Study on the Implications of Financial Benchmark Reforms

EMEAP Working Group on Financial Markets

September 2019

Contents

Members

Members of the Executives' Meeting of East Asia-Pacific Central Banks (EMEAP)[1] Working Group on Financial Markets (WGFM)[2] are listed below.

Reserve Bank of Australia
People's Bank of China
Hong Kong Monetary Authority
Bank Indonesia
Bank of Japan
Bank of Korea
Bank Negara Malaysia
Reserve Bank of New Zealand
Bangko Sentral ng Pilipinas
Monetary Authority of Singapore
Bank of Thailand

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[1] EMEAP, established in 1991, is a cooperative organization of central banks and monetary authorities in the East Asia and Pacific region. Its primary objective is to strengthen the cooperative relationship among its members. It comprises the central banks of eleven economies: Australia, China, Hong Kong, Indonesia, Japan, South Korea, Malaysia, New Zealand, the Philippines, Singapore, and Thailand.

[2] The WGFM studies financial market developments in EMEAP member jurisdictions as well as on ad-hoc topics that may arise from time to time, promotes local currency denominated bond markets through the Asian Bond Fund initiative, and serves as a platform to exchange views on market conditions among member central banks.

0. Executive Summary

Financial benchmarks, especially interest rate benchmarks, are commonly referenced in financial contracts. The major interest rate benchmarks, e.g. LIBOR, are calculated based on submissions from contributors. However, there was a notable decline in the liquidity of the unsecured money markets after the global financial crisis in 2008. The decline in liquidity, together with incidents of benchmark manipulation, raised questions about the credibility and robustness of the submission-based benchmarks, especially interbank rate benchmarks. Against this background, global efforts have been taken in reforming the financial benchmarks, such as strengthening the robustness and reliability of the existing benchmarks as well as promoting the development and adoption of appropriate alternative reference rates (ARRs), including nearly risk-free rates (RFRs) or other alternative reference rates[3].

The WGFM agreed in 2018 to conduct a study on the implications of financial benchmark reforms to regional markets, covering the discontinuation of London interbank offered rate (LIBOR), implementation of EU Benchmarks Regulation (BMR) and reform of local benchmarks in EMEAP jurisdictions. In November 2018, a survey was conducted among EMEAP members to better understand the extent of market readiness and the role of regional regulatory bodies on the three respective areas. Members shared that:

(i) On LIBOR discontinuation, challenges relating to market adoption of ARRs, calculation methodology of the ARRs, and legacy contracts are most relevant to regional markets.

(ii) For EU BMR, the risk of EU entities leaving the markets that reference unregistered local benchmarks could negatively impact market liquidity and hedging activities.

(iii) Nearly all members plan to adopt a multiple-rate approach for their respective local benchmark reforms, where strengthened benchmarks are expected to coexist with identified alternative RFRs. However, identifying an appropriate alternative benchmark would

[3] While progress have been made in most jurisdictions in identifying appropriate RFRs, some jurisdictions continue to adopt a multiple-rate approach where strengthened IBORs or other reference rates are expected to coexist with identified RFRs as alternative reference rates.

also be challenging to some members, due to the currently low liquidity and the time needed to develop the alternative benchmark-referenced market, and the difficulties in deriving term rates from the alternative benchmark.

The purpose of this report is to raise awareness of market participants, as well as to further enhance the market's readiness for financial benchmark reforms. For EMEAP members' considerations, the report identifies risk scenarios, risk assessments as well as policy recommendations under each of the three areas:

(i) **LIBOR discontinuation**

Risk scenario: Market not ready for transition from LIBOR to ARRs, and the renegotiation and amendments to large volume of legacy contracts creating uncertainty to local market participants.

Risk assessment: Overall risk is recognized to some extent, but more detailed information on financial exposures is necessary to complete the overall risk assessment. LIBOR discontinuation may be more problematic for corporate bonds, syndicated loans and other cash products than derivatives.

Policy recommendations:

(i) Central banks or relevant authorities to collect more detailed information on financial exposures over LIBOR-related products (e.g. product breakdown including corporate bonds and syndicated loans) for a more accurate assessment of potential overall impact and monitoring of market functioning over LIBOR discontinuation;

(ii) Central banks or banking supervisors to require banks to (i) perform risk assessment and impact analysis of their LIBOR exposures under different scenarios; and (ii) develop their governance such as the identification of key senior managers and provide transition plans towards ARRs, in particular in terms of migrating legacy contracts;

(iii) Raising awareness and reaching out to a wide range of market participants and users in EMEAP jurisdictions e.g. through launching a cross-industry committee; and

(iv) Encouraging the launch and trading of new ARR-based products such as bond issues, futures and swaps where appropriate.

(ii) **EU Benchmark Regulation**

Risk scenario: EU-supervised entities exiting markets that use unregistered non-EU benchmarks may disrupt market functioning, both for overall market liquidity as well as specific hedging instruments.

Risk assessment: Potential impact is moderate, particularly with extension of transition deadline to 1 Jan 2022, but efforts will need to be continued to a) pursue exemption status of administrators regarding some local interest rate benchmarks; and b) actively engage with EC to seek equivalence by authorities in non-exempted member jurisdictions.

Policy recommendations:

(i) To prepare early and perform gap analysis towards the compliance of IOSCO principles and achieving EU BMR equivalence, especially for the systematically-important benchmarks (e.g. overnight lending rates, term rates and exchange rate);

(ii) To start early dialogue with ESMA on cooperation arrangements as the process could take time; and

(iii) To keep in mind the interaction between EU BMR and other benchmark reforms and LIBOR discontinuation, in particular requirements under EU BMR on administrators and supervised entities to plan for the scenario of cessation of an existing benchmark.

(iii) **Local Benchmark Reforms**

Risk scenario: Remote but possible scenario of global developments triggering broad-based shift from existing local interest-rate benchmarks towards ARRs.

Risk assessment: Potential impact on the functioning of regional markets appears to be contained.

Policy recommendations:

(i) Encouraging launch and trading of new ARR-based products such as bond issues, futures and swaps where appropriate;

(ii) When determining calculation methodologies of alternative RFR and term-RFRs, considering not only the correlation against existing benchmarks, but also the potential economic transfer, which may be crucial in encouraging adoption of ARRs;

(iii) Engaging with the industry and market participants closely in determining the calculation methodology of alternative benchmarks e.g. through establishing a committee or industry body; and

(iv) Encouraging market participants, especially banks, to be prepared for a scenario where they need to transition to alternative benchmarks, such as conducting regular review on the exposure to affected benchmarks, putting in place robust contractual fallbacks in the scenario that the local benchmarks were to cease and formulating action plans to manage the associated risks/changes.

1. Introduction

1. The study focuses on three main areas of financial benchmark reforms – discontinuation of London Interbank Offered Rate (LIBOR), implementation of EU Benchmarks Regulation (BMR), and reform of local benchmarks in EMEAP markets.

2. In each area, the study aims to assess the extent to which EMEAP markets are affected; identify issues and challenges posed to EMEAP markets; and look into the readiness to deal with such issues and challenges among EMEAP markets. A survey has been conducted among WGFM members and two roundtables have been held with overseas regulatory bodies, industry associations as well as private sector participants.

3. This report provides a brief overview of the three areas of financial benchmark reforms, summarises the results of the WGFM survey and the discussion among EMEAP members and private financial institutions, as well as identifies risk scenarios and proposes some policy recommendations for EMEAP members' consideration. There are separate sections covering each of the three areas of financial benchmark reforms. The final section concludes the study.

2. Discontinuation of LIBOR

4. LIBOR is widely used as the interest rate benchmark for derivatives contracts referencing the USD, GBP, CHF and JPY. However, given the decline in transactions of the unsecured money markets since the global financial crisis, the credibility of LIBOR has come under questions as they are increasingly based on contributing banks' expert judgment rather than actual transactions. Against this backdrop, the Financial Stability Board (FSB) published a report in 2014 on Reforming Major Interest Rate Benchmarks[4], setting out recommendations for strengthening existing benchmarks for key interbank offered rates in the unsecured lending markets, and for promoting the development and adoption of alternative reference rates (ARRs) including nearly risk-free reference rates (RFRs) or other alternative reference rates where appropriate.

5. Later in July 2017, Andrew Bailey, Chief Executive of the Financial Conduct Authority (FCA) in the United Kingdom, said in a speech that all the current panel banks contributing to LIBOR agreed voluntarily to sustain LIBOR until the end of 2021. After that, FCA would no longer sustain the benchmark through their influence or legal powers. More recently, in July 2018, following an FSB statement on interest rate benchmark reform, Andrew Bailey and Randal Quarles, Vice Chairman for Supervision of the Board of Governors of the Federal Reserve System, both publicly reiterated that LIBOR will likely discontinue after end-2021 and financial markets must prepare themselves for the transition.

6. According to the Final Report of the FSB Market Participants Group (MPG) in 2014[5], the notional volumes of outstanding financial contracts indexed to USD, GBP, CHF and JPY LIBOR were estimated to be greater than US$150 trillion, US$30 trillion, US$6.5 trillion and US$30 trillion respectively. For EUR contracts, the notional volume of outstanding contracts referencing Euro-LIBOR was estimated to be around US$2 trillion. These financial contracts included, for example, over-the-counter derivatives like interest rate swaps and cross-currency swaps; exchange-traded derivatives like interest rate

[4] Available at http://www.fsb.org/wp-content/uploads/r_140722.pdf

[5] Available at http://www.fsb.org/wp-content/uploads/r_140722b.pdf.

options and futures; corporate loans; mortgages; bonds and floating rate notes; short-term instruments like repurchase agreements and commercial papers; and securitised products.

Table 1. Products referencing LIBOR

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

Source: IBOR Global Benchmark Transition Roadmap 2018[6]

Table 2. Types of participants in the LIBOR market

Central banks	Asset managers
Central counterparties	Pension funds
Exchanges	Hedge funds
Government-sponsored enterprise	Regulated funds
Investment banks	Insurance/ Reinsurance
Commercial banks	Corporations
Retail banks	Non-bank lenders
Supranationals	Others

Source: IBOR Global Benchmark Transition Roadmap 2018[3]

[6] Available at https://www.isda.org/a/g2hEE/IBOR-Global-Transition-Roadmap-2018.pdf.

2.1 Issues and challenges

7. In light of the impending discontinuation of LIBOR, global efforts have been made to reform interest rate benchmarks and to identify or develop alternative RFRs[7].

Table 4. Alternative RFRs identified

Currency	IBOR	Alternative RFR
USD	USD LIBOR	Secured Overnight Financing Rate (SOFR)
GBP	GBP LIBOR	Sterling Overnight Index Average (SONIA)
EUR	EUR LIBOR, EURIBOR	Euro short-term rate (€STR)
CHF	CHF LIBOR	Swiss Average Rate Overnight (SARON)
JPY	JPY LIBOR, JPY TIBOR, Euroyen TIBOR	Tokyo Overnight Average rate (TONA)

8. However, most of the alternative RFRs are overnight interest rates and cannot readily replace the forward looking term LIBORs without further adjustments on term premiums and credit spreads. According to final results of ISDA's Jul-18 consultation[8] on fallbacks for derivatives referencing LIBOR, the majority of respondents preferred the 'compounded setting in arrears rate' for the adjusted RFR and the 'historical mean/median approach' for the spread adjustment. The majority of respondents also preferred to use the same adjusted RFR and spread adjustment across all benchmarks covered by the consultation and potentially other benchmarks (such as US dollar LIBOR, euro LIBOR and EURIBOR). ISDA launched a supplemental consultation in May 2019 to gather feedback on input of the adjustments on term premiums and credit spreads regarding US dollar LIBOR and some other benchmarks.

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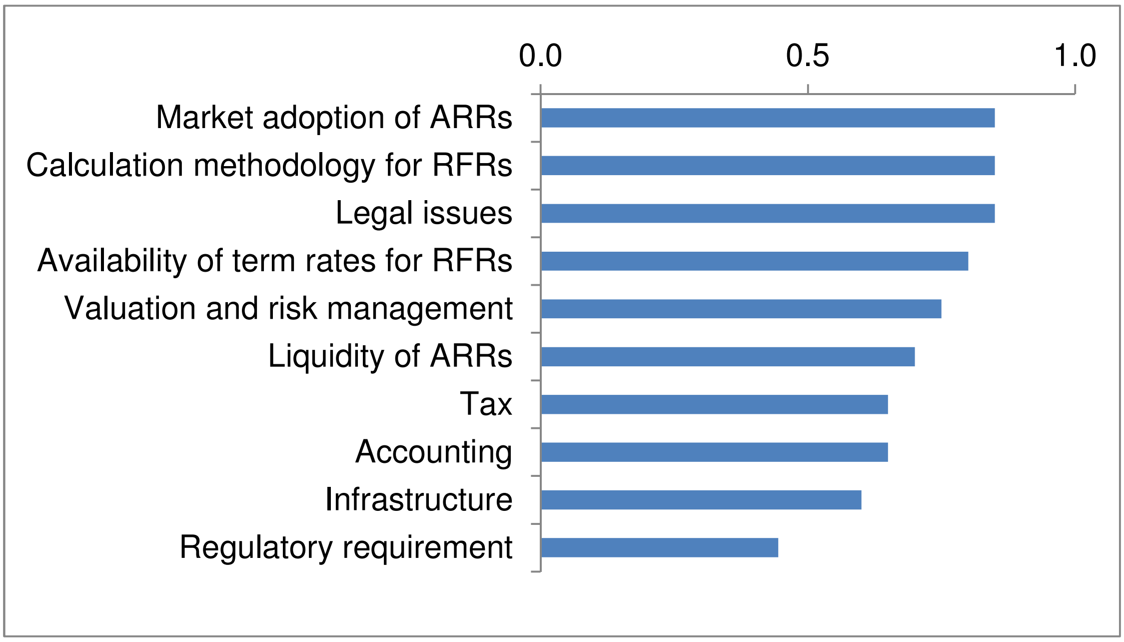
[7] Please refer to FSB Official Sector Steering Group's progress report on "Reforming major interest rate benchmarks" for more information. The report is available at http://www.fsb.org/wp-content/uploads/P141118-1.pdf.

[8] In July 2018, The International Swaps and Derivatives Association (ISDA) published "Consultation on Certain Aspects of Fallbacks for Derivatives Referencing GBP LIBOR, CHF LIBOR, JPY LIBOR, TIBOR, Euroyen TIBOR and BBSW", seeking comments on the approach for calculating the ARRs and the spread adjustments that would apply if the fallbacks are triggered. Available at http://assets.isda.org/media/04d213b6/db0b0fd7-pdf/.

9. Meanwhile, even if the adjusted RFRs are available, there are still a variety of challenges to be overcome in adopting the RFRs. These challenges include, for example, market adoption of RFRs (chicken-and-egg problem), liquidity of the RFR-referenced market, legal issues relating to contract amendments, issues relating to valuation and risk management as well as accounting and tax treatment[9].

10. From the regional perspective, the top three transition challenges that WGFM members found most relevant were market adoption of ARRs; the calculation methodology for RFRs; and the legal issues, including legacy contracts.

Chart 1. Transition challenges facing the EMEAP region



Note: Members' responses have been coded (very relevant = 2, moderately relevant = 1, not relevant = 0) and normalized based on 11 members' inputs.

[9] Please refer to IBOR Global Benchmark Survey: 2018 Transition Roadmap. Available at https://www.isda.org/a/g2hEE/IBOR-Global-Transition-Roadmap-2018.pdf.

Table 5. Issues concerning regional markets

Challenges[10]	Issues highlighted by WGFM members
Market adoption of ARRs	The awareness of the potential discontinuation of LIBOR and the acceptance of ARRs are relatively low among regional financial markets. In some jurisdictions, market players tend to follow the global standards or head office's policies and to adopt a 'wait-and-see' approach to the matter. It is, therefore, important to put more efforts to raise market awareness and understanding of the issue.
Calculation methodology for RFRs	Exposure of local banks to LIBOR via derivatives is high in certain regional jurisdictions, and USD LIBOR is embedded in the calculation of local interest rate benchmark in some jurisdictions. ISDA's work on fall-backs is very important, and it is important to reach market consensus and adopt a consistent calculation methodology
Legal issues	Renegotiation and amendment to legacy contracts may create substantial challenges, e.g. legal cost and operational risk, to local market participants. In some jurisdictions, fallback provisions have been included in certain financial contracts; however, uncertainty remains on the determination of the substitution rates.
Valuation and risk management	Changes to reference rates and amendments to financial contracts will bring about uncertainty in valuation and potential profit/loss implications to market participants. The potential mismatch between the underlying asset/liability and the corresponding hedge when transitioning to ARRs may result in less effective hedges. Significant efforts would also be needed to ensure appropriate risk management and operational system are in place.
Availability of term rates for RFRs	Liquidity in derivatives markets referencing alternative RFRs as well as an agreed approach towards the

[10] For more information about the challenges in adopting the ARRs, please refer to IBOR Global Benchmark Survey: 2018 Transition Roadmap, which is available at https://www.isda.org/a/g2hEE/IBOR-Global-Transition-Roadmap-2018.pdf.

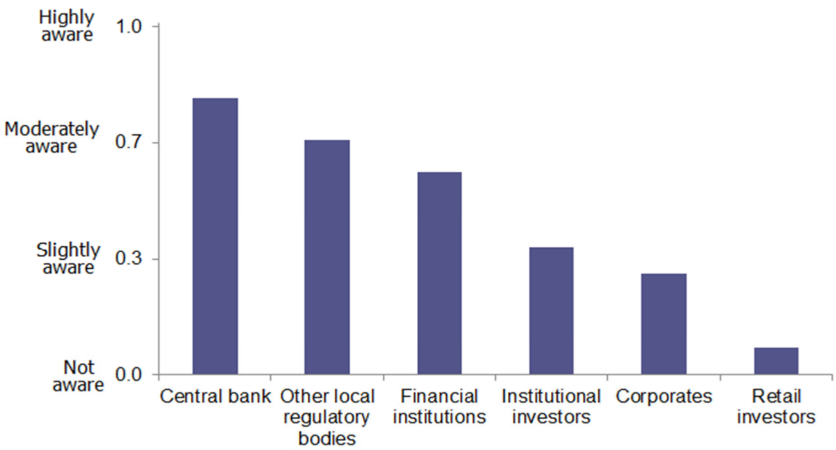
	development of term rates are necessary for RFRs to gain acceptance among market participants.
Liquidity of ARRs	Liquidity of ARRs affects the price discovery and efficiency of interest rate risk management of market participants. Sufficient liquidity in ARRs is, therefore, necessary before these ARRs can be appropriate replacements for LIBOR.
Tax	The transition to ARRs would result in changes in the fair value of the financial contracts and the corresponding tax implications.
Accounting	The transition would have an impact on the hedge accounting and fair value measurement of the financial contracts.
Infrastructure	Market participants would have to make necessary changes to internal system, such as trading and clearing system, which may involve a significant investment.
Regulatory requirement	Grandfathering of certain financial contracts may be affected by the LIBOR transition. In addition, cross-jurisdictional differences in timelines and approaches are particularly relevant for cross-currency swap markets which reference two respective currencies' interbank offered rates. Local regulator would need to keep in step with the global development of LIBOR discontinuation.

11. Similar views were shared by private sector participants. It was also noted during discussions with private financial institutions that liquidity in the ARR is essential but there is a 'chicken and egg' problem with a current lack of liquidity in ARR-referenced markets. There could be possible distortion in the cross-currency markets, if the transition to the various LIBOR ARRs occurred at different times. Other areas of concern, including calculation methodology on credit spreads and term premiums, documentation migration and legacy contracts, low protocol uptake in Asia when compared to the US and Europe, as well as organisation changes and resource constraints, were also mentioned.

2.2 Market awareness/readiness

12. Based on the responses to the WGFM survey, the awareness and readiness of the potential discontinuation of LIBOR and the associated implication on financial markets is higher among central banks, local regulatory bodies and financial institutions, and lower among institutional investors, corporates and retail investors.

Chart 2. Extent of market awareness in EMEAP region



Key from survey:
Highly aware – e.g. actively making plans
Moderately aware – e.g. initiated preliminary internal discussions
Slightly aware – e.g. have knowledge of issue but taken no steps yet
Not aware – e.g. no knowledge of issue

Note: Members' responses have been coded (highly aware = 3, moderately aware = 2, slightly aware = 1, not aware = 0) and normalized based on 11 members' inputs.

13. During EMEAP's discussions with private financial institutions, some institutions shared that internal working groups cutting across all business lines within their banks had been formed to look at the challenges posed by the potential discontinuation of LIBOR. Specific areas of focus of the working groups include, for example, identifying the risk the financial institution is exposed to; conducting an impact analysis across the various departments; and assessing how the financial institution can implement the transition to ARRs with the least pain to the organisation and its customers.

2.3 Actions taken or to be taken by EMEAP members

14. In face of the challenges brought about by LIBOR discontinuation, the most common actions taken by EMEAP members include engaging with banks and international bodies such as the FSB Official Sector Steering Group or the International Organization of Securities Commissions (IOSCO). In addition, most members have tried to raise market awareness of LIBOR discontinuation and the transition to ARRs through holding regular meetings with industry bodies, participating in working groups organised by industry bodies; conducting awareness forum; delivering speeches as well as releasing reports and working papers on the subject. Some members have required or are planning to require local banks to perform risk assessment relating to LIBOR discontinuation.

2.4 Assessment and recommendations

15. Given the large volume of financial contracts referencing LIBOR, a lack of readiness to migrate from LIBOR could potentially lead to systemic risks in EMEAP markets: a) large-scale renegotiation and repapering of legacy contracts may create legal and operational risks to local market participants; b) inherent differences between LIBOR and ARR methodologies may bring about uncertainty in valuation and profit/loss implications; c) the absence of an agreed approach to term rates would also complicate the situation.

16. The WGFM, however, considers the overall potential risk associated with LIBOR discontinuation to be recognized to some extent, given the region's exposure to LIBOR is concentrated in OTC derivatives, where market participants are better prepared given the works of ISDA and IOSCO. LIBOR discontinuation may be more problematic for corporate bonds, syndicated loans and other cash products. As less attention has been placed on these products, which do not have master agreement and would require bilateral negotiations, the WGFM considers that it is important to raise awareness among firms trading or holding those asset classes and for them to get prepared for transition.

17. In light of the above, the WGFM recommends that members consider the following measures:

- Central banks or relevant authorities to collect more detailed information on financial exposures over LIBOR-related products (e.g. product breakdown including corporate bonds and syndicated loans) for a more accurate assessment of potential overall impact and monitoring of market functioning over LIBOR discontinuation;
- Central banks or banking supervisors to require banks to (i) perform risk assessment and impact analysis of their LIBOR exposures under different scenarios; and (ii) develop their governance such as the identification of key senior managers and provide transition plans towards ARRs, in particular in terms of migrating legacy contracts;
- Raising awareness and reaching out to a wide range of market participants and users in EMEAP jurisdictions e.g. through launching a cross-industry committee; and
- Encouraging the launch and trading of new ARR-based products such as bond issues, futures and swaps where appropriate.

3. EU Benchmarks Regulation

18. The EU BMR, implemented in the wake of incidents involving manipulation of various benchmarks, introduces a common framework and consistent approach to benchmark regulation across the EU. It aims to ensure benchmarks are robust and reliable, and to minimise conflicts of interest in benchmark-setting processes. Initially, it was planned that the BMR would prohibit EU supervised entities from using an unregulated third country (i.e. non-European) benchmark in the EU from 1 January 2020. In February 2019, EU authorities decided to extend the transitional period by two years (i.e. till 31 December 2021) to allow additional time for non-European benchmarks to be recognised as equivalent or otherwise endorsed for use in the EU by EU supervised entities[11].

19. A benchmark would fall under the scope of the BMR where it is used to determine the amount payable under a financial instrument or financial contract, or the value of a financial instrument; or it is used to measure the performance of an investment fund for the purpose of tracking the return, defining the asset allocation or a portfolio, or computing the performance fees.

20. Under the current framework, benchmarks provided by EU and third country central banks are exempted from administrator's requirements set out in the BMR. For non-exempt benchmarks, there are three registration options available to non-EU administrators through which a non-EU benchmark may be permitted to be used by EU firms. All three options involve compliance with the IOSCO Principles for Financial Benchmarks:

Equivalence	• The European Commission can adopt an equivalence decision which declares that the legal framework and supervisory practice of the local jurisdiction is "equivalent" to the regime established by the BMR
Recognition	• A "home" EU Member State regulatory authority

[11] Please refer to the press release by the European Commission for more information. The press release is available at http://europa.eu/rapid/press-release_IP-19-1418_en.htm.

	can "recognise" a specific Non-EU Administrator based on substantial compliance with the BMR
Endorsement	• A non-EU benchmark or group of benchmarks can be "endorsed" by an EU benchmark administrator, or another regulated entity within the EU that has a clear and well defined role within the accountability framework of the relevant Non-EU Administrator

Source: The EU Benchmarks Regulation in the APAC region: the role of regulators in mitigating the impact of the BMR; Co-authored by Asia Securities Industry & Financial Markets Association and Herbert Smith Freehills

Box 1. Types of benchmark covered under the EU BMR

Type of Benchmark	**Description**
Critical Benchmark	An index would be regarded as a critical benchmark when the value of the underlying contracts is at least EUR 500 billion, or it has been recognised as critical in an EU Member State.
Significant Benchmark	An index would be regarded as a significant benchmark when the value of underlying contracts is at least EUR 50 billion, or it has no or very few market-led substitutes, leading to significant and adverse impact on financial stability if the benchmark ceases to be produced.
Regulated Data Benchmark[1]	An index would be regarded as a regulated data benchmark if the input data is provided directly from regulated venues.
Interest Rate Benchmark[2]	An interest rate benchmark is determined on the basis of the rate at which banks may lend or borrow from other banks or agents in the money markets.
Commodity Benchmark[2]	An index would be regarded as a commodity benchmark if the underlying asset is a commodity as defined by MiFID II.
Non-Significant Benchmark	An index is regarded as a non-significant benchmark when the value of underlying contracts is less than EUR 50 billion, and is neither a commodity nor an interest rate benchmark.

Note: [1] Certain provisions of the BMR do not apply to regulated data benchmarks, and they cannot be classified as critical. [2] Provisions of the BMR relating to significant and non-significant benchmarks do not apply. In addition, interest rate benchmarks are subject to the requirements in Annex I of the BMR; while commodity benchmarks are subject to the requirements in Annex II of the BMR, unless they are regulated data benchmarks, or are based on submissions from mainly supervised entities.

Source: Financial Conduct Authority, United Kingdom, and European Securities and Markets Authority

3.1 Affected benchmarks in EMEAP region

21. Among the various types of benchmarks, interest rate benchmarks are the most relevant to central banks as interest rate benchmarks are generally under the oversight of central banks and are closely linked to the transmission of monetary policy. This report thus focuses on interest rate benchmarks only.

22. Among EMEAP jurisdictions, some local interest rate benchmarks are exempted from administrator's requirements set out in the EU BMR as they are administered by the central bank. These include the Shanghai Interbank Offered Rate (SHIBOR), Indonesia Overnight Index Average (IndONIA), Jakarta Interbank Offered Rate (JIBOR), Kuala Lumpur Interbank Offered Rate (KLIBOR), Bangkok Interbank Offered Rate (BIBOR) and Thai Baht Interest Rate Fixing (THBFIX).

Table 6. Local interest rate benchmarks among the EMEAP jurisdictions

Members	Benchmark	Administrator
RBA	BBSW	Australian Securities Exchange
PBOC	SHIBOR	China Foreign Exchange Trade System
HKMA	HIBOR	Treasury Markets Association
BI	IndONIA, JIBOR	Bank Indonesia
BOJ	TIBOR	Japanese Bankers Association TIBOR Administration
BOK	CD rate, KORIBOR	Korea Financial Investment Association for CD rate, Korea Federation of Banks for KORIBOR
BNM	KLIBOR	Bank Negara Malaysia

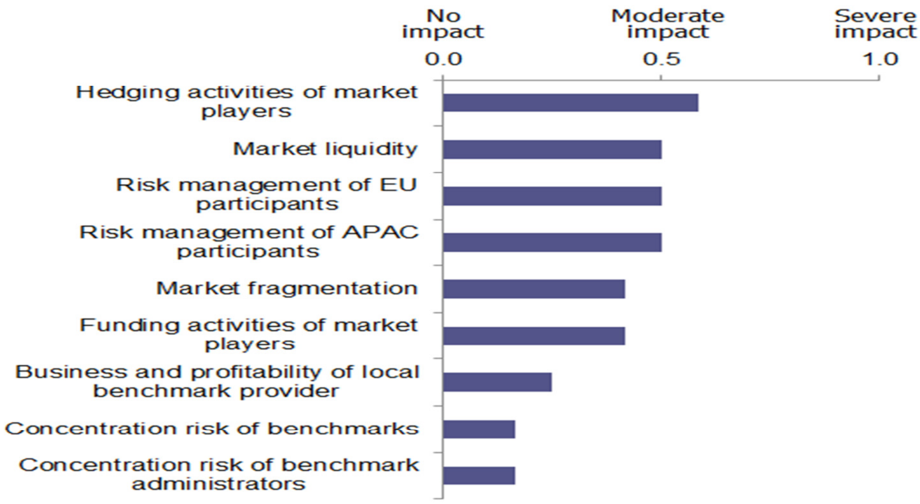
RBNZ	BKBM	New Zealand Financial Markets Association
BSP	PHIREF, USD/PHP fix	Bankers Association of the Philippines
MAS	SIBOR, SGD SOR	The Association of Banks in Singapore Benchmarks Administration Co Pte Ltd
BOT	BIBOR THBFIX	Bank of Thailand

Note: Some members, for example BOJ, do not have authority over benchmark administration. Inputs above are gathered from other sources.

3.2 Issues and challenges

23. In terms of the challenges, members considered that the restriction that EU entities may only use registered benchmarks could potentially give rise to market functioning issues in the EMEAP region. Most members are concerned about the risk of EU entities leaving the markets that reference the local unregistered benchmarks. The top issues highlighted by members include market fragmentation, a decline in transaction volume and liquidity for certain hedging products; a possible increase in market volatility; an intensified concentration risk; an increase in funding cost; and a rise in risk management burden for market players. Members, however, assessed that the associated impact, if any, on their jurisdictions would be moderate, rather than severe.

Chart 3. Challenges facing the EMEAP region in relation to EU BMR



Note: Members responses have been coded (severe impact = 2, moderate impact = 1, no impact = 0) and normalized based on 6 members' inputs.

Table 8. Potential impact on regional markets

Potential impact[12]	**Issues highlighted by WGFM members**
Hedging activities of market players	The potential restricted access of EU entities to certain financial instruments and contracts may limit the ability of EU entities to hedge for risk management purpose. The inability for EU entities to be a swap bank in certain contracts may affect the hedging activities of domestic market players as well.
Market liquidity	The potential withdrawal of EU entities from a certain domestic market segment would negatively impact the transaction volume and liquidity in these markets.
Risk management of EU participants	Overseas branches of EU entities may not be able to trade in some instruments or conduct certain business in a third country, thereby leading to an increase in risk management and operational risk.
Risk management of APAC participants	The possible loss of EU counterparties may limit the treasury and risk management function of domestic players. The internal transfer between local entities' head office and overseas branches in EU may also be affected.
Market fragmentation	The potential shift of EU entities towards registered benchmarks may lead to market fragmentation issue.
Funding activities of market players	The possible lower liquidity in the market would affect the funding activities of market players. Offshore funding and hedging of that funding may become more difficult.
Concentration risk of benchmarks	The concentration risk towards registered benchmarks/benchmark administrators would be intensified. In addition, tightened regulation would impose higher burden on registered benchmark administrators.
Concentration risk of benchmark administrators	

[12] For more information about the potential market functioning issues brought about by the EU BMR, please refer to The EU Benchmarks Regulation, which is available at http://www.asifma.org/uploadedFiles/Research/The%20EU%20Benchmark%20Regulation.pdf.

24. During EMEAP's discussions with private financial institutions, a number of challenges facing third country benchmark administrators towards registration with the EU BMR were identified. One of the challenges was that a large proportion of third country benchmark administrators did not operate a commercial business model and did not have a record of who used their benchmarks or whether their benchmarks were referenced by financial instruments traded in the EU. Third country benchmark administrators might also find it difficult to identify the Member State of Reference in the EU and/or to find a representative in the EU, as the representative would be held accountable to the EU regulatory authorities for the conduct of the administrator.

3.3 Actions taken or to be taken by EMEAP members

25. In terms of actions taken by members to address the challenges related to the BMR, members who have indicated an intention to seek equivalence in accordance with the BMR are engaging with the European Commission (EC) and European Securities and Markets Authority (ESMA) on the issue. To facilitate the application of equivalence, some members have therefore put in place domestic benchmark legislation as well as licensing regime for benchmark administrators. In one jurisdiction, an independent external auditor has been designated to assess local benchmarks and identify improvement in line with IOSCO principles. More recently, the EC has published implementing decisions to grant equivalence to certain benchmarks in Australia and Singapore, and the public consultations on the decisions were closed in mid-April 2019.

26. Members are also putting in efforts to raise market awareness, for example, through holding meetings and discussions with domestic regulatory bodies, regional central banks, industry associations like ISDA and ASIFMA, as well as domestic market participants. Some have participated in seminars and publishing reports/working paper on the EU BMR as well.

3.4 Assessment and recommendations

27. The EU BMR has received much attention by market participants since it

was agreed and published in 2016. The WGFM is particularly concerned about the compliance of third-country benchmarks, the failing of which could potentially force EU-supervised entities to exit certain markets, and thereby giving rise to market functioning issues in the EMEAP region. For example, the unavailability of funding and hedging instruments in regional markets could lead to whole-market withdrawals by banks, corporates and asset managers; and liquidity of local benchmark products could be negatively impacted, thereby exacerbating market fragmentation.

28. Nevertheless, the WGFM considers the overall risk of market disruption in the EMEAP region to be moderate, particularly with extension of the transitional deadline to 1 Jan 2022, but efforts will need to be continued to a) pursue exempted status of administrators regarding some local interest rate benchmarks; and b) actively engage with EC to seek equivalence by authorities in non-exempted member jurisdictions. For non-exempted members, the WGFM recommends that the following approaches to be considered in the process of achieving equivalence:

- To prepare early and perform gap analysis towards the compliance of IOSCO principles and achieving EU BMR equivalence, especially for the systematically-important benchmarks (e.g. overnight lending rates, term rates and exchange rate) are captured by equivalence process (where appropriate);
- To start early dialogue with ESMA on cooperation arrangements as the process could take time; and
- To keep in mind the interaction between EU BMR and other benchmark reforms and LIBOR discontinuation, in particular requirements under EU BMR on administrators and supervised entities to plan for the scenario of cessation of an existing benchmark.

4. Reform of local benchmarks

29. In 2013, the IOSCO published a report on Principles for Financial Benchmarks[13], which provides an overarching framework of principles for benchmarks used in financial markets. Under the IOSCO principles, benchmark administrators should put in place appropriate governance and conflicts of interest arrangement, and benchmarks should be based on prices formed by competitive force of supply and demand (i.e. an active market) and be anchored by observable transactions entered into at arm's length between buyers and sellers.

30. In this connection, work has been carried out by authorities in EMEAP jurisdictions to strengthen the robustness and creditability of the local benchmarks.

4.1 Benchmarks concerned and potential alternatives

31. Based on the responses to the WGFM survey, most members, as part of their reform of local interest rate benchmarks, have identified the potential alternatives, although it would take time to build liquidity in the alternative benchmark-referenced markets. In addition, nearly all members shared that they will retain the local benchmarks and adopt a multiple-rate approach, whereby strengthened benchmarks are expected to coexist with identified alternative RFRs.

Table 9. Affected existing benchmarks and alternative benchmarks

Members	Affected existing Benchmark	Identified alternative RFR/ Benchmark	Retain local benchmark
RBA	BBSW	AONIA	Yes
PBOC	None	None	Yes
HKMA	HIBOR	HONIA	Yes
BI	IndONIA, JIBOR	None	Yes
BOJ	TIBOR	TONA	Yes

13 Available at https://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf.

BOK	CD rate, KORIBOR, COFIX	Not available	Yes
BNM	KLIBOR	AOIR	Yes
RBNZ	BKBM	Not available	Yes
BSP	PHP BVAL Reference Rates, PHIREF	-	Yes
MAS	SIBOR, SOR	Not available	Yes
BOT	BIBOR, THBFIX	-	Yes

4.2 Issues and challenges

32. In terms of challenges, members generally found it challenging to make the existing benchmarks more transaction-based as transactions in uncollateralised interbank market are relatively limited and liquidity in longer tenor money market transactions is generally low. In addition, liquidity requirements under the Basel regulations as well as changes in underlying interbank funding market, e.g. a shift towards non-bank funding sources, may also have reduced market liquidity. Identifying an appropriate alternative benchmark would also be challenging to some members due to the currently low liquidity and the time needed to develop the alternative benchmark-referenced market. Some members also found deriving term rates from the alternative benchmarks to be challenging as there are limited term transactions in the repo market and a lack of liquidity in interest rate derivatives market. Furthermore, some members highlighted that market awareness and acceptance of the alternative benchmark are relatively low, and the potential alternative benchmark may not be relevant to certain customers[14].

4.3 Actions taken by EMEAP jurisdictions

33. In terms of actions taken, most WGFM members shared that authorities in their respective jurisdictions have been strengthening the local benchmark along IOSCO principles and waterfall calculation methodology has been/will be applied to the local benchmarks. For example, transition testing of a new

[14] For example, overnight RFRs may not be the most appropriate benchmarks for loan markets where interest payments are preferred to be known in advance.

waterfall calculation methodology for SIBOR will commence in 2H 2019[15], while BSP issued guidelines on marking-to-market financial instruments, providing basis for establishment of reliable and market-based benchmarks.

34. To increase the robustness of local benchmark, some members had been working with industry associations as well as ISDA on the benchmark fallback arrangements. For example, the JBA TIBOR Administration has conducted a self-assessment on their compliance with the IOSCO principles; the BBSW, HIBOR and SGD SOR have been included in ISDA's consultations on benchmark fallbacks; SGD SOR, which uses USD LIBOR in its computation, will trigger a fallback upon permanent cessation of USD LIBOR, and the SGD SOR fallback would be computed using the USD LIBOR fallback rate, so as to minimize basis risks across instruments that reference USD LIBOR.

35. In addition, changes to the regulatory/governance framework of local benchmarks have also been implemented in some jurisdictions. For example, the Treasury Markets Association in Hong Kong has made a number of changes to the governance framework to enhance the robustness of HIBOR through strengthening independent oversight by a Surveillance and Governance Committee and issuing new policies on conflicts of interest, complaints, whistle-blowing and error correction. In Korea, the Financial Benchmarks bill submitted to parliament last year is awaiting approval and the taskforce to reform local benchmark has recently been launched. In Singapore, MAS introduced a financial benchmarks regulatory regime, which commenced on 8 October 2018.[16]

36. Members are also looking into the development of ARRs. For example, efforts have been taken to facilitate the development of term structure of the ARRs, to encourage the use of ARRs among market participants, and to strengthen the market infrastructure of the ARRs.

37. To raise market awareness of local benchmark reforms, most members have held regular dialogue with regulatory authorities, industry associations

[15] Calculation methodology comprises (a) transactions in the underlying wholesale funding markets, (b) transactions in related markets, and (c) expert judgement.

[16] The regulatory framework subjects the manipulation of any financial benchmark in Singapore to criminal and civil sanctions, and administrators of and submitters to key financial benchmarks (as designated by MAS) to regulation.

and market participants on issues related to the reforms. One member has required local banks to perform risk assessment relating to local benchmark reforms[17]. Some members have organised seminars, delivered speeches, and released reports/working papers on the subject as well. For example, BI conducts dissemination to various stakeholders to encourage the use of IndONIA as overnight benchmark while remain using JIBOR as longer-term benchmark by, for example, providing information of enhanced benchmark rate determination; and the RBNZ has held a number of meetings with the various agencies working on this issue and continues to provide advice and support as required.

38. Based on the responses to the WGFM survey, these actions are preferred to be carried out on an individual basis by each jurisdiction. On a collective basis, continued information exchange among members as well as engagement with industry association on local benchmark reforms are recommended.

4.4 Assessment and recommendations

39. Most members have identified potential ARRs, while nearly all members plan to adopt a multiple-rate approach, i.e. strengthened benchmarks are expected to coexist with identified alternative RFRs. Hence, the potential impact on the functioning of regional markets appears to be contained. However, there currently exist substantial challenges for members in developing liquidity for the ARR-referenced markets and associated term rates. If and when global developments deem a regional shift towards ARRs imminent, substantial risks could stem from low market awareness and acceptance of the ARR benchmarks. In particular, benchmark reforms in major currency areas could affect regional markets through the use of cross-currency basis or foreign exchange swap related products in certain market segments, thereby posing potential risks to market functioning.

40. The WGFM recommends the following areas be focused while working on IBOR reforms and fallback arrangements:

[17] The HKMA had issued a letter to the Chief Executive of all authorized institutions in March 2019, reminding them to undertake adequate preparatory work, including quantifying and monitoring affected exposures, identifying and assessing key risks, formulating action plans, and closely monitoring benchmark rate reforms in respect of LIBOR and HIBOR..

- Encouraging launch and trading of new ARR-based products such as bond issues, futures and swaps where appropriate;
- When determining calculation methodologies of alternative RFR and term-RFRs, considering not only the correlation against existing benchmarks, but also the potential economic transfer, which may be crucial in encouraging adoption of ARRs where appropriate;
- Engaging with the industry and market participants closely in determining the calculation methodology of alternative benchmarks e.g. through establishing a committee or industry body; and
- Encouraging market participants, especially banks, to be prepared for a scenario where they need to transition to alternative benchmarks, such as conducting regular review on the exposure to affected benchmarks, putting in place robust contractual fallbacks in the scenario that the local benchmark were to cease and formulating action plans to manage the associated risks/changes.

5. Conclusion

41. In view of the importance of benchmarks in financial markets, the ongoing financial benchmark reforms would have significant implications on the operation and risk management process of various types of market participants. The associated transitional work could be substantial and complicated.

42. This report has surveyed EMEAP members for issues/challenges and actions taken against three benchmark reform areas; including LIBOR discontinuation, EU Benchmark Regulation, and Local Benchmark Reform. This report has also provided respective risk scenarios, risk assessments, and policy recommendations.

43. Due to the ongoing issues and complexities of benchmark reforms, EMEAP will continue to monitor closely and exchange views among members on the development of various financial benchmark reforms, and to assess if further actions would be needed to facilitate the process. It is also important for EMEAP central banks as well as market participants across all jurisdictions to be aware of potential challenges, conduct experience-sharing and be ready for all risk scenarios under different areas of financial benchmark reforms.

44. Financial institutions are encouraged to engage closely with regulators and industry bodies, get prepared for transition internally, as well as reach out to affected clients on the various benchmark reforms. The migration of legacy contracts and adoption of new documentation involving thousands of clients would be a very complex exercise that may cut across different asset markets. FIs may need to develop the necessary operational and system capability to deal with using multiple reference rates across trading, risk management and pricing functions. Considerable work is also being undertaken by international bodies on the many tax, accounting and regulatory implications arising from transition of existing benchmarks to ARRs. Therefore it is important for all banks and corporations to keep updated of latest developments, conduct risk assessments, formulate action plans and work closely with counterparties to develop the necessary arrangements such as fallbacks.

6. References and Resources

International Bodies

Financial Stability Board: Financial Benchmarks

https://www.fsb.org/work-of-the-fsb/policy-development/additional-policy-areas/financial-benchmarks/

International Swaps and Derivatives Association: Benchmarks

https://www.isda.org/category/legal/benchmarks/

IOSCO: Principles of Financial Benchmarks Final Report

https://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf

International Financial Reporting Standards Foundation: IBOR Reform and its Effects on Financial Reporting

https://www.ifrs.org/projects/work-plan/ibor-reform-and-its-effects-on-financial-reporting-phase-1

International Capital Market Association: Benchmark reform and transition to risk-free rates

https://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/benchmark-reform/

National Working Groups

Australia: https://www.rba.gov.au/mkt-operations/resources/interest-rate-benchmark-reform.html

Canada: https://www.bankofcanada.ca/markets/canadian-alternative-reference-rate-working-group/

Euro Area:

https://www.ecb.europa.eu/paym/initiatives/interest_rate_benchmarks/WG_euro_risk-free_rates/html/index.en.html

Hong Kong: http://www.tma.org.hk/en_newsevents_n1.aspx?NewsId=333

Japan: http://www.boj.or.jp/en/paym/market/jpy_cmte/index.htm/

South Africa: https://www.resbank.co.za/Markets/MPG/Pages/default.aspx

Switzerland: https://www.snb.ch/en/ifor/finmkt/fnmkt_benchm/id/finmkt_reformrates

United Kingdom:

https://www.bankofengland.co.uk/markets/transition-to-sterling-risk-free-rates-from-libor

United States: https://www.newyorkfed.org/arrc

EU Benchmark Regulation

European Commission: https://ec.europa.eu/info/law/benchmarks-regulation-eu-2016-1011_en

ESMA: https://www.esma.europa.eu/policy-rules/benchmarks

ASIFMA on EU BMR: https://www.asifma.org/resource/the-eu-benchmarks-regulation/