular rolling out new reference rate designs only after having thoroughly analysed the underlying market on the basis of real transaction data, to investigate the feasibility of fully transactions-based reference rates, in line with the recommendations contained in this report. Finally, market participants are encouraged to ensure IOSCO compliance in the development of new reference rates.

b. Proposed rate with bank credit risk component

⁶ EURIBOR-EBF has recently announced that the company has been renamed; it has become the European Money Markets Institute (EMMI) since 20 June 2014.

⁷ The EONIA Swap Index has been discontinued as of 1 July 2014.

Currently the need to use a reference interest rate that embeds a bank credit risk component is fulfilled by EURIBOR. Due to the substantial systemic relevance of EURIBOR in the euro area and in the euro market at large, the highest priority should be given to reforming the existing EURIBOR rate and ensuring that it is anchored in real transactions to the extent possible. To the extent that further reform towards a transactions-based reference rates is deemed desirable – as for example clearly reflected in the Final Report of the Market Participants Group – a so-called EURIBOR+ as it is currently developed by EURIBOR-EBF could be a robust and viable reference interest rate to ensure anchoring in real transactions and eventually replace the current EURIBOR.

EURIBOR+ is defined as an index of interest rates from real wholesale unsecured borrowing transactions by a group of banks active in euro funding markets. The concept of EURIBOR+ acknowledges that the most appropriate reflection of the marginal cost of unsecured wholesale funding of the primary banks in the euro area has evolved over the course of the last 15 years from an interbank channel to a broader set of unsecured borrowing instruments: the issuance of short-term securities, interbank deposits, short-term deposits from non-bank private and public financial institutions and corporate deposits defined as wholesale. It would also allow departing from the concept of prime banks, which over the years has been considered lacks detail and specificity: such concept would be replaced by the concept of the borrowing by a broad panel of banks, representative of the whole euro area market, which would be more operational.

3. Requirements for implementation of the proposals

In this section, we review on a conceptual and practical level the requirements that EURIBOR-EBF would need to take into consideration in transitioning EURIBOR into EURIBOR+.

a. Implementation plan

Up to now, a thorough investigation of the feasibility of EURIBOR+ and an analysis of alternative definitions and calculation methodologies has been performed and also presented to the OSSG. Such technical design is now being discussed with the existing EURIBOR panel banks, its stakeholders at large and the regulatory and supervisory authorities. In particular, in the next few months the administrator of EURIBOR, EURIBOR EBF, has indicated its intention to reach out to a broad range of users to collect feedback on the intended technical design of EURIBOR+: namely corporates, asset managers and derivatives users.

Besides the technical design, there will be a need to define precisely the data collection, calculation, publication and governance framework of such new reference interest rate and roll it out. An illustrative roadmap with specific milestones for the preparatory work for EURIBOR+ is provided hereafter.

A precise timeline would need to be established by EURIBOR-EBF, which could take into due consideration the work in the Eurosystem on a Money Market Statistical Reporting Regulation that is currently undergoing a merits and cost assessment by the Eurosystem statistical function: the Regulation, which would be set up to allow the Eurosystem to improve its knowledge and analysis of the euro money market, for monetary policy purposes, could be issued by the beginning of 2015 and reporting could start by the end of the same year. By generating the data for such statistical reporting framework, EURIBOR panel banks could also be able to generate the data they would need to transmit to the EURIBOR+ administrator or calculating agent.

Crucial will also be the work on the legal arrangements for the setting of EURIBOR+, setting the roles, duties and responsibilities of all participants in the rate setting process.

Finally, the Benchmark Administrator will also need to ensure that the design of the new benchmark and the governance structure surrounding its production observes the IOSCO, as well as EBA/ESMA Principles, and complies with the forthcoming EU legal framework, once it enters into force. ESMA and EBA may provide guidance on the design of EURIBOR+ in light of the EBA-ESMA Principles.

Table 1
Illustrative roadmap for the implementation of EURIBOR+

Date	Action
Jan – Feb 2014	Analysis of the results of the EEBF/ECB transaction data collections and elaboration of alternative designs of EURIBOR+.
18 Feb 2014	ECB Money Market Contact Group (MMCG) meeting to present and discuss the EURIBOR+ design resulting from the study of the collected data.
6 Jun 2014	After having reviewed the reference rate design in light of the feedback from the MMCG, 3 rd EURIBOR Stakeholders workshop organised by the EURIBOR-EBF to present and discuss the EURIBOR+ design resulting from the study of the collected data.
Jun-Sep 2014	On the basis of an updated design of EURIBOR+, and on the basis of the feedback collected up to such date from market participants, collection of further feedback from asset managers, corporates and derivatives dealers.
Jul-Sep 2014	Establishment of a EURIBOR Transition Task Force, which would elaborate a concrete proposal for a transition plan from the EURIBOR definition to the EURIBOR+ definition.
Sep 2014–Mar 2015	EURIBOR Transition Task Force (see below) produces recommendations on transition issues.
Jan-Jun 2015	Consistent with the recommendations of the EURIBOR Transition Task Force, the following would be designed: (a) EURIBOR+ panel, (b) the data collection, calculation and publication infrastructure, (c) contingency procedures (including the calculation fall-back solutions) (d) the implementation plan and (e) a communication plan with market participants, all to be submitted to EEBF decision making bodies for approval.
Jun-Sep 2015	Decision by EURIBOR-EBF on (a) the complete design of EURIBOR+ and (b) its implementation plan.
Thereafter	Execution of the EURIBOR+ implementation plan

b. Transition plan and timeline

Besides a detailed roadmap for the implementation of EURIBOR+, also a transition plan between EURIBOR and EURIBOR+ should be devised. This would need to ensure that the eventual discontinuation of EURIBOR and its replacement in contracts with EURIBOR+ is done in a way that minimises risks arising from legal provisions on unforeseeability or changed circumstances (*rebus sic stantibus*) and related litigation risks, providing (i) certainty to contracts' parties on the continuity of existing contracts (e.g. by the design of protocols by

industry associations and/or preferably by legislation⁸) and (ii) tools to agree on the conversion from old references to new ones. The plan should also ensure that, during the transition period, banks remain in the existing EURIBOR panel to avoid a disorderly transition.

Such framework should not prevent private agents to organise other transition arrangements from EURIBOR into different reference interest rates, for example nearly (bank credit) risk free references. Additional transition plans could be devised, sponsored by market associations and supported by public institutions in a similar way as for EURIBOR/EURIBOR+.

As far as the EURIBOR/EURIBOR+ transition plan is concerned, the responsibility for transition work remains with the private sector, while public authorities can guide and facilitate private-sector work by:

- discussing transition and legal issues in an FSB context and coordinating “regional” (or per currency) activities, and
- liaising with market practitioners and having market practitioners decide on key questions of implementation and transition planning, possibly by means of a “regional” Transition Task Force under the guidance of the relevant public authorities. The Transition Task Force should, in close coordination with the relevant public authorities, provide concrete recommendations on the open questions on the way to a clear transition path.

A EURIBOR Transition Task Force could be a concrete follow-up of the report and be dedicated to prepare and implement a transition plan from existing reference rates to the new ones for one single currency (in this case EUR). It would comprise private sector representatives (including those having already worked in the MPG context), industry bodies and public authorities.

The key issues that a EURIBOR Transition Task Force would need to address are:

1. Termination date of existing reference rates

- A distinct termination date should be determined. This would a priori increase the incentives for market participants to move to the new reference rate and hence reduce systemic risks related to an uncontrolled termination of the legacy ones.
- The final decision on the termination date should reflect the views of a broad group of benchmark users.
- The public sector would guide market participants by providing a latest date for termination.

2. Phasing-in/phasing-out arrangements

- The Task Force should consider how a continued production of the old reference rate can be ensured for the transition phase.
- The Task Force should consider how arbitrage possibilities can be limited and a level playing field for the transition phase ensured.

⁸ Such legislation would expressly provide that any reference to EURIBOR in an existing contract shall be deemed to mean EURIBOR + and that parties may not rely upon any change to EURIBOR as grounds for terminating, or as a default event under, the contract. See further the mitigation of legal risk mechanisms described in section 4.3 (ii) below.

- The start- and end-date of the *parallel-run* period should be determined, i.e. the period in which both reference rates are produced and published simultaneously, as well as the announcement dates.
- The *parallel-run* period should be as short as possible, but as long as necessary. A critical changeover should also be considered, i.e. a *parallel-run* period of zero.
- The Task Force should also consider setting a date from which new contracts should be referencing the new benchmark.

3. Contract continuity and legal dispute settlement mechanism

The Task Force should consider arrangements to reduce contractual uncertainty and the case for litigation. Measures to be considered include:

- development and adoption of protocols and other contractual arrangements;
- conversion methods and rules to ensure contract continuity; and
- a legal dispute settlement mechanism, i.e. ombudsmen to mitigate acute disputes.

c. Risks to the plan and mitigating actions

Reforming EURIBOR by introducing a new transactions-based system bears a number of governance, legal and market risks, which need to be addressed by the private sector in a most careful and comprehensive manner at the earliest possible step of the planning. These risks include, but are not limited to:

- (i) The acceptance of EURIBOR+ by market participants, from the future panel banks to end users. A transactions-based reference interest rate tends to display a higher daily volatility than the equivalent rate generated from expert quotes and the available empirical evidence collected up to now supports this. Users will have to acquaint themselves with a more volatile rate.

Such a risk can be mitigated by an extensive process of market outreach and by devising during the course of the implementation phase a testing phase where the reference rate would be calculated and not used, to allow market participants to familiarise with its properties and behaviour. A positive side effect of such approach is that market participants will learn to know about EURIBOR + at an early stage. Given that the markets are very sensitive to questions of legal certainty, there should be clarity as to these effects, if any, and if necessary they should be mitigated.

- (ii) The establishment of a robust and timely data collection infrastructure that also ensures the confidentiality of the individual contributors' transaction data. The concurrent setting of multiple reference interest rates (covering several tenors) requires a large amount of transaction data to be transmitted from the contributing banks to the calculating agent of the reference rate administrator (see section [2.2] for the description of the unsecured money market segments included in the EURIBOR+ definition). This has to be performed in a very timely fashion, so that the resulting reference interest rate is disseminated as close as possible to the end of the reporting period.

A careful preparation of the data collection and calculation infrastructure and a thorough testing of the arrangements are needed to mitigate such risk. Robust legal

arrangements ensuring the confidentiality of the individual contributors' data are also crucial.

- (iii) The risk of panel discontinuation. A plan for transition to a new benchmark should include a joint commitment by panel banks from the outset to continue contributing to the existing panels until the new system has become operational.
- (iv) Legal and resulting economic risks related to the transition process, in particular risk of parties (and/or credit support providers) withdrawing from outstanding contracts. If the change to the EURIBOR methodology is significant a contractual party may claim that the result is something materially different from the rate initially agreed upon and it may try to withdraw from the contract (i.e., on grounds of unforeseeability or changed circumstances or equivalent legal concepts).

A key question will be whether the terms of a contract continue to function if the rate being referenced ceases to exist or is materially changed. There are various techniques of contractual interpretation available in this regard. If the contract contains "fall back" arrangements, the court may decide that the parties intended to continue the contract using the 'fall back' rate in such an event, whilst if the contract did not contain such a clause, it may provide for the parties to revert to the lender's cost of funding rate. Even if these clauses are not present, the court may not require them as it may interpret the contract as evidencing the intention of the parties to continue with the contract notwithstanding any subsequent change to the EURIBOR calculation method.

Where standard form contracts are used, the bodies which produce those contracts can in principle propose variations to the terms through protocols to avoid frustration of the contract (e.g. ISDA has adopted this approach). However, to achieve consensus on the terms of the protocol may be problematic. Many contracts are based on templates issued by market associations. Whilst in the lending market many contracts are based on the Loan Market Association (LMA) template, there are still many loan agreements, in particular in commercial lending and retail lending (including mortgage lending) which reference the EURIBOR rate, but which are not based on the LMA template. Furthermore EURIBOR is also referenced in financial products (e.g. floating rate notes) without a market association backing the documentation so that agreement on a protocol is not an option.

In the case of commercial loans and mortgages, there will be a risk of a party withdrawing to the extent that the contract does not include fall back arrangements. Such provisions often give one contract party (typically the lender) the right to determine the replacement rate. The contract then continues to apply, but may be disadvantageous to the other party.

There would be a risk of litigation if the fall-back mechanisms were to fail and either the parties fail to agree on a substitute rate determining mechanism or they take too much time to agree on one. To mitigate contractual uncertainty it will be necessary to encourage market participants to adopt protocols and other contractual arrangements to avoid contract frustration.

Administrators are fully responsible for managing any transition to a new or substitute rate, and should prepare detailed plans to ensure a smooth changeover.

Such plans will be useful to allow market participants to familiarise themselves with the new rate and have time to amend their contracts to the new rate.⁹

- (v) The replacement of EURIBOR by a new rate with potentially different level and volatility characteristics creates some challenges for end-users with respect to contract valuation. Best practices need to be developed as to give end-users, in particular retail users guidance on how to deal with valuation issues and to mitigate uncertainty regarding valuation of outstanding contracts.

Again, market practitioners play a key role in exploring suitable solutions from a technical and commercial perspective.

2. *Sterling currency report*

1. *Summary*

The FCA and Bank of England (the UK authorities) recommend developing and maintaining at least two categories of reference rates of interest for different purposes:

- A rate with bank credit risk developed from LIBOR (LIBOR+), and
- A (near) “Risk Free” Rate (RFR).

We believe that most derivative products – those intended solely to manage duration risk – should generally be encouraged to transition to using reference rates based on near Risk Free Rates, whilst other segments, such as corporate and syndicated loans, may benefit from continued use of a rate containing bank credit risk.

Continued work on LIBOR+ is best delivered via working with the existing administrator, within the existing UK regulatory powers. Work on RFRs would be best pursued by an industry group, coordinated by the authorities.

2. *Objectives and background*

Currently GBP LIBOR is widely used as a reference rate for a wide range of purposes from corporate loans to derivatives. The objective for the GBP group is for the market to have a wider set of robust interest rate benchmarks that enable participants to use the appropriate benchmark for each financial instrument.

3. *Detailed proposals for interest rate Benchmarks*

a) *Risk Free Rates*

UK authorities believe that Risk Free Rates would be more suitable for most derivative products which currently reference LIBOR. RFRs offer the following benefits for derivatives:

- a pure GBP interest rate position without bank credit risk; and
- for collateralised swaps, lower basis risks between the valuation curves (e.g. OIS) and the swap reference rate

Bank of England Bank Rate (Bank Rate)

⁹ According to the proposed EU legal framework for benchmarks (COM (2013/641/2), “Proposal for a Regulation of the European Parliament and of the Council on indices used as benchmarks in financial instruments and financial contracts”), the administrator shall develop and publish procedures for managing changes to the benchmark setup (Article 17).

Using the Bank Rate as risk-free benchmark – as an alternative to SONIA-based swaps – was also proposed as a robust solution by the MPG. The UK authorities believe that this is an option worth pursuing, given the continuing decline in unsecured lending markets. Use of Bank Rate as a benchmark will need to include provisions to accommodate any potential change in monetary framework that led to a change in the definition of Bank Rate. Bank Rate could then be used as an alternative to SONIA to underpin OIS-style swaps. But it is not a term rate – on the day before an MPC meeting, Bank Rate has a maturity of just an overnight rate. And there is currently no futures market in Bank Rate so it is not yet a viable alternative to term LIBOR, or an OIS term rate benchmark, unless and until such markets can be developed. But if forward markets in Bank Rate can be developed, then they would probably be a preferred option for the term rate as well.

Developing markets based on Bank Rate, will require a coalition of interested parties in the industry, supported by the Bank of England (and the FCA).

OIS/SONIA

The MPG proposed using term OIS and SONIA rates as an alternative to LIBOR but pointed out the limited and concentrated SONIA transaction volumes (£4–10bn daily volumes) and the lack of market infrastructure for the OIS market. However the MPG indicated that volumes could be expected to grow under the right conditions.

b) LIBOR+

Whilst the MPG report did not propose a precise methodology to be used, it indicated that a transaction based LIBOR+ rate could be generated by evolution of the existing LIBOR rate, creating lower transition risks should the changes in definition and methodology be sufficiently gradual and conducted within the context of the existing LIBOR administrator (now ICE BA). We note that, whilst the MPG report believes that there are sufficient transactions to support a LIBOR+ up to 3 months, they were unable to conclude that longer tenors (6–12 months) could be supported by transactions.

The OSSG has proposed a hierarchy in which a rate derived automatically from Sterling transactions data would be the best approach, if feasible. However, the evidence of the MPG suggests that, currently, the volume of unsecured transactions in sterling is insufficient to support a fully automated, transactions based approach. Hence, consistent with the hierarchy of preferences, the UK authorities advocate the next best approach, based on developing LIBOR to anchor it in a wider data set, which would lead to a more resilient benchmark currently.

Therefore the UK authorities are making the following two recommendations:

1. To gradually expand the current definition of LIBOR¹⁰ to strengthen the anchoring in transactions (e.g. closer to cost of unsecured wholesale funding for banks). Although

¹⁰ Every contributor bank is asked to base their submissions on the following question: “*At what rate could you borrow funds, were you to do so by asking for and then accepting inter-bank offers in a reasonable market size just prior to 11 am?*” this definition has not changed since 1998 and adapting it to the current cash market is likely to be a necessary part of becoming more transactions based.

a wide range of transactions are permitted as a support for current LIBOR submissions, UK authorities see benefits in a gradual evolution of the current definition to the reality of the funding markets, enabling many more transactions to be used in the calculations.

2. A transition away from the use of six and twelve month tenors to shorter tenors where market liquidity is higher. The standard tenor of six months for the sterling market is twice as long as other currencies.

The MPG report has highlighted risks involved with LIBOR+. They noted that the rate would not be completely immune to manipulation – no rate would – and they confirmed that a radically different or more volatile rate may not gain wide market acceptance. Any rate based on actual transactions will inevitably be more volatile than current LIBOR so this is a challenge which has to be taken on.

Key to a successful transition under all options is to maintain the existing LIBOR rate at least until suitable alternatives have been developed and legacy books can be transitioned in large volumes. In the first instance, the current approved LIBOR panels and administrator should therefore be tasked to make incremental changes. At some point, if a sufficiently large change becomes necessary, a strategic announcement may be required. This is most likely if we are to succeed in encouraging derivatives to move to using RFRs.

The continued regulatory framework should ensure the current heightened levels of scrutiny, transparency and governance for both administrator and submitters. Furthermore, the current LIBOR panels provide expertise and filter out unwanted volatility. Attention should be paid to the future composition of the panels.

Finally, the authorised administrator of LIBOR (ICE BA) is planning to develop a system of monitoring and surveillance which should capture all the wholesale funding transactions of submitting banks, and compare them to actual submissions which should be operational by Q3 2014. This system may be used to understand the viability of a transaction based LIBOR. In particular this may be used to assess whether it could support longer tenors and whether a mechanical transaction based rate would present excess volatility.

4. *Requirements for implementation of the proposals*

In order to implement our proposed approach, the UK authorities suggest the following:

LIBOR+

The FCA will ask the LIBOR administrator to work towards implementing an expanded LIBOR definition that would strengthen the anchoring in transactions (e.g. more fully represent panel banks' wholesale funding costs). This work will involve (i) working with market participants to collect more data on GBP wholesale funding transactions across the various maturities and (ii) based on that data, an assessment of whether maturities greater than six months should be discontinued. Market participants should recommend the steps for the private and public sector to minimise transition risks.

Risk Free Rates

A group should be set up, coordinated by the Bank of England, to confirm whether:

The market as a whole would be prepared to develop markets in Bank Rate which could be used to support derivatives. If so, the group should assess how the associated infrastructure would need to develop, including how a term fixing could be best calculated.

If the group were to conclude that markets in Bank Rate were not feasible, or did not have widespread support, then they should consider:

- (a) Whether there are measures that could support transactions underlying SONIA*
- (b) How a term OIS fixing could best be calculated.*

Derivatives

Subject to establishing satisfactory RFRs,

- The Authorities should consider, in association with other authorities, whether it is feasible to issue a recommendation to UK regulated firms to gradually move their derivative contracts to a viable risk free rate.*
- The UK authorities, in association with others, should then consider using moral suasion with the G14 dealers that hold a majority of the derivatives legacy books to facilitate a voluntary transition once sufficient traction has been gained and shorter-run contracts have expired.*

5. Implementation steps and mitigation actions

a. Transition plan and timelines

- For LIBOR+, the current administrator should take responsibility to reduce the gap between the current GBP LIBOR panel/definition and the realities of the bank funding segment in Sterling.*
- For RFR, a group should be set up by the Bank of England to develop robust Risk Free rates.*

b. Risks to the plans

- For LIBOR+ there are risks of contract frustration if the definition changes too far, too fast.*
- For RFR there are risks of derivatives participants continuing to favour existing liquidity and not developing the appropriate alternatives.*

c. Mitigating actions to address the risks

- For LIBOR+ we recommend the current administrator to consider performing incremental changes in consultation with the industry.*
- For RFR the authorities will need to coordinate and monitor the group.*
- The plans require action by market participants and administrators to develop and implement changes. That may not happen without action by the UK authorities. We remain committed to using both regulatory powers, where they exist, and leadership to ensure that the change programme is implemented as set out above.*

3. *Swiss franc currency report*

1. *Summary*

This note sets out the response of the Swiss authorities (SNB) to the CHF currency report of the Market Participants Group (MPG) on reforming interest rate benchmarks.

The CHF MPG proposed three alternative reference rate curves in case reforms for CHF Libor are not effective. First, a primarily transactions-based unsecured curve (CHF Libor+). Second, fixings based on the overnight index swap curve (OIS). Third, the already existing Swiss Average Rates (SAR). Beside these proposed benchmark curves two short-term reference rates are also discussed. These are the TOIS-Fixing and the SARON. The SNB is open for all options and sees the usage of reference rates to remain a matter of market choice. As a next step to evaluate the feasibility of the CHF Libor+ and OIS, the SNB will conduct a survey on market activity.

2. *Objectives and background*

a. Objectives

Reliable benchmark rates are essential to the integrity of financial markets. As reference rates in other currencies, CHF reference rates are subject to two types of problems. First, some segments of the market they represent – in particular the market for unsecured interbank borrowing – has contracted sharply since 2007, which has led to a lack of actual transactions underpinning these benchmarks. Second, we cannot rule out that the benchmarks could be subject to manipulation, due to weak governance structures regarding submissions and improper behaviour of submitting banks. In order to ensure IOSCO compliance, more stringent minimum requirements regarding transparency and governance need to be attained and benchmarks should be better anchored in actual transactions.

The usage of reference rates is primarily a matter of market choice. For that reason, the Swiss authorities consider market participants responsible for improving the current CHF benchmark rates. At present, public authorities focus on acting as a facilitator by coordinating private efforts aiming at rendering available options robust, credible and embedded in an adequate governance framework. The official sector is also well positioned to propose internationally accepted governance standards and enable cross-border frameworks for reliable reference rates. Any involvement beyond that could overstretch their legal mandate (see section 2.b).

Consistency and standardisation are crucial elements of efficient markets. So far, the comparability of benchmark rates across currencies has facilitated an efficient risk-sharing between market participants and promoted the development of international financial markets. Regardless of whether reformed Libor rates or alternative reference rates will prevail, consistency and standardization between currencies will help to maintain market efficiency. An international coordination of approaches toward future benchmark rates is therefore desirable.

b. Background and local features

The CHF market is currently heavily dependent on Libor, which is by far the most important reference rate used in loan and derivatives contracts. Next to Libor there exist the TOIS fixing and the Swiss Average Rates (SAR). Both are fixed in Switzerland. The former rate is used as

floating leg in overnight index swap (OIS) contracts. Latter rates were introduced in 2009 and represent market conditions on the secured money market in Switzerland. SAR are based on transactions and executable quotes concluded on the repo platform. SAR have been used seldom.

Based on current Swiss law, none of the Swiss authorities have an explicit statutory power to regulate reference rates.

3. Detailed proposals for interest rate benchmarks

General considerations

The CHF MPG proposes to pursue the following two alternatives to CHF Libor: CHF IBOR+ and CHF OIS. Currently, the SNB is open for both options as long as the chosen alternatives are feasible and viable. Active CHF Market participants, in collaboration with the SNB, intend to further elaborate on the proposed alternatives in order to evaluate their feasibility and viability.

As regards the fixing methodology there are three different possibilities for achieving credible and robust reference rates, each possibility has different requirements. The first possibility is the submission-based approach (Libor). Submission-based benchmarks require a strong governance structure, the willingness of banks to act as panel banks and the availability of underlying market activity in order to reliably underpin the submission. The second possibility relates to pure transaction based reference rates (covering the complete market as extensively as possible). They require in particular a robust fixing method and a reliably active underlying market. However, dropping market activity may lead to rate volatility or risks of rate discontinuation. Moreover, also pure transaction based benchmarks are not immune to manipulation. A hybrid approach (“waterfall”) may be a promising possibility to circumvent some of the described problems, leading to the third possibility. In this case, transaction data could be enhanced with information on quotes or short term paper activity etc. At the bottom of the waterfall a panel of banks may still be in place to submit their rates. However, this would require banks’ willingness to act as panel banks. For a reliable implementation of this approach a platform for the unsecured market and binding agreement for banks to quote on this platform may be desirable.

a. Proposed risk free or near risk free rate

Currently, two short-term reference rates exist in Switzerland. On the one hand the TOIS fixing represents unsecured tomorrow/next rates, on the other hand SARON is the overnight rate of the secured segment. Currently, reform efforts focus on reliable short-term rates.

As regards a near risk free reference rate curve the CHF MPG defines two options. Firstly the already existing repo curve (SAR). Alternatively to the SAR curve, the introduction of official fixings of the OIS curve, which do not exist yet, could be considered.

4. TOIS fixing

The TOIS fixing is used in OIS. Serving as the floating interest rate leg, it is calculated based on unsecured tomorrow/next rates. When the TOIS fixing was introduced, ACI Suisse – the Swiss chapter of ACI International – assumed a coordinating role in establishing and overseeing the fixing procedure (administrator). In 2012, a consultation among market participants was initiated by ACI Suisse as a first step toward reforming the fixing

framework. After the withdrawal of panel banks had endangered the continuation of the fixing, a national working group on CHF reference interest rates (NWG) was established. During the first NWG meetings, market participants stressed that an abrupt discontinuation should be avoided. The panel banks decided not to withdraw, or else to re-join, on condition that a sustainable long-term solution is established. Currently, the TOIS panel consists of ten banks. They agreed that the TOIS fixing should remain in place until a sustainable long-term solution has been established.

The long-term solution will be developed in two steps. First, under the current administrator ACI Suisse, an improved governance structure is targeted for implementation by Q3 2014. Compliance departments of several banks are working on this. Second, SIX Swiss Exchange, in collaboration with market participants, is exploring the possibilities for an unsecured money market platform. The unsecured money market would be an additional segment of the existing electronic money market platform which is primarily used for secured transactions (repos). Assuming market activity in the unsecured tomorrow/next market, the platform would enable the calculation of a transactions-based reference rate. Similar to the SARON methodology, committed quotes on the trading platform could also be considered. The earliest date for the implementation of such a solution is 2015. Simultaneously, the SARON – a secured overnight rate – will be developed further as a potential alternative floating leg for the OIS.

Date	Description	Actors
Q2 2014	Proposal for improved governance structure	ACI Suisse, NWG, other stakeholders
Q3 2014	Desk review of the proposal according to the assessment methodology for IOSCO principles: identification of shortcomings and proposal of measures	ACI Suisse, other stakeholders
Q3 2014	Under current administrator (ACI Suisse) the final improved governance structure would need to be implemented	ACI Suisse, other stakeholders
2015	Earliest date for an unsecured money market platform	SIX Exchange

5. *SARON*

SARON is the secured overnight reference rate of the CHF repo market. It could be used as a fall-back reference rate in case the TOIS fixing is no longer available. SARON is based on concluded transactions and committed quotes on the repo platform which was established in 1999. In 2009 the Swiss Reference Rates were introduced. In recent years, however, the high excess liquidity and zero interest rate environment led to low money market activity, also in the overnight segment. Therefore, a daily fixing in longer tenors could no longer be ensured. While the overnight fixing was not affected to the same extent, the NWG decided to strengthen SARON by means of a Memorandum of Understanding (MoU). The participants of the MoU actively quote in the overnight segment and therefore contribute to a more stable and reliable rate. The five largest market participants have signed the MoU and others are

expected to sign the MoU. As with the TOIS fixing, a more rigorous governance framework has to be established. Market participants are aware of this shortcoming.

Date	Description	Actors
Q2–Q3 2014	Desk review according to the assessment methodology for IOSCO principles	SIX Exchange, other stakeholders
End Q3 2014	Presentation of assessment: identification of shortcomings and proposal of measures addressing these	SIX Exchange and NWG
Q4 2014	Implementation of identified measures	SIX Exchange

6. *OIS curve*

Apart from the already existing – and currently reformed – nearly risk free overnight rates market participants proposed an OIS curve as an alternative. An OIS curve could represent an important alternative to unsecured rates, provided that it is based on a reliable overnight rate. The SNB – in close cooperation with the CHF MPG – will gather quantitative and qualitative information on market participants’ OIS activity in order to assess whether official fixings of the OIS curve are feasible and up to which tenors it could be done. A qualitative survey would be used to analyse whether official fixings of the OIS curve would be used in financial contracts and/or whether an OIS curve extended to longer tenors (e.g. a 10-year derivatives curve against the TOIS fixing) could replace the IRS curve.¹¹ In this context, the feasibility of a platform where OIS contracts are quoted and traded would also be assessed. In order to have daily reference rates of the OIS curve available, banks would need to quote for the various tenors. In contrast to the unsecured market, banks may be willing to quote for longer tenors as no notional is lent to counterparties.

a. Proposed rate with bank credit risk component: IBOR +

Preferably, the solution would be to significantly improve and strengthen the current Libor mechanism, in order to ensure IOSCO compliance, while only deviating as much as necessary from the current Libor features. If CHF Libor is not sustainable, the CHF MPG would consider developing a so-called CHF IBOR+, which is primarily based on transactions. The CHF MPG proposes to include wholesale transactions to enrich the underlying data. However, the detailed features of CHF IBOR+ (e.g. definition, reporting banks, administrator) have not been discussed in detail yet. This option would imply transition costs and implementation risks. In case CHF IBOR+ is established in Switzerland a legal basis for the regulation would be desirable.

Obviously, the CHF market has not the same depth as, for example, USD or EUR markets. This challenges the feasibility of setting up purely transactions-based benchmarks for the unsecured market, even if wholesale funding transactions are included. The CHF MPG suggests a waterfall approach, according to which benchmarks would be based on interbank and wholesale transactions (first priority), then by quotes (second priority) and, if these are

¹¹ A 6M OIS fixing (with the short-term rate being the TOIS) used instead of a Libor rate for an interest rate swaps (10 years) is equivalent to an extended OIS curve and conclusion of a 10Y OIS (with the short-term rate being the TOIS).

not available, by submissions. A strong governance structure will be necessary for reliable submissions. As described above, this approach also has its pitfalls. If the number of transactions is not sufficient, it cannot be ruled out that a panel submission approach with solid governance would be the only feasible solution. The data survey that is planned for Q2 2014 should shed light on this issue.

b. Other: Swiss Average Rate

The secured money market segment is not only represented by the overnight rate SARON but also by fixings for tenors of up to 12 months. The rates are fixed by using the same methodology, based on transactions and (executable) quotes. The repo market is – in contrast to many other currency areas – very homogeneous. Almost all secured transactions in Swiss francs are concluded via the platform. The reference rates are based on transactions and executable quotes concluded on the platform. Therefore, all market participants (not only a panel) contribute to the rates. The described caveat of a diminishing data base can also be observed currently in the Swiss repo market. Fixings for longer tenors are often not possible. Additionally, market participants argue that collateral premia become pronounced especially for longer terms making them less useful for application.

7. Requirements for implementation of the proposals

a. Data

All data-related aspects need to be further specified and clarified: these include a precise definition of the data required, the aggregation of on- and offshore data, the appropriate fixing methodology, the willingness of market participants to contribute to a new framework such as trading via a certain venue or the reporting of transactions. Many of these open issues can only be reasonably addressed based on a data survey to capture CHF market activity. As much as data sufficiency will be a prerequisite for the viability of alternative rates, one has to keep in mind that the current market environment (i.e. excess reserves and changing regulatory framework) is hardly indicative for future money market activity.

The CHF MPG has asked the SNB at the 5th NWG meeting to support the work by conducting a market survey and data analysis. As the SNB cannot oblige market participants (especially those domiciled abroad) to contribute to a market survey, the plan is to conduct a survey among all active CHF market participants on a voluntary basis. According to market participants, a significant amount of unsecured money market activity and OIS transactions in CHF is conducted cross-border or abroad. Thus, in order to capture as much CHF activity as possible, it is planned to include banks in Switzerland as well as a selection of the SNB's counterparties domiciled abroad.

Date	Description	Actors
Next Steps for Data Collection and Assessment		
April 2014	Quantitative and qualitative data collection for IBOR+ and OIS	SNB, asked by CHF MPG
June 2014	Data assessment	SNB and NWG

September 2014	Market consultation and decision whether or not to continue with IBOR+ and/or an official OIS curve	NWG
Q4 2014 and onwards	Depending on prospects of reformed Libor, decision on and preparation of alternative.	NWG, other stakeholders

b. Legal

The potential legal implications of the implementation of an alternative reference rate to Libor were analysed extensively by the CHF MPG. SNB agrees with the main findings of the report. The potential implications differ with respect to transition style and the properties of the designated rate. As described above, in the CHF context Libor+, OIS fixings or SAR are possible alternatives to Libor. A gradual transition (parallel period during which the existing Libor and its alternatives are simultaneously available) would significantly reduce legal uncertainty as market participants have enough time to adopt the changes. However, the introduction of a benchmark rate with different economic properties than Libor (such as OIS or SAR), would lead to much greater legal uncertainty and could result in costly litigation. To reduce litigation risks, incremental changes and reforms would be the preferred option by the CHF MPG.

c. Authority and regulatory

Swiss authorities have no explicit statutory power to regulate reference rates. None of the authorities has the possibility to force banks to stay in a panel, to use only specific reference rates or to implement measures for improving the rates. The current reform efforts are undertaken in a self-regulated regime. The establishment of a legal basis for the regulation of benchmark rates is currently considered.

8. Implementation steps and mitigation actions

a. Transition plan and timeline (including responsibilities, etc.)

Private administrators will be responsible for any new reference rates, but the official sector could guide the administrator during the initial phase (e.g. definition of fixing methodology, governance framework). In its report, the CHF MPG recommends a parallel transition during which both the new and old benchmark rate are available.

In case CHF Libor cannot successfully be reformed, a transition task force consisting of NWG members, other benchmark users, industry bodies, and authorities should be established. This transition task force should, among others, define measures in order to minimise litigation risks, provide guidance on the handling of existing contracts and methods to transit from the old benchmark rate to the new one. Swiss authorities cannot prohibit the usage of benchmarks which do not fully comply with IOSCO principles.

b. Risks to the plans

The main risk is that the current CHF Libor cannot be reformed to become IOSCO compliant. In this scenario either one of the existing short-term rates (TOIS fixing and SARON) could be used or alternative reference rate curves (CHF IBOR+ and OIS curve) should be established. The establishment of these alternative reference rate curves comprises additional risks. These are that a) the data survey could reveal an only partially sufficient underlying market, b) the

necessary setup is not ready within the defined timeframe, c) the alternatives are not widely accepted by market participants, d) litigation issues arise during the transition, and e) the current Libor ceases to exist before the transition is completed.

If reforms for CHF Libor are effective, market participants may refrain from reforming other existing benchmark rates or establishing alternatives.

c. Mitigating actions to address the risks

The NWG can work on any issues and mitigate the above mentioned risks. In addition, reform efforts are undertaken which focus on the establishment of reliable short-term rates that could potentially be used as a back-stop. Furthermore, the NWG will continue to assess the feasibility of alternative reference rate curves and will guide the market in establishing them. Risks to the existing reference rates and the financial markets in general can be mitigated with the establishment of robust and reliable alternatives. Finally, cooperation between authorities at an international level as well as a national level could represent a mitigating measure, for example by providing guidance to market participants.

4. U.S. dollar currency report

1. Summary

The Federal Reserve and U.S. Commodities Futures Trading Commission (CFTC) support the multiple-rate approach with a set of IOSCO-compliant reference rates that include at least one (near) risk-free rate based on something other than unsecured bank borrowing costs and a second set of IOSCO-compliant rates that include bank credit risk.¹² This approach would offer more robust and more resilient outcomes, better fit the needs of heterogeneous market participants, and is consistent with the Market Participants Group's (MPG) recommendations.

A multiple-rate approach for U.S. dollar reference rates with risk-free rates serving as the dominant benchmark for derivatives and a LIBOR+-like rate serving as the benchmark for credit products has a number of likely benefits. First, it is particularly desirable for many new transactions in the large derivatives market to be linked to a rate that is difficult to manipulate and that does not potentially endanger safety or soundness or financial stability. Second, a market convention with a range of reference rates increases flexibility for users to choose the rate that best fits their economic needs, e.g., a risk-free rate for derivatives products that are collateralised and a rate with bank credit risk for lending products. Third, by allowing some users and products to continue with an unsecured bank borrowing reference rate, it may potentially lower transition costs. Lastly, the financial system would likely be more robust to operational risk and other disruptions with a set of widely-used and familiar reference rates.

The Federal Reserve commits to taking a number of actions to support a transition to the multiple-rate approach. The Federal Reserve will use data obtained as part of the FR 2420 data collection exercise to examine whether a robust U.S. dollar LIBOR+ rate can be created using a wider set of transactions on unsecured bank borrowing rates, will work with other agencies to see if reference rates based on the U.S. Treasury markets can be strengthened by

¹² By (near) risk-free, we are focusing on the credit risk dimension and do not explicitly consider other risks like liquidity risk or term premia.

transactions data, and will do additional empirical and conceptual work around production of a secured rate based on general collateral (GC) repo transactions. On the policy front, the Federal Reserve and the CFTC will continue to examine the range of official sector powers to affect change toward greater use of risk-free reference rates in U.S. dollar derivatives markets.

2. *Objectives and background*

The current problems with U.S. dollar LIBOR reflect several inter-related structural factors. First, the market for unsecured, interbank borrowing has contracted sharply since 2007, which has led to a scarcity or outright absence in longer tenors of actual transactions underpinning reference rates like LIBOR. Ongoing regulatory reforms and changing market structures raise questions about its future viability, particularly in periods of stress. Second, the vast scale of derivatives tied to U.S. dollar LIBOR relative to the underlying cash markets creates a strong incentive for submitting banks to take advantage of this structural vulnerability and manipulate the rate. Third, U.S. dollar LIBOR is a dominant reference rate, currently used for a wide range of disparate purposes from bank loans to interest rate swaps. While a rate based on the cost of unsecured interbank borrowing may be economically appropriate for some of these uses, rates based on other markets are likely more appropriate for others.

Any proposed solution would ideally address all three of these issues. Taken together, they suggest that having a range of reference interest rates that are compliant with public standards, such as the IOSCO *Principles for Financial Benchmarks*, including ones that are (near) risk-free and ones that include bank credit risk, would offer a more robust and more resilient fit with the needs of heterogeneous market participants.¹³

We have relied on several core principles to guide our recommendations. These principles are consistent with the IOSCO *Principles for Financial Benchmarks* and the BIS ECC report on reference interest rates:¹⁴

1. As laid out in the IOSCO *Principles*, reference rates should be resistant to potential manipulation through proper structure, governance, oversight, and controls. In particular, reference rates should be based on prices, rates, indices or values that have been formed by the competitive forces of supply and demand, and should be anchored in observable transactions entered into at arm's length between buyers and sellers.
2. Market participants should be able to choose among rates meeting public sector standards such as the IOSCO *Principles* and should be able to use those rates in ways suited to their specific purposes.
3. Reference rates should not be structured or used in ways that endanger bank safety and soundness or create risks to financial stability. Market failures associated with agency and coordination problems in private sector participants' use of reference rates suggest some role for the official sector to avoid these adverse outcomes.

The report from the MPG indicated that market participants have expressed a desire for a risk-free or nearly risk-free rate as a reference rate for some derivatives products. To this end, the

¹³ "Principles for Financial Benchmarks," IOSCO, July 2013

¹⁴ "Towards Better Reference Rate Practices: A Central Bank Perspective," Working Group established by the BIS Economic Consultative Committee, March 2013.

MPG recommended a number of rates for USD that are not based on unsecured bank borrowing in their menu of potential reference rates including overnight index swap rates (OIS), U.S. Treasury rates, an overnight GC repo rate, the rate of interest on excess reserves (IOER), and a reverse repo rate (RRP) from any potential permanent overnight RRP facility for the U.S. dollar.

This desire for nearly risk-free alternatives reflects, in part, an expectation of continued greater reliance on secured funding as well as structural changes in derivatives markets requiring greater use of collateral and shifts to central clearing. Derivative instruments referencing some of these rates have been available in the United States for several decades, but markets in these instruments remain overshadowed by U.S. dollar LIBOR-based instruments despite the broad awareness of the problems with LIBOR.

The MPG also expressed a continued need for a reference interest rate with bank credit risk in U.S. markets. Amongst the rates considered by the MPG, LIBOR and the Fed Funds Effective Rate (FFER) are both based on unsecured bank borrowing costs. A rate based on unsecured bank borrowing markets is seen as more appropriate for products where there is a need to hedge bank credit risk, such as bank-provided credit products.¹⁵ To this end, given the possibility that ongoing reforms to LIBOR will not satisfy the IOSCO *Principles* as long as it continues to be based on submissions that are insufficiently connected to observable transactions, the MPG introduced the idea of “LIBOR+”, which is a proposed transactions-based rate that would be based on a broader definition of bank borrowing costs than LIBOR (more types of borrowing such as commercial paper and money market transactions for a larger set of banks) and would potentially be IOSCO-compliant. While LIBOR+ would meet the market’s stated need for a rate with bank credit risk, we don’t yet have a good view into the depth of the underlying borrowing markets or whether there may be other impediments to the creation and dissemination of such a rate. If the underlying markets are too thin or the impediments to its creation or dissemination prove too large, then the rate may not be feasible.

3. *Detailed proposals for interest rate benchmarks*

At a conceptual level, we believe that a potential solution to the needs of the official sector for a robust and resilient reference rate and to the desires expressed by market participants is a “multiple-rate approach” with a set of IOSCO-compliant reference rates that includes at least one (near) risk-free rate based on something other than unsecured bank borrowing and a second set of IOSCO-compliant rates that include bank credit risk. This approach is consistent with the MPG’s recommendation for “the development of a more diverse system of interest rate benchmarks for U.S. dollar markets, consisting of a combination of a reformed U.S. dollar LIBOR for application to funding products, and one or more alternative benchmarks for derivatives markets (USD Report, p. 5).”

a. Proposed risk-free or near risk-free rate

Given the large stock of outstanding derivatives contracts, and the corresponding incentives for manipulation that this creates, it is important for derivatives generally to be linked to a reference rate that is less susceptible to manipulation by being anchored in an active market

¹⁵ Some of these products also play a role in price discovery in the markets.

having observable, bona-fide, arm's-length transactions. The reference rates also should be based on a highly robust market not at material risk of secular decline.

Focusing on the MPG menu of potential reference rates, this suggests a bias away from LIBOR or LIBOR+ for these contracts and toward U.S. Treasury rates (deep and liquid markets that are more difficult to manipulate and likely to remain robust indefinitely), a rate based on secured funding markets (GC repo markets are liquid and deep for overnight and short maturities), or monetary policy rates such as IOER and RRP (administered rates that are free from market manipulation and not subject to risk of changes in market depth). Other rates considered by the MPG, OIS or FFER, currently trade in relatively thin markets, and are further subject to the risk that their underlying market may become even thinner over time.¹⁶

b. Proposed rate with bank credit risk component

We support the development of an unsecured bank borrowing rate that is based on transactions and administered with appropriate governance and oversight. In principle, LIBOR+ could meet this need, but additional empirical work is needed to assess the depth of the markets and the robustness of this type of rate to potential attempts at manipulation. This type of rate would be used most appropriately for credit products. While we strongly prefer a smooth transition in which this transactions-based rate is subsumed through reform into LIBOR, if this outcome was infeasible we would also consider having two rates, LIBOR and a separate LIBOR+.

We are defining LIBOR+ in a manner similar to the MPG as transactions-based “reference rates based on the wholesale unsecured cost of funds at banks” (USD Currency Report page 29). This would include a broader range of banks than in the current LIBOR submitting panel, a broader set of transactions such as commercial paper or certificates of deposit, and a different location for funding, e.g., U.S. vs. UK. The key attributes are that it is estimated from transactions and covers a wide range of unsecured bank borrowing transactions.

Use of LIBOR+ for certain products would not be entirely without risk. Even if markets for unsecured bank borrowing are found to currently have adequate depth, they would likely still be more vulnerable to manipulation and to the possibility of further secular decline than risk-free alternatives based on markets with greater depth. If the much larger derivatives markets are tied to a separate risk-free rate, however, then the incentive to manipulate LIBOR+ may be greatly reduced, thus reducing risks to safety or soundness or financial stability and leaving these considerations as potentially acceptable risks to take in order to allow a closer fit to purpose for credit markets.

4. Requirements for implementation of the proposals

This section outlines some next steps contemplated for the U/S. official sector to facilitate assessment of potential alternative reference rates. The idea of the multiple-rate approach has a number of difficult embedded issues and requirements for implementation, and the decision process will necessarily involve evaluating trade-offs. In all proposed solutions, there will be

¹⁶ This view is echoed in the MPG report, which notes that “FFER is currently based on a relatively narrow set of transactions and could be quite sensitive to changes in institutional market structure or the Fed’s monetary policy approach. Given these disadvantages, the MPG would hesitate to recommend FFER as a reference rate without the prospect of an improved fixing.” The MPG report also notes that it would probably recommend that a different overnight rate be used to underpin OIS contracts if concerns about FFER cannot be eliminated.

difficult transition issues associated with the stock of legacy contracts and also questions about the official sector's authority and ability to affect change and the ultimate effectiveness of those efforts in terms of achieving successful transition.

a. Data

The primary uncertainty around a new U.S. dollar rate with bank credit risk, such as LIBOR+, is whether these markets are deep enough to create a reference rate that would comply with the Data Sufficiency Principle (Principle 7) of the IOSCO *Principles*.¹⁷ At this point, there is not clear insight on the volume of transactions, robustness in periods of stress, or the likely evolution of the bank funding market, although research done by the MPG gives some preliminary hope that this approach may hold some promise.¹⁸ The new Federal Reserve data collection exercise, the "Report of Selected Money Market Rates," FR 2420, offers the most promising opportunity to assess the depth of these markets and their suitability for forming the basis of a reference interest rate.¹⁹ Data collection began on April 1, 2014, and Federal Reserve staff expects sufficient data for preliminary assessments by mid-2015. One set of practical issues revolves around the degree to which the underlying data, which may generate a rate that is more volatile than current LIBOR, would need to be smoothed or otherwise processed in order to be useful to market participants.

If the underlying markets are deemed sufficiently deep and our analysis indicates that it can be used to produce a more robust and resilient reference interest rate now and in the future, we will seek to implement a smooth transition to LIBOR+ that will minimise transition costs to the extent possible. Although this approach is intended to avoid a disruptive transition and is the approach advocated by the MPG, we acknowledge that there are also continuity concerns arising from the fact that, for tax purposes, replacing one LIBOR pricing source with another pricing source may be viewed as extinguishing an old contract and replacing it with a new one.²⁰ We are consulting with the U.S. Treasury Department to see if such tax effects could be avoided.

In the context of LIBOR+, the Federal Reserve commits to analysing the FR 2420 data to assess the feasibility of using it to construct a transactions-based reference rate that includes a bank credit component. Given that the data collection began in April 2014, the expected start-up time to work with submitting banks on any potential logistical or definitional issues, and the need for a sufficiently long time series that spans different market conditions and month- and quarter-ends, we do not anticipate having our initial assessments until mid-2015. In addition, the Federal Reserve will assess the legality and feasibility of sharing FR 2420 data with a benchmark administrator, a different government agency, or of similar data being collected privately, but these analytical efforts are meant to inform our understanding and would not commit or preclude different uses of the FR 2420 data.

¹⁷ Principle 7 requires a reference rate to be anchored in an active market having observable bona-fide, arm's-length transactions.

¹⁸ See U.S. dollar Currency Report, 3. Fixing Methodology. The MPG obtained money market data on an anonymous basis from a major provider of issuing and payment services.

¹⁹ Information on the FR 2420 data collection exercise can be found at: <http://www.federalreserve.gov/apps/reportforms/review.aspx>

²⁰ U.S. dollar Currency Report, 5.3 Legal Risk Profile for legacy contracts

If the underlying markets are not deemed sufficiently deep to satisfy the data sufficiency principle, then a more difficult set of decisions arise, involving whether it would be more appropriate to continue to use a reformed LIBOR, implementing a more formal waterfall approach linking bank submissions to available transactions for some uses despite a lack of underlying transactions or to work with market participants in considering whether all users should transition to an entirely new rate without bank credit risk.

As outlined above and in the MPG report, there are a number of risk-free rates that could potentially serve as a reference interest rate. In the interest of informing choice among the set of alternatives noted above, the U.S. Treasury is undertaking further work, along with the Federal Reserve, to determine whether CMT rates can be strengthened by transaction data. While one benchmark based on overnight U.S. dollar GC repo rates already exists (the GCF repo rate published by DTCC), the Federal Reserve will also work with other interested agencies and the private sector to consider whether other rates based on overnight GC repo would be useful and to ensure that these rates are capable of meeting the IOSCO *Principles*.²¹

b. Authority and regulatory issues

The Federal Reserve joined the LIBOR Oversight Committee as an observer. In this capacity, the Federal Reserve will work to strengthen the reforms of LIBOR and help with potential transition issues.

Given the potential for coordination failure and the large scale economies associated with reference rate choice, there is also a role for the official sector to influence the shift to a risk-free or near risk-free rate for the reference rates used in derivatives. If necessary, and as warranted, U.S. authorities will encourage a move away from use of unsecured bank reference rates in derivatives based on a belief that unsecured borrowing markets are at risk of further secular decline and cyclical disruptions and that heavy reliance on such rates can potentially endanger U.S. financial stability. As the depth in the markets decline, the need to rely on various forms of “expert judgement” rather than actual transactions may increase the potential for manipulation.²² In addition to helping to encourage derivatives contracts to move to referencing a more robust risk-free rate, there is also a public sector role in encouraging stronger contractual fall-back arrangements when reference rates are used by the private sector.

Recognising the challenges in implementing this transition, we must remain open to exploring whether there are policy tools to facilitate these changes. The Federal Reserve and the CFTC continue to assess the extant authority of relevant U.S. regulatory agencies to influence the transition process.²³

Potential tools could include:

²¹ The GCF repo rate is based on transactions from a liquid market; however, it is based on a sub-segment of the wider tri-party GC repo market, and considering other possible benchmarks may be worthwhile. In addition, there may be licensing and administrative issues involved in use of the GCF repo rate in a wide range of financial benchmarks that must be further explored.

²² See IOSCO *Principles for Financial Benchmarks*, Consultation Report (January 2013) p.40

²³ The CFTC’s authority is defined by its statute and its rules pertaining to core principles for designated contract markets and swap execution facilities respectively, which in turn apply to derivatives markets and participants in these markets.

1. The official sector's informal power to convene market participants in a meeting to push toward an industry solution, similar to the official sector's cooperation with the G-14 dealers in implementing derivatives reform.
2. The use of policy tools with respect to the use of reference rates that are not IOSCO compliant or that otherwise pose risks to U.S. financial stability.
3. The use of Financial Stability Oversight Council (FSOC) powers to address financial stability concerns.
4. The removal of impediments to facilitate a specific transition path, e.g., influence accounting or tax treatment.
5. Official sector influence on CCPs encouraging higher margins for contracts tied to non-IOSCO compliant rates.

The Federal Reserve commits to working with the CFTC and other U.S. regulatory agencies in determining all available options appropriate for use. As this involves decisions by FSOC, as well as individual agencies, we do not propose now a fully laid-out time table or a set of specific tools.

5. *Implementation steps*

a. Transition plan

While some of these steps are uncertain, subject to change, and may apply in different stages of reform or to different institutions, the following table provides a tentative timeline that outlines our current best estimates of when various components will occur.

Proposed U.S. dollar LIBOR Timeline

April 2014	FR 2420 data collection began
Q4 2014	Assess feasibility of GC repo as a reference rate Convene dealers to discuss best practices regarding reference interest rates for derivatives, identify a risk-free rate that market participants deem best to transition to.
Mid 2015	Federal Reserve completes first analysis of FR 2420 data
December 2015	If LIBOR+ deemed feasible and viable, determine whether it can be incorporated into LIBOR, produced privately as a new rate, or produced by the Federal Reserve or other mechanism.

b. Risks and mitigants

We believe that the acceptance of a risk-free rate for new contracts will be of critical importance. Transition from a product set with one type of underlying rate to a product set with a "substitute" rate should be planned, orderly, and well publicised. Provided this is successful, the transition of legacy contracts may be less material. However, if there is a successful shift towards use of a risk-free rate in most new derivatives contracts, then there may be some role for the public sector in working with private sector bodies helping to coordinate a shift in legacy derivatives contracts if it is felt that it is beneficial.

If most new derivatives do reference a risk-free rate, then it is likely that a number of other users may voluntarily transition to the new rate as well given the importance that many users seem to place on having a liquid market to trade in. However, if LIBOR+ is found to be infeasible or if a smooth transition between it and existing LIBOR is not possible, then it is possible that we might have to consider alternative transition approaches for other products. At this stage we propose to leave that as an open issue.

5. *Yen currency report*

1. *Summary*

TIBOR and JPY LIBOR are widely referred by derivative contracts and by loan agreements as their base rates and must be resistant to potential manipulation in order to secure credibility, and the discontinuation of these rates should be avoided.

The choice of reference rates should be primarily decided by the private sector. However, it may be useful to widen the variety of reference rates so that the private sector will be able to choose a rate that best fits the objective of their contracts. Certain derivative contracts can be encouraged to migrate to a (near) risk-free rate under the “multiple-rate approach”. In order to facilitate the migration to an alternative rate, sufficient market liquidity is also necessary.

OIS, OIR, and Treasury Discount Bill rates are possible candidates for alternative (near) risk-free rates. Transactions in the yen OIS market are limited, and therefore, it is worthwhile to assess viability of OIR and Treasury Discount Bill rate with priority. With regard to the OIR, Uncollateralised Overnight Call Rate published by the Bank of Japan (BOJ) compounded for certain period can be an option. Another possible candidate is the secondary market rate of Treasury Discount Bills but clear fixing must be identified in the market.

IBOR+ is a candidate for an alternative rate with bank credit risk component. There are several issues to be resolved in adopting IBOR+. In the first instance, collection of a wide-range of data for the assessment would be necessary. As a design of an alternative rate, no significant change may be necessary to the definition if the rate can be constructed on interbank transaction data. On the other hand, if it has to include the data for funding from the corporate sector, the seamless transition from IBOR to IBOR+ may be more difficult. Sufficiency of data plays a key role in this respect.

In order to make the transition as orderly as possible, the Financial Services Agency of Japan (JFSA) and the BOJ believe that outreach to related stakeholders, public consultation, announcement of changes of benchmarks and trial should be taken into the steps for transition. Establishing a hierarchy with the highest priority on actual transactions followed by executable quotes and expert judgements is another possible option to resolve some of other identified issues. The JFSA and the BOJ are of the view that the private sector should be responsible in making the choices and carrying out the necessary steps.

2. *Objectives and background*

a. *Objectives*

Considering the significant scale of derivative transactions and loan agreements that refer to TIBOR and JPY LIBOR, these benchmarks must be resistant to potential manipulation in

order to secure credibility, and the discontinuation of these rates should be avoided. In the meantime, market participants should be allowed to choose which rate to use for various purposes.

b. Background and local features

TIBOR and JPY LIBOR are widely referred by derivative contracts (e.g. swap agreements) and by loan agreements as their base rates.

For certain derivative contracts, it could be worthwhile to develop a (near) risk-free rate and encourage migration to it from the perspective of enhancing risk management. On the other hand, careful consideration would be necessary to avoid fragmentation of market liquidity. For example, the volume of derivative contracts that refer to TIBOR or JPY LIBOR would be relatively smaller than the volume of those that refer to the USD LIBOR. In order to facilitate the migration to alternative rates, it should be used broadly with sufficient market depth which fulfils the needs of its users.

Trading volume in the JPY money market remains to be relatively dormant. Interbank transactions (both secured and unsecured) with relatively long tenors have been limited, as the yield curve remained flat for some time.

Benchmark reform should take these developments into account, and it should not lead to discontinuation of publication of benchmark rates. One possible option to avoid such discontinuation is to establish a hierarchy for submission of rates with highest priority on actual transactions but allow submitters to refer to executable quotes and expert judgements.

3. Detailed proposals for interest rate benchmarks

a. Proposed risk-free or near-risk free rate

While the choice of reference rates should be primarily decided by the private sector, it may be useful to widen the variety of the reference rates so that the private sector will be able to choose a rate that best fits the objective of their contracts. In the case of JPY interest rate benchmark, it seems beneficial to give further consideration to a (near) risk-free reference rate under the “multiple-rate approach”. TIBOR and JPY LIBOR are often used for hedging of interest rate risk, but hedging with a (near) risk-free rate may better suit the purposes of transactions in some cases, and thus improve the risk management of financial institutions.

In JPY market, most short-term derivative contracts refer to TIBOR or JPY LIBOR, while those that refer to other rates (e.g. OIS) are limited. Therefore, market that refers to a (near) risk-free rate needs to be developed. In this respect, the consideration on each alternative rate is as follows.

The volume of transactions in the OIS market rose during 2006–2007 when the exit from the quantitative easing policy by the BOJ was expected, but the market has been dormant after 2008. Daily transactions are likely to be insufficient to develop an alternative rate anchored in actual transactions. Furthermore, there is no particular rate preferred by market participants although there are several fixings provided by vendors and market makers. In this respect, it would be useful to consider OIR or Treasury Discount Bill rate first.

With regard to the OIR, Uncollateralised Overnight Call Rate published by the BOJ compounded for a certain period would be a possible candidate. Although transactions in the JPY money markets have decreased in general, uncollateralised overnight call market has

been one of the most active markets. Transactions in the market have remained relatively active even when ample funds have been provided during aggressive monetary easing, and therefore, the rate seems to be anchored in actual transactions. The rate can be compounded for periods such as 3 months and 6 months to form an alternative rate.

Another possible candidate is the secondary market rate of Treasury Discount Bills. There is a large amount of outstanding of Treasury Discount Bills in the Japanese market which could form a relatively active secondary market. This is worthwhile for identifying the alternative rate anchored in actual transactions. Meanwhile, one important constraint is the lack of a clear fixing in the market. Although Japan Securities Dealers Association (JSDA) publishes prices of individual issues of Treasury Discount Bills in the secondary market on a daily basis and information vendors provide price data, further consideration is necessary to evaluate if either price data can be best used for fixing. If these existing fixing rates were not appropriate as alternative rates, careful consideration on creating a new fixing rate would be necessary, which may take some time. For example, impact of the liquidity of individual securities on prices reflecting strong demand on particular issues should be taken in to such consideration.

b. Proposed rate with bank credit risk component

IBOR+ is a candidate for an alternative rate. Design of IBOR+ should be considered after the collection of wide-range data. This data collection should cover not only the transactions in the interbank market but also the transactions with the corporate sectors, such as CDs and deposits.

If IBOR+ is constructed only by interbank transaction data, significant change in the definition of IBOR may not be necessary and hence seamless transition may be possible. Therefore, if sufficient volume of interbank transaction data can be gathered, this approach should be preferred.

On the other hand, if IBOR+ is designed by incorporating data including the funding from the corporate sector, the seamless transition from IBOR to IBOR+ may be more difficult. How to respond to this transition problem should be decided primarily by the administrator and users of the benchmark.

In both cases, how to cover the shortage of transaction data should be considered. There may not be sufficient transaction data for every tenor either currently or in the future. Establishing a hierarchy with the highest priority on actual transactions followed by executable quotes and expert judgements would be beneficial to cover the risk of data insufficiency. As stated later, anchoring benchmarks solely in actual transactions may lead to the change in the definitions of the benchmarks. In this respect, consideration should be given to the flexibility to use inputs based on executable quotes or expert judgements.

4. Requirements for implementation of the proposals

a. Data

Collecting data for developing the proposal could be done by the banking industry with support from the public sector (the BOJ and the JFSA).

For TIBOR+, transaction data were collected from the three largest banks in Japan (which are members of the MPG). For the next step, it can be considered to expand the scope. In particular, samples could be expanded to all reference banks (i.e. 15 banks) of TIBOR and

data period could also be expanded to one year. This would be followed by analysis of data collected and assessment of feasibility.

b. Authority and Regulatory Framework

In Japan, a bill to amend the Financial Instruments and Exchange Act, which proposed a regulatory framework for financial benchmarks, was passed by the Diet on May 23, 2014. The regulation aims to ensure credibility of specified financial benchmarks that are widely used as the basis of financial transactions by designating an administrator of such benchmarks (assumed to be an administrator of TIBOR for the time being) and requiring the designated administrator to formulate and comply with the “Operational Rules,” containing items in line with requirements of IOSCO *Principles for Financial Benchmarks*. Furthermore, the regulation imposes a discipline on submitters by requiring the designated administrator to establish and conclude the “Submitter Code of Conduct” with submitters.

While the regulation sets out general supervisory measures on the administration of financial benchmarks, it does not grant the authorities the power to force market participants to use or prohibit the use of any particular financial benchmark. The desirability of such power is also questionable. The best that can be done would be moral suasion.

c. Other requirements

In the transition to any alternative rate, efforts and sufficient time would be necessary for smooth transition and avoiding market disruption. First, the JFSA and the BOJ believe that outreach to the related stakeholders would be necessary. In the outreach to market participants, it would be beneficial to consider approaching entities which develop master-agreements (e.g. ISDA) before broad market consultation. Second, it must be followed by an announcement of changes of benchmarks. Public consultation should be conducted with sufficient time for the stakeholders to react (e.g. 6 months). An announcement of any changes to existing benchmarks is crucial, and it should take place as early as possible.

Even if possible candidates of alternative rates are identified, it should be considered further who the administrators of those rates will be, especially in the case of a new benchmark.

5. Implementation steps and mitigation actions

a. Transition plan and timeline (including responsibilities etc.)

In order to make the transition as orderly as possible, the JFSA and the BOJ believe that outreach to related stakeholders, public consultation, an announcement of changes to benchmarks and trial should be taken into the steps for transition as suggested in the timeline. The most that can be done by the authorities in transition would be moral suasion.

Steps to be taken to make a decision on alternatives to IBORs including the assessment of the viability of alternative rates (TIBOR+ (and JPY LIBOR+), OIS/OIR, Treasury Discount Bill rates) are described below.

- The BOJ, in cooperation with the JFSA, worked as a data hub for the analysis by the MPG in February 2014, and collected data on unsecured borrowing by the three megabanks during the period from November 2013 to January 2014. This process should work as a pilot case of data collection; nevertheless it is desirable to conduct

data collection and analysis for the assessment of feasibility and viability of alternative rates with a wider scope of data set, covering a longer period and a wider range of market participants. From this perspective, it would be beneficial to collect *historical* data in order to suppress the timeline of the assessment. Decision making and action by the administrator and reference banks are essential.

- Once the first data collection is completed, analysis, follow-up data collection, research, and discussion with the industry would be necessary. The preliminary assessment of viability, including an effective mechanism of follow-up data collection, would be expected by the end of year 2014.
- In the case of risk-free rates, outreach to potential users of the benchmark should be useful as the first step of the assessment process. As an example, there could be less room for manipulation of OIRs, but it would be beneficial to discuss with users, such as ISDA and JSDA, whether such a rate with backward looking nature is acceptable for their purposes of transactions at an early stage of the assessment – such process is likely to take a couple of quarters.
- Once the rate is considered favourable, additional consideration of fixing methodology would be necessary. If an existing fixing methodology is considered unsuitable, the development of new fixing methods should be discussed. Transition and legal analysis would be necessary preceded or followed by the assessment of viability. Timeframe for such process would take at least several quarters and largely depend on the necessity for development of new fixing methodology.
- In both cases of a (near) risk-free rate and the rate with a bank credit component if the assessment of viability is favourable, the following steps would need to be considered.
 - Public consultation (3 to 6 months)
 - Analysis of comments received; in the case of a (near) risk-free rates, coordination and planning with the industry and the administrator (3 months)
 - Announcement of any alternative rate or of any decision made

b. Risks to the plans

1. Difficulty in seamless transition

It should be explored in depth whether the definition of TIBOR+ can be considered seamless from that of TIBOR. In particular, the following characteristics provide a key to such consideration;

- Where data of corporate CDs or deposits are taken in as a basis for the rate, the rate will no longer be an *interbank rate* if the rate is solely based on actual transactions. Prices in transactions with corporates can be determined by different incentives from interbank funding.
- When actual prices are gathered, the price is likely to be considered as a mid-rate. When demand for funds is weak in the money market, the actual rate can be closer to bid rate because funds are likely to be “given” to the bids. Therefore, the actual rate may not be considered as an *offered rate*.

- In order to gather wide-range data to enhance viability, it would be reasonable to collect data in other markets than *Tokyo* or *London* market. For example, euroyen can be traded both in London time and New York time. CDs can also be issued by corporate throughout the globe.

If the horizon of data is expanded, the challenge against the seamless transition will grow. Therefore, it is essential to consider, to what extent, that TIBOR+ can be designed, by expanding underlying data without changing the definition of IBOR, and seamless transition would be possible. Incremental expansion of such data can be a choice to mitigate transition risks and costs, but it must be considered whether accumulation of changes may trigger a dispute at a certain point. Another approach would be to reform the benchmark to be based more on actual transactions, but allow some margin to apply certain formula or judgements to such data, to avoid change in definition and enable seamless transition. In such consideration, discussion with the private sector and legal analysis would be necessary. The administrator should make the decision on how to carry out the transition.

It would be also necessary to investigate further on how to differentiate the rates with JPY LIBOR, Euroyen TIBOR, and JPY TIBOR, which are currently defined and treated as different rates.

2. Possible manipulation triggered by actual transactions

Reference to actual transactions will not be an ultimate solution to prevent manipulation. In particular, the volume of transactions with tenors longer than three months is limited even if all data currently collected is included for constructing an alternative rate in the case of TIBOR+. When a large scale of transactions is tied to the benchmark it will incentivize manipulation, even when the rates are based on actual transactions, particularly when the volume of such transaction is small. Prevention of such incentives and methods for detection of manipulation should be identified. Expert judgements may be effective to identify possible manipulation.

3. Limited volume of actual transactions

The volume of transactions in underlying market is limited for relatively long tenors. For tenors longer than three months, there are no transactions for some days even when data of corporate CDs and deposits are included.

4. Private sector incentives

If incentives for users to adopt alternative rates are not sufficient, transition issues may remain.

c. Mitigating actions to address the risks

Private sector (the administrator and users) should decide whether TIBOR and TIBOR+ are legally the same rate. In this regard, it would be worthwhile to gather legal opinion from the private sector.

As stated in the previous sections, it would also be beneficial to tolerate the use of expert judgements, with preference for the use of actual transaction data and executable quotes. The use of expert judgements should be allowed at least to identify whether the actual transaction

data are inappropriate or non-existent, or are a reflection of particular factors that are irrelevant to general market conditions.

Moral suasion, speeches, testimonies and use of convening powers by authorities encourage such incentives and alert the risks.

6. Outstanding issues

Since actual transaction data have relatively high volatility, methods for calibrating alternative rates should be investigated further after the additional data collection stated above.

Further consideration on potential administrators of alternative rates would be necessary. In particular, current administrators may become reluctant when regulatory burden is high or when their rates are less likely to be used.

6. Global transition issues

This note summarises the views of the OSSG global group members on the main issues arising in relation to the promotion of an orderly transition to an alternative rate.

Key points

- There are substantial volumes of contracts in the major interest rate benchmarks in some third party jurisdictions. Changes in the benchmarks could thus have a significant impact on financial markets and market participants located in those jurisdictions. Members emphasise the importance of strong international co-ordination and communication between the financial authorities on proposals to change major interest rate benchmarks. Additional clarity on the plans for the major benchmarks would facilitate deeper assessment of the impact on third party jurisdictions.
- Private sector participants would welcome additional communication, clarity and transparency on the approach and timing of any transition. The provision of sufficient time to facilitate transition is a key requirement of private sector market participants. Advance warning is also essential. Further consideration of approaches to facilitate or ease transition would be useful to support an orderly move. Clear timetables with a long transition and clear cut off points are favoured by market participants. It is important to be able to support the continuity of the old and the new rate in parallel during the transition period, in order to enable participants to value (and hedge) the basis between the old and new reference rate.
- In general the global group did not identify many specific local factors such as tax, regulatory, accounting issues that would affect or complicate any movements to new benchmarks for LIBOR, EURIBOR and TIBOR. Equally it was noted that global group jurisdictions were ‘takers’ of such benchmarks and typically had little or no powers to directly influence rules originating in ‘home’ jurisdictions.
- Further exploration of legal issues would be useful in some jurisdictions, drawing on local expertise. Alternative scenarios could be envisaged that could have different implications for market disruptiveness.

- There should be flexibility in the design of transition policies and a one size fits all approach should be avoided.
- The official sector could play an important role in facilitating a smooth transition, and in encouraging private sector co-ordination and communication. Industry associations could also play an important role.
- There are concerns in some jurisdictions on the possible implications for local currency interest rate benchmarks of promoting alternative benchmarks to LIBOR/EURIBOR/TIBOR.
- Changes in benchmarks could also have a significant impact on cross-currency basis swap markets which requires careful consideration.

The following sections provide additional information on these points, drawing on input from global group members.

1. Specific local issues affecting the introduction and transition to alternative interest rate benchmarks for LIBOR/EURIBOR/TIBOR

a. E.g. tax, regulatory, accounting, legal, etc.

Global group members noted that there are substantial volumes of contracts in the major international interest rate benchmarks in some jurisdictions. Changes in the benchmarks could thus have a substantial impact on local markets and participants.

In most cases, there did not appear to be any particular specific local issues such as tax, regulatory, or accounting issues that would affect or complicate any movements to new benchmarks for LIBOR, EURIBOR and TIBOR, although further review with local benchmark users would be helpful. Equally, it was highlighted that global group jurisdictions were typically ‘takers’ of such benchmarks. It was noted by the Canadian authorities that local contract law could potentially be an important consideration in cases where financial contracts referenced a particular benchmark such as LIBOR and such a benchmark rate is not published for a particular reason. In addition, the Canadian authorities noted that in all jurisdictions the local accounting rules, to the extent that they differ from international norms, could have an impact on whether products referencing the alternative benchmarks have the same accounting treatment²⁴. It was also highlighted that any regulatory incentives (e.g. through differential treatment of transactions using ‘compliant’ and ‘non-compliant’ benchmarks) that were used in the original benchmark jurisdiction to promote transitions to new benchmarks could have a significant cross-border impact.

b. Any possible mitigation actions that could be taken by the authorities to facilitate adjustment and limit any market disruption

Global group members highlighted that a reasonably lengthy, but finite, transition period should be defined by the authorities. Such a timetable should be co-ordinated internationally to support a level playing field. It was recommended that an important part of a transition plan to an alternative interest rate should include a communication plan and co-ordination strategy to update authorities in other jurisdictions of a possible disruption or planned movement and to provide information on the recommended alternative benchmark. That would allow

²⁴ That could be especially important for products relying on hedge accounting.

administrators and regulators in other jurisdictions time to put in place transition plans to minimise market disruption. For example, the local regulator may wish to contact parties involved in the legacy contracts, inform them about the transition, and allow them adequate time to renegotiate and resolve their contracts.

It was highlighted that the lack of comprehensive information about the legacy contracts and parties involved could be a challenge to local regulators in ensuring a smooth transition. The potential litigation and instability flowing from a transition should be considered – additional clarity in the updated Master Agreements and Protocols for contract holders would be helpful in this regard. Factors to be considered with respect to the timeframe for possible transition include: the size of the legacy book, infrastructure requirements, size and diversity of current activity on the existing benchmark, balance sheet considerations, instrument liquidity, and hedging needs. Further fact finding and information gathering on the use of the major benchmarks was consequently recommended by some members. Global group members also stressed the importance of maintaining close communications amongst financial authorities during any transition period.

2. *Private sector requirements for an orderly transition*

- a. *E.g. Views/comments on communication, transparency, timelines, etc.*
- b. *Suggestions/proposals that may facilitate adjustment and limit market disruption*

Discussions between global group members and private sector participants also support the need for a clearly defined adjustment period, with the term of that adjustment being as long as is feasible. A long lead time and clear transition path should be provided to support the management of the transition. Advance consultation with the market would enable market participants to voice any concerns at an early stage. It is important that such consultation includes active discussion with market users with living contracts and financial instruments exposed to the benchmark, rather than simply with intermediaries.

Drawing on their recent experience with benchmarks that have been discontinued, some private sector participants believe the industry associations could play a crucial role in any transition. They said that ISDA has assisted in the development of protocols, multi-lateral and bilateral amendment agreements, associated guidance notes and industry wide engagement with affected parties. Such documentation significantly reduces the cost and time in renegotiating and rewriting each and every legacy contract.

Some members have recent experience of changes in benchmarks, for example to strengthen processes and bring benchmarks into line with IOSCO principles. Based on this experience, the Singapore authorities outlined a few key steps regulators could encourage the market participants to take:

- *Industry-wide coordination:* The industry association issued recommendations and guidance to facilitate a coordinated industry-wide transition. This avoided the need for bilateral re-negotiations at the contract-level, which could be operationally burdensome and long-drawn. For example, the Singapore Foreign Exchange Market Committee (SFEMC) promoted the use of ISDA, Emerging Markets Trade Association (EMTA) and NY FX Committee multilateral amendment transition

documents. EMTA and NY FXC also helped to reach out to international users of Singapore-produced benchmarks.

- *Getting major counterparties on board early:* There was buy-in from the major counterparties early in the process, and this facilitated the signing of transition documents with end-clients. More importantly, once major counterparties and a large enough share of market volumes moved to new benchmarks, the rest of the liquidity followed.
- *Active outreach:* There was also active outreach to the wider industry (e.g. smaller banks), corporates and relevant associations (e.g. the Association of Corporate Treasurers, Life Insurance Association) to promote awareness and to encourage adoption of the industry-wide transition mechanisms.
- *Clear communication of the cut-off dates for benchmarks:* The cut-off dates for discontinued benchmarks and start-dates for new benchmarks were clearly communicated to the industry and wider public. This allowed market players to effectively wind-down or re-negotiate outstanding contracts in time, and price new contracts appropriately.
- *Flexibility in contracts:* The industry was also encouraged to consider incorporating greater flexibility into new contracts to cater to possible changes in benchmarks. This would help to put a cap on the stock of legacy contracts that need to be transitioned when a viable alternative is found.
- *Liquid Basis Markets:* Where more than one benchmark exists for a given product type, it is important to combine liquidity so that users of each benchmarks are able to hedge risks in both markets. To do this, it is important to have market makers to make basis markets between both benchmarks.

3. *Implications for local currency benchmarks and issues*

- a. *E.g. if there is a switch to IBOR+ concepts and/or OIR/OIS measures for the major currencies, what implications (if any) would that have on local currency benchmarks.*

Members highlighted potential issues in respect of the impact on local currency benchmarks and on the cross-currency basis swap markets.

In relation to local currency benchmarks, some members noted that changes in international reference benchmarks could potentially require similar changes to local benchmarks, especially for similar underlying product types, even if these local benchmarks were seen as meeting IOSCO standards. For example, if the global interest rate swap market moved away from referencing IBOR (or IBOR +) type rates, the question would arise as to whether the local swap market could continue to reference local IBOR type rates and what the impact would be on the basis swap market. Both Australia and Canada stressed that the structure and/or functioning of the cross-currency basis swap market would need to be considered if radical changes were being planned for international benchmarks (beyond any IBOR+ type changes). For example, Australian financial institutions are intensive users of cross-currency swaps that are referenced to USD LIBOR and AUD BBSW. Although there have always been minor conceptual differences between LIBOR and the AUD benchmark, both have been designed to measure the same thing (i.e. term interbank credit), making the 'basis' in the swap readily understandable. Moving to IBOR+ should not affect this. However, switching to OIR/OIS

measures in the major currencies may prompt some consideration amongst market participants as to whether liquidity in cross-currency swaps is better facilitated by placing the AUD leg on a comparable basis (e.g. USD OIS v AUD OIS), with those wishing to hedge against BBSW doing a subsequent basis swap in AUD (i.e. AUD OIS v AUD BBSW). In the particular case of Canada, the Bank of Canada noted that the USD/CAD (LIBOR/CDOR) basis swap would be the most important such market though there is activity in other crosses too.

Some members highlighted concerns from private sector participants surrounding possible changes in local currency benchmarks. For example, in Hong Kong, there would be significant implications since there are a large volume of contracts that reference the local currency benchmarks. Furthermore, the LIBOR alternatives being discussed currently, such as OIS and LIBOR+, may not work in the case of HIBOR as the volume of transactions in the corresponding local markets has declined since the financial crisis. In Singapore, USD LIBOR is used as a component in calculating the SGD Swap Offer Rate (SOR). Any disruption to USD LIBOR, planned or otherwise, will therefore have significant impact on (i) the continued availability of SGD SOR; and (ii) consequently, the SGD SOR contracts used in Singapore. A switch to an alternative would have implications on the calculation of SGD SOR. There would thus need to be an assessment of whether the alternative can serve the same purpose as a calculation component, and whether the resultant rate has a directional bias against the interest of any particular group of users. Some authorities, however, noted that the impact would be small in their jurisdiction. For example in Mexico, the authorities expect that there would be no implication regarding a switch between LIBOR+ concepts and/or OIR/OIS measures, since LIBOR only represents 12% of IRS sold by Mexican financial intermediaries and 0.02% of the domestic market debt securities outstanding. Moreover, in Mexico the local benchmark rate, which is the interbank rate of equilibrium (TIIE) with a term of 28 days, would be unaffected by the changes of LIBOR, since TIIE is independently calculated from LIBOR.

4. Any issues/concerns from jurisdictions outside the OSSG membership

There has not been time to conduct an in-depth analysis of transition issues specific to non-OSSG members, which would also require local expertise. Feedback from the IOSCO consultation process on financial benchmarks principles, nonetheless, remains relevant.

Additional to the points included elsewhere in this note, a key conclusion from the IOSCO consultation was that although there is broad support for the development of prospective policies and procedures to address, possible transition, some disagreement exists on how these policies and procedures should be organised. Benchmarks span a wide gamut of uses, methodologies and importance. There should be flexibility in the design of transition policies, and a one-size-fits-all approach should be avoided. Some suggested that Living Wills were most appropriate for systemically important Benchmarks.

5. Any other points

Members also noted that another role the official sector could play in a transition is to promote the use of alternative benchmarks. In order to do so, it would be important to be able to demonstrate to the benchmark users that the alternative benchmark is both IOSCO compliant and more robust than the existing benchmark.

In general, members also emphasised that before regulators decide whether to use their powers to stop regulated entities from using benchmarks that are not considered ‘compliant’ (e.g. not IOSCO-compliant), there should be a variety of benchmark alternatives available to users. This is to avoid cliff effects when benchmarks are abandoned after they are determined to be non-compliant. It was also noted that even if the existing benchmark is non-compliant, market participants will continue to use the non-compliant benchmark if no alternative is available, unless such use is forbidden. Moreover, if the home benchmark is deemed non-compliant, there is an important question regarding what may happen in non-home markets and to market liquidity.

6. *Concluding comment*

Global group members stressed that given the systemic importance of the above global benchmarks, and the highly integrated and international nature of many of the markets that use them (especially derivatives markets) it is crucial that international coordination and cooperation exist in order to mitigate the global impact from any transition to alternative benchmarks.

VI. Contingency Arrangements

In addition to the standard arrangements for the production of robust reference rates, the administrators should also have contingency arrangements for unexpected disruptions to the benchmarks. Among the issues to be considered in these arrangements are:

- The administrator should have business continuity processes to enable rate production in the event of natural disasters or other disruptive events. The protocol should be immediate and automatic to make sure that a rate is published. This stop-gap protocol should be published. It is most likely that the most appropriate immediate response is to publish the previous day’s rate (as the most recently observed market price). But it is anticipated that this would not be acceptable for more than a couple of days.
- If the administrator cannot publish a rate calculated normally for several consecutive days, it should have in place a second protocol for publishing a substitute rate that could be acceptable for a longer period, but would explicitly be not a permanent alternative. For this, we mean a rate that is not based on panel bank submissions. The substitute rate should be constructed, where possible, on transparently observable market prices and have characteristics that are as close as possible to the missing rate (in terms of initial level, volatility, and trends over time). The administrator should be responsible for the production of this rate. However, the relevant authorities should be given sight of the administrator’s plans, allowing the authorities to check the approach (and replicate it if necessary). The substitute rate should be designed to observe the *IOSCO Principles for Financial Benchmarks* as closely as possible.
- The administrator should publicise the fact that such an arrangement exists and as much detail as is possible regarding how the substitute rate will be chosen and calculated (acknowledging the uncertainty around which precise inputs will be

available in any given event) – as common as possible across tenors, and currencies where applicable. The administrator may wish to undertake a consultation around its methodology to educate and to get market acceptance.

- There must be an exit strategy to encourage the market to solve the issue longer term. We suggest that the administrator should not commit to publishing any substitute rate for longer than 3 months.

VII. Review of Existing Benchmarks

A. Findings of reviews

Background

On recommendation of the OSSG, the FSB endorsed the adoption of the IOSCO *Principles for Financial Benchmarks* as the appropriate set of regulatory standards on which to base a review of benchmark reference rates. The FSB commissioned IOSCO to conduct a review of EURIBOR, LIBOR, and TIBOR against the Principles (Review) and report its findings to the OSSG. The IOSCO Board agreed to this request and approved terms of reference for the Review to be conducted by a Review Team comprised of members from the IOSCO Task Force on Financial Benchmarks and the IOSCO Assessment Committee²⁵.

Purpose and process

The Review covers the degree of implementation by the administrators of EURIBOR, LIBOR and TIBOR of the Principles up until mid-April 2014. It is based on the implemented (rather than planned) practices and policies of those administrators.

The Review was based on responses provided by the administrators to questions included in a methodology designed and developed by the Review Team. The methodology was circulated to the administrators on 13 January 2014 with responses to its questions returned by 7 February 2014. The administrators were given the opportunity to check the accuracy of the descriptions prepared by the Review Team. The report on the Review was submitted to the OSSG in June 2014.

In conducting the Review, the Review Team was conscious that the Principles were only released in July 2013. At the time of responding to the questionnaire, therefore, administrators of EURIBOR, LIBOR and TIBOR had only had approximately seven months to align their policies and practices with the Principles. The Review Team was also conscious that there are a number of ongoing initiatives to reform the benchmark-setting processes at each administrator. However, while the report described the status of any plans for administrators to fully implement (or achieve a greater degree of implementation of) the Principles, those plans were not taken into account when assigning ratings to the current state of implementation of individual Principles.

Key findings

²⁵ The IOSCO report is provided separately as Annex 2.

Despite the short time frame since the publication of the Principles, the Review finds that all three administrators have made significant progress in implementing the majority of the Principles. In particular, administrators have made good progress in implementing most of the governance-related Principles and have also mostly implemented transparency and accountability Principles.

However, the Review found that further progress is needed in ensuring that the Principles on benchmark design, data sufficiency and transparency of benchmark determinations are implemented. Regarding data sufficiency, the three administrators failed to provide sufficient data or information to the Review Team to allow it to rate any of the administrators. The administrators have subsequently been asked to perform a thorough analysis on the activity of the interbank and wholesale funding markets that their benchmarks seek to represent and share this information with IOSCO. The FSB expects administrators to comply with this request (with submitting banks to assist them), but it also recognizes that fully meeting the Principle of data sufficiency may require administrators to consider a wide set of methodological changes or changes to or clarification of the interest the benchmark is intended to represent, and it strongly urges both administrators and submitting banks to begin this process.

B. Recommendations

The IOSCO Review Team has made recommendations for each administrator where remedial actions would strengthen the implementation by the administrators of the Principles. The FSB expects that each administrator will take action on these recommendations as expeditiously as possible. In addition, the following steps are recommended:

- By end 2014 (or earlier if required by their relevant regulatory authority), each administrator should develop and provide to their regulatory authority, where available, its work plan to address the remediation recommendations for all Principles.
- The FSB recommends that IOSCO conducts a further review of the three administrators in mid-2015, reporting back to the OSSG on its findings by Q4 2015. This further review would seek to identify whether administrators have made any progress in addressing the recommended remediation work set out in this report.

VIII. Recommendations and Next Steps

The implementation of the multiple-rate approach should be undertaken by each currency subgroup in line with the Guiding Principles. These subgroups should implement new designs and methodologies for IBOR+; and, where currently absent, identify viable Risk Free Rates (RFR) in their currency areas. They should focus on the feasibility of new rate methodologies including identification of suitable administrators and any necessary infrastructure to support these rates

In order to promote consistency and to monitor the reforms being undertaken, the FSB has mandated the OSSG to oversee the implementation work. The main duties of the OSSG will be to monitor progress against the recommendations of this report, promote effective information exchange and coordinate international transition efforts. The OSSG will also act

as a mechanism to exchange information on the progress of any changes to benchmarks. A final monitoring report would be delivered 24 months after publication of the FSB report – interim progress reports would be provided after 12 months.

A. Summary list of specific recommendations for currency subgroups

1. *IBOR + recommendations*

- By end Q1 2015, each of the current IBOR administrators are to work with contributing banks and each central bank is to work with active participants in wholesale funding markets to analyse available transaction data. This will inform the feasibility of each IBOR + methodology.
- By end Q2 2015, in conjunction with relevant central banks and their regulators, administrators should have considered the recommended IBOR + methodologies and the feasibility of each rate and tenor.
- By end 2015, administrators should have publically consulted on any recommended changes.
- Meanwhile and in addition, each currency subgroup should have considered:
 - Work to develop transition strategies and address any legal obstacles and risks.
 - International cooperation and consistency in any changes.

2. *RFR recommendations*

In accordance with the currency specific plans set out in the currency reports, where suitable central banks and supervisory authorities should:

- Collect or encourage administrators and other market participants to collect data in the underlying RFR markets by end Q4 2014.
- Encourage the industry or facilitate the identification of potential RFR designs and administrators by end Q2 2015.
- Encourage the industry or work with the administrators to identify any infrastructure or other requirements for the RFRs' functioning and IOSCO compliance and assess overall feasibility and viability of RFRs by end Q3 2015.
- Ensure that by end Q1 2016, at the latest, a public consultation on any recommended changes has taken place.
- Encourage the industry or work with the administrators to implement at least one IOSCO-compliant RFR by Q2 2016.
- Where suitable, encourage derivative market participants to transition new contracts to an appropriate RFR, while authorities in other jurisdictions should work cooperatively in support of each currency subgroup's plan.

B. The future of the OSSG

1. OSSG renewed mandate

This group is tasked with promoting the effective exchange of information between its members and with authorities in other affected jurisdictions on:

- Details in implementing the proposed alternative rates (IBOR+ and RFR)
- Transition mechanisms
- Legal issues regarding transitions

It should also help to coordinate the work of the various currency subgroups.

Finally, it should provide a monitoring tool for the FSB. It should monitor the implementation by the currency subgroups of the OSSG recommendations. A final monitoring report would be delivered 24 months after publication of the FSB report – interim progress reports would be provided every 12 months.

Abbreviations

ABS – Asset Backed Security

AUD BBSW – Australian Dollar Bank Bill Swap Rate

BIS ECC – Bank for International Settlements Economic Consultative Committee

BOJ – Bank of Japan

CAPM – Capital Asset Pricing Model

CD – Certificate of Deposit

CDOR – Canadian Dealer Offered Rate

CFTC - US Commodities Futures Trading Commission

CHF – Swiss Franc

CLO – Collateralised Loan Obligation

CMBS – Commercial Mortgage Backed Security

CMO – Collateralised Mortgage Obligation

CMT – Constant Maturity Treasury

EBA – European Banking Authority

EEBF – EURIBOR EBF

EBF – European Banking Federation

ECB – European Central Bank

EMMI – European Money Markets Institute

EMTA – Emerging Markets Trade Association

EONIA – Euro Overnight Index Average

ESMA – European Securities and Markets Authority

ETD – Exchange-Traded Derivative

EUR – Euro

EUREPO – Reference rate for Euro repo market

EURIBOR – Euro Interbank Offered Rate

FA-Backed Notes – Funding Agreement Backed Notes

FFER – Fed Funds Effective Rate

FHLB – US Federal Home Loan Banks

FSB – Financial Stability Board

FSOC – US Financial Stability Oversight Council

G20 – Group of Twenty

GBP – Pound Sterling

GC – General Collateral

HIBOR – HKD Interest Settlement Rate (more commonly known as the Hong Kong Interbank Offered Rate)

IBOR – Interbank Offered Rate

ICE – Intercontinental Exchange

ICE BA – ICE Benchmark Association

IOSCO – International Organisation of Securities Commissions

IRS – Interest Rate Swap

ISDA – International Swap and Derivatives Association

JFSA – Japan Financial Services Agency

JPY – Japanese Yen

JSDA – Japan Securities Dealers Association

LIBOR – London Interbank Offered Rate

LMA – Loan Market Association

MBS – Mortgage Backed Security

MMCG – Money Market Contact Group

MOU – Memorandum of Understanding

MPG – Market Participants Group

MTN – Medium Term Note

NWG – National Working Group

OIR – Overnight Interest Rate

OIS – Overnight Index Swap

OSSG – Official Sector Steering Group

OTC – Over-the-Counter

RFR – Risk Free Rate

SAR – Swiss Average Rates

SARON – Swiss Overnight Average Rate

SFEMC – Singapore Foreign Exchange Market Committee

SGD – Singapore Dollar

SNB – Swiss National Bank

SONIA – Sterling Overnight Index Average

SOR – Swap Offer Rate

TIBOR – Tokyo Interbank Offered Rate

TIIE – Mexico Interbank Rate of Equilibrium

TOIS – Switzerland Tomorrow Next Index Swap

UK FCA – UK Financial Conduct Authority

USD – US Dollar

Annex 1 OSSG participants

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