Report on the Review of Hong Kong Interbank Offered Rate

November 2012

財 資 市 場 公 會
Treasury Markets Association

CONTENTS

Chapter 1: Executive Summary

Introduction

1.1 HKD Interest Settlement Rate (Hong Kong Interbank Offered Rate or HIBOR) refers to a set of reference interest rates owned by the Hong Kong Association of Banks (HKAB). Having been in place for over 20 years, HIBOR has been used as a set of benchmark interest rates for determining the settlement of a broad range of financial and loan contracts. It is estimated that as at the end of September 2012 the banking sector of Hong Kong held over HK$ 2 trillion of on balance sheet contracts that reference HIBOR.

1.2 The LIBOR incident in the UK has attracted worldwide interest in the robustness of benchmark fixings in global financial markets. In response, the HKAB has initiated a review of the fixing mechanism and governance structure of HIBOR and invited the Treasury Market Association (TMA) to assist in this review. Subsequently, TMA established a working group (WG) for this purpose (see Terms of Reference at Annex 1 and Membership List at Annex 2). To ensure balanced views are heard, the WG has a broad composition with representatives from the banking sector, the corporate sector, the legal and accounting professions, as well as the Hong Kong Monetary Authority (HKMA).

1.3 The WG is cognizant of the work currently conducted by international standard setting bodies, in particular, the International Organisation of Securities Commissions (IOSCO) and the Bank of International Settlements (BIS), on financial market benchmarks. The WG believes that Hong Kong as an international financial centre needs to take into account the relevant international principles or best practices that may emerge from such international organisations. It is, however, unclear at this stage whether these international organisations would promulgate international standards on the setting of financial market benchmarks and, if so, how long, it would take. The WG also noted that the "Wheatley Review of LIBOR: final report" (Wheatley Review) contains useful recommendations that can be considered for adaptation in Hong Kong for enhancing the governance and controls of the HIBOR fixing process.

1.4 Against this background, the recommendations made in this report focus on immediately actionable steps that will enhance the robustness of HIBOR fixing, while keeping a close watch on international standards that may emerge from the international standard setting bodies. In particular, the review has focused on (i) assessing the implications of the global financial crisis on the way reference banks make submissions for HIBOR fixing purpose and (ii) identifying measures that can be taken to enhance the robustness of HIBOR fixing under the current market conditions.

Assessment

1.5 The WG considers that the HIBOR fixing mechanism remains basically sound due to the following reasons and observations.

(a) **Reference banks for HIBOR fixing do not have significant incentives to misreport.** Unlike in the case of LIBOR fixing where the contributing banks are asked to estimate their own funding costs, reference banks for HIBOR are asked to estimate the funding costs of prime banks in Hong Kong. There is less concern about the stigma effect of their submissions in distressed market situations which may create a strong incentive to underreport the rates in such circumstances.

(b) **Back-testing of HIBOR fixing results before, during and after the global financial crisis showed no anomaly.** By making reference to other market prices data including USD/HKD swap, forward rate agreement, yields of Exchange Fund Bills, overnight index swaps, aggregate HKD composite interest rates prepared by the HKMA, the WG considers that the HIBOR fixings before, during and after the global financial crisis have performed well in representing the funding cost of prime banks.

(c) **A survey of the existing reference banks conducted by the HKMA during the review indicated that reference banks have made reasonable adaptations in their rate submissions for the fixing to take account of the significant shrinkage of unsecured term lending in the interbank market.** They are making use of other relevant transaction data sources (e.g. foreign exchange swap, forward rate agreement, etc.) to derive the HKD funding cost of prime banks for submission purpose.

1.6 In view of the above, the WG considers that there is no need to change the current definition of HIBOR or to replace it with alternative benchmark noting that such fundamental changes to the current regime will cause significant disruptions to the large number of existing contracts with reference to HIBOR. This is in fact also the conclusion of the Wheatley Review in the context of LIBOR fixing.

Room for refinement

1.7 Despite the WG's conclusion that HIBOR remains the best available benchmark, the WG sees room for enhancing the robustness of the HIBOR fixing mechanism. In particular, the WG notes that the significant reduction in unsecured interbank transaction since the outbreak of the global financial crisis has increased the need for reference banks to exercise judgment in estimating the funding costs of prime banks. This in turn has created the need to provide clearer and more comprehensive guidance to reference banks on rate submissions. This will help impose discipline on the reference banks to ensure consistency and reliability of their submissions, and enhance the transparency and control of the HIBOR fixing process.

1.8 While the different construct of LIBOR fixing and HIBOR fixing means some of the recommendations in the Wheatley Review are not applicable in the Hong Kong context, it also contains a range of recommendations that aims to improve the governance and controls of the LIBOR fixing process that may be worth considering for enhancing the robustness of HIBOR fixing. There is thus a need to take into account suitable recommendations in the Wheatley Review, in particular those relating to improving the governance and controls at the administrator and individual reference bank level to see whether similar improvements should be introduced in Hong Kong.

1.9 Having considered Hong Kong's own circumstances and the Wheatley Review's recommendations, the WG has proposed a five-pronged approach to improve the robustness of the HIBOR fixing mechanism by:

(a) providing clear guidance for reference banks on rate submission;

(b) developing a Code of Conduct covering both rate submission guidance and sound practices on systems of control for the fixing process for observance by reference banks;

(c) enhancing the independence and governance of the HIBOR compilation process at the administrator level;

(d) confining the scope of HIBOR fixing to tenors that have strong market demand; and

(e) reviewing and enhancing provisions in contracts that reference HIBOR.

A five-pronged approach to refine HIBOR

<u>I. Clear guidance for reference banks on rate submission</u>

1.10 The WG recommends that a Rate Submission Guidance be developed as a priority, which should clearly define guidelines for the explicit use of transaction data to determine submissions. The WG considers that rate submissions should be transparently supported by directly relevant transactions where observable, or by indirectly relevant transaction data with appropriate adjustments based upon the following hierarchy of transaction types:

(a) Top priority should be given to transactions undertaken by the reference bank itself in the interbank unsecured lending market:

  (i) Where the reference bank is a prime bank[1], both its borrowing from any bank and its lending to other prime banks are directly relevant; and

  (ii) Where the reference bank is a non-prime bank, its lending to prime banks is directly relevant. However, its borrowing from prime banks is indirectly relevant.

(b) Where directly relevant transactions are not observable or considered not sufficient (e.g. transaction size too small to be of reference value), rate submissions should make reference to indirectly relevant transaction data, including the following:

  (i) USD/HKD swaps which is one of the most actively used instrument for seeking HKD funds in our market;

  (ii) Other derivative instruments including forward rate agreements and HIBOR futures, if there are active trades; and

  (iii) Other related markets, including but not limited to, repurchase agreements and Exchange Fund Bills.

(c) Quotes by money brokers offered to prime banks can be used as a reference.

1.11 While reference banks should adhere to the above hierarchy as far as practicable, expert judgment is needed to determine whether and how adjustment should be made to transaction data to ensure the submission is representative of the HIBOR definition. The rationale behind the adjustments should be clearly documented.

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[1] Prime bank is a conceptual reference to a group of financially strong banks which are able to command the minimal level of credit risk premium, as compared to other financial institutions. They are usually characterised by good credit rating, broad funding base, good reputation, a strong balance sheet, and ready access to central bank liquidity facility through a high level of eligible securities. Reference banks should make reference to the above factors and exercise judgement when deciding whether a bank is a prime bank or not.

II. Developing a Code of Conduct

1.12 The WG recommends that a Code of Conduct be developed in consultation with the industry, which should set out clearly the rate submission guidance mentioned above as well as the sound practices on systems of control for the fixing process at individual bank level. In this regard, the WG considers it important for effective controls to include:

(a) matters relating to the HIBOR submission process;

(b) regular review by senior management (e.g. Treasurer or Risk Manager) to ensure that submissions were made professionally with adequate data support;

(c) developing commensurate compliance check and independent audit program;

(d) establishing detailed policies and procedures on determination of HIBOR submissions, which should (i) ensure compliance with the Rate Submission Guidance and (ii) include submitter-approver control;

(e) putting in place necessary controls with proper audit trail to facilitate compliance check, internal audit review, and examination by HKMA;

(f) appropriate segregation of duties to ensure that the rate determination process will not be influenced by any business lines within the bank; and

(g) setting out internal disciplinary actions that may be imposed on staff in breach of internal polices and procedures.

1.13 The WG further recommends that this important Code of Conduct be submitted to the HKMA for its endorsement. This arrangement would provide a handle for the HKMA to exercise supervisory oversight on the reference banks. This would be akin to the current supervisory arrangement for monitoring and ensuring banks' compliance with the Code of Banking Practice which has proved effective. As the HKMA in its role as bank regulator already has the powers under the Banking Ordinance to exercise oversight over HIBOR fixing activities, there does not appear to be a strong case for creating a separate statutory regime for the regulation of the fixing.

III. Enhancing the independent administration of the HIBOR fixing process

1.14 Same as the interbank offered rate in major financial markets, the HIBOR is administered by an industry body of banks. There is the concern of insufficient independence as banks as contributors for the fixing process administer themselves. The WG considers that there is merit in considering arrangements that could enhance the independence of the administration of HIBOR fixing.

1.15 A good administrator should be credible and it should be able to fairly represent a broad range of stakeholders when scrutinising the performance of HIBOR. Besides, it should be at the forefront of financial markets so as to ensure HIBOR evolves to meet the demands of the market. The WG therefore recommends that the HKAB should entrust its responsibility for the administration of HIBOR to a separate organisation. TMA could be one of the potential candidates. In any case, the HKAB should seek the endorsement of the HKMA before enlisting an organisation to take up the role of an administrator. The new administrator should be tasked to develop the Rate Submission Guidance in paragraph 1.10 and the Code of Conduct set out in paragraph 1.12. However it is important to ensure that HKAB remains the owner of the HIBOR fixing under this arrangement to avoid any undue disruption to the large number of existing legal contracts with reference to HIBOR.

IV. Confining the scope of HIBOR fixing to tenors that have strong market demand

1.16 HIBOR is currently published for fifteen maturities. According to feedback from market participants, there are very few financial contracts which reference HIBOR with maturities falling on odd periods (e.g. 11-month). Similarly, unsecured interbank transactions with maturities falling on odd periods are rare and it would be very difficult for reference banks to submit rates for these maturities with the support of transaction data. Weighing the difficulties of submitting these rates against the marginal benefit of publishing them, the WG recommends that the number of maturities to be submitted and published should be reduced to seven (overnight, 1-week, 1-month, 2-month, 3-month, 6-month, 12-month), while HIBOR for the other eight maturities should be phased out after one year.

V. Reviewing and enhancing provisions in contracts that reference HIBOR

1.17 The WG reviewed selected contracts that make reference to HIBOR and noted room for improvement in some of them. For instance, some contracts are not adequately clear as to how contingency events such as HIBOR unavailability should be handled. Some other contracts, (e.g. HKD Forward Rate Agreement) have details of the HIBOR fixing mechanism written in their terms, allow little flexibility for future refinements in the HIBOR fixing mechanism, rendering it difficult to introduce refinements even if circumstances warrant. These observations suggest that industry efforts can be made to promote standardisation in terms the way HIBOR is made reference to and the backstop arrangement if HIBOR is for some reasons unavailable. The WG therefore proposes that the HKAB, with the assistance of the TMA if necessary, should take the lead in encouraging market participants to review the terms in existing contracts and identify provisions that could be clarified to mitigate possible disputes and hurdles to improvement in the HIBOR fixing mechanism in the future.

Chapter 2: Implications of the global financial crisis for HIBOR

Background

2.1 HIBOR is a term commonly used to refer to a series of interest settlement rates which are owned by HKAB and have been in place for over 20 years. These rates are fixed each business day (excluding Saturdays) by reference to market rates for HKD deposits in the Hong Kong interbank market. For each fixing, 20 banks designated by HKAB as reference banks will provide their "estimated offer rates at which deposits in HKD are quoted to prime banks in the Hong Kong interbank market at 11.00 a.m[2]."

2.2 Individual reference banks are selected by HKAB on the recommendation of TMA on the basis of reputation, scale of activity in the HKD market and credit standing. The panel is reviewed every two years and the last review was conducted in August 2012.

2.3 Daily fixings are available for fifteen HKD deposit maturities from overnight deposits, 1 and 2 weeks deposits and 1 to 12 months deposits. In calculating HIBOR, a "trimmed-mean" method is used by averaging the middle 14 of the quotations from the 20 reference banks, with the result rounded up, if necessary, to the fifth decimal place.

2.4 The set of daily fixings are published on HKAB's website, while the fixings and rates contributed by individual banks are available from four information vendors, namely, Bloomberg, Thomson Reuters, Tullett Prebon and Quick, as soon as the fixings are published. Thomson Reuters used to be the calculating agent for the fixings, but in order to ensure the simultaneous release of information to the four information vendors, the Hong Kong Interbank Clearing Limited (HKICL), a private company jointly owned by the HKMA and the HKAB, took over the calculating agent role since 2008.

Function of HIBOR in interest rate risk management

2.5 Similar to the benchmark reference interest rates in other markets, HIBOR is essentially a market-driven product initiated by the banking industry through the industry association, i.e. HKAB in the case of Hong Kong. To date, the rate is referenced in a number of financial contracts, including syndicated loan

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[2] Extracted from the definition of HKAB Interest Settlement Rates in the HKAB HKD forward rate agreements.

contracts, residential mortgage loan contracts, HKD forward rate agreement (FRA), interest rate swaps and other interest rate derivatives products. The strong market demand for HIBOR stems from its important role in interest rate risk management.

2.6 Depending on their expectations of future interest rates, market participants want the flexibility to choose between fixed rate and floating rate financial instruments in order to manage their interest rate risk exposures. Market participants also use derivatives (e.g. FRA, interest rate swap contract, etc.) to hedge their interest rate risk exposures. However, a prerequisite for different floating rate instruments to gain market acceptance and liquidity is a credible floating interest rate benchmark that can fairly represent market interest rates. Similarly, a credible benchmark is needed for determining the settlement details of these floating rate contracts. Such market demand gave rise to different interest rate benchmarks in different markets, including HIBOR in the case of Hong Kong.

Robustness of HIBOR

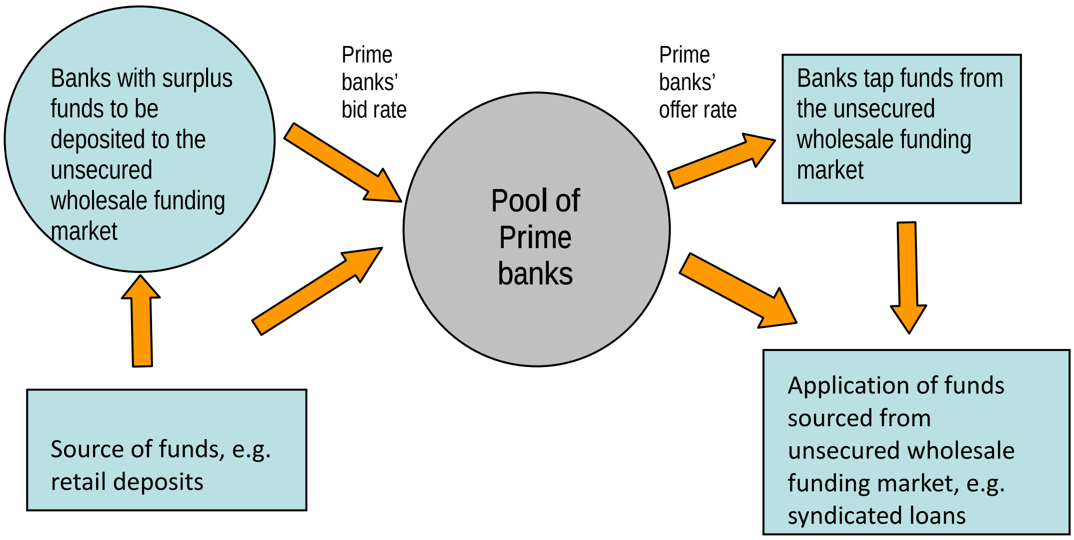
2.7 Before the global financial crisis, reference banks that enjoy good credit rating and reputation were regarded as a homogenous class of counterparties in the unsecured HKD wholesale funding market. The credit risk premium charged on them were generally small and included as part of HIBOR. In economic substance, most reference banks were also prime banks. This pool of prime banks functioned as an unsecured wholesale funding market for HKD (Box 2.1 sets out the dynamics of this market) as they willingly lent to one another and the market was efficient in transmitting HKD funds to parties in need. As reference banks were very often also prime banks, they can use their own transactions to support submissions.

Box 2.1: "Prime bank" in unsecured wholesale funding market

"Prime bank" is a general description for financially strong banks, which are usually characterised by good credit rating, broad funding base, good reputation, and a strong balance sheet with a high level of eligible securities for obtaining central bank liquidity facility. As compared to other banks, a prime bank typically commands the minimal level of credit risk premium.

Prime banks in Hong Kong, as a pool of HKD suppliers, play the role of market makers for the unsecured wholesale funding market. Market players sitting on surplus funds can place the funds with prime banks at a term to maturity they desire. Since they are price takers, in most cases they have to accept the "bid" rates quoted by prime banks. On the other hand, institutions in need of funds can borrow from prime banks for a term to maturity they need. Similarly, these institutions being price takers will normally accept the "offer" rates. Before the global financial crisis when the market was fairly liquid, the spread between bid and offer rates were small, typically only a couple of basis points.

As depicted in the following diagram, the pool of prime banks perform the financial intermediary function of matching players sitting on surplus funds with those having funding needs.



For a non-prime bank, the offered rate basically represents the minimum funding cost of tapping funds from the unsecured wholesale funding market. The offered rate does not yet take into account the additional credit risk premium that could be charged on a weaker bank. Before the global financial crisis, there were infrequent but not rare situations where the funding cost of some financially weaker banks went above HIBOR (e.g. A premium was usually charged on Japanese banks, the so-called Japanese premium, during the Japanese banking crisis in the 1990s). In the aftermath of the global financial crisis, however, many foreign bank branches in Hong Kong could no longer maintain a prime status because of credit concerns stemming from problems in their home countries. Consequently, their funding costs have since risen above HIBOR.

2.8 Since the global financial crisis, the unsecured wholesale funding market has been severely disrupted. To avoid bank credit risks and to conserve liquidity, banks with excess funds become unwilling to lend to those in need. Even if they are willing to do so, the interest rates they demand vary widely, depending on their assessment of the counterparty's credit risk. Due to the drastically increased credit differentiation among banks, the range of credit spreads charged on banks in the market has widened to unprecedented level. As a consequence, while there are still prime banks which continue to command a tight credit spread, the number of prime banks has reduced significantly.

2.9 Besides, banks that continue to maintain the prime bank status are invariably supported by a strong retail funding base. They sparsely need to borrow HKD from the interbank market. While they may lend out HKD, their counterparties are likely non-prime banks and as such the transacted price cannot be directly used to support HIBOR submissions. In tackling this challenge, reference banks have to make use of indirect transaction data and make adjustments when estimating the rates that they believe should be quoted by one prime bank to another prime bank.

2.10 The methods reference banks use in arriving at the submission rates are consistent in principle with the recommendations made in the Wheatley Review. According to a survey of the existing reference banks conducted by the HKMA, in the absence of directly relevant transaction data, reference banks commonly draw reference from other transaction data including USD/HKD swap, FRA, and Exchange Fund Bills (EFB). Since these instruments are not directly relevant to unsecured interbank term borrowing, reference banks have to apply both mathematical techniques and expert judgment to adjust for the differences, including but not limited to credit risk, liquidity risk, and market specific supply and demand factors prevailing at the time of submission. It is worth mentioning that market rates of repo agreements and certificate of deposit (CD) were less commonly adopted in Hong Kong because interbank trading of these instruments are inactive. This highlights the importance of taking into account factors specific to the local financial market when formulating proposals for HIBOR.

The global financial crisis impact LIBOR and HIBOR differently

2.11 The impact of the global financial crisis on LIBOR and HIBOR played out differently in some key aspects. Most notably, LIBOR submissions carry a strong labeling effect because the submitted rates refer to contributing banks' own funding cost. One of the findings of authorities in the UK and the US is that such labeling effect could have incentivised a contributing bank to report lower rates during the global financial crisis. In contrast, reference banks for HIBOR are asked to estimate prime banks' funding cost rather than their own, hence the concerns about labeling effect are less.

2.12 Moreover, Hong Kong was not at the epicenter of the crisis. According to data published by the HKMA, the average HKD funding cost of local banks rose briefly between August and October 2008, but dropped back quickly in November 2008 and declined steadily since then to nearly zero by December 2009, suggesting that during the episode prime banks were not under severe funding or liquidity pressure. As such, they did not appear to have significant incentive to under report.

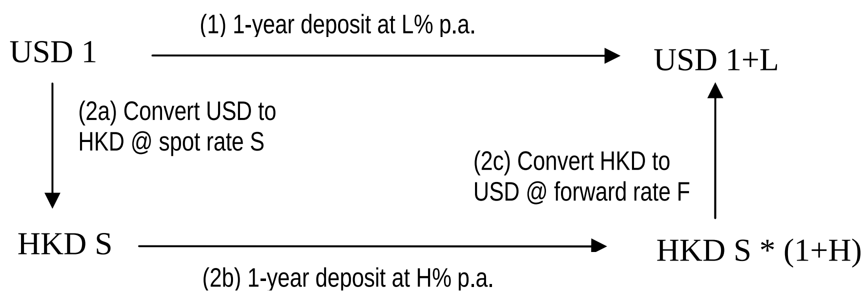
2.13 Another concern arising from the LIBOR incident is the conflicts of interest issue, which arises when traders attempt to influence the submissions in order to benefit their own positions. While it cannot be ruled out that reference banks in Hong Kong may similarly face the conflicts of interest issue, the WG believes that the risk of this happening in Hong Kong is relatively low. Generally speaking, banks in Hong Kong do not maintain significant HKD interest rate trading positions. As an illustration, one common instrument for the trading of LIBOR is Eurodollar futures contracts, which had an outstanding open position of over US$ 8 trillion as at end-September 2012. In Hong Kong, however, trading of HIBOR futures contracts has so far been very inactive, with an open position of HK$ 25 million as at the same date.

Back-testing

2.14 The WG reviewed the past results of HIBOR fixing with a view to assessing whether the results can appropriately reflect the funding cost of prime banks at the material time. Based on the observations set out in the following paragraphs, the WG concludes that HIBOR fixing has been performing well in reflecting the funding cost of prime banks.

2.15 In Hong Kong, it is common for market players to obtain HKD funding through USD/HKD swap instead of directly borrowing HKD funds in the unsecured wholesale market. The rule of interest rate parity suggests that in an efficient market the cost of borrowing HKD funds directly should closely track the combined cost of borrowing USD and entering into a USD/HKD swap (see figure 2.2 for an illustration). Back-testing results show that, prior to the global financial crisis, the HKD funding cost as implied from the use of USD/HKD swap did closely track the results of HIBOR fixing, reflecting a smooth functioning of the HKD wholesale funding market during that period.

Figure 2.2: An illustration of interest rate parity



In a perfectly efficient market, path 1 and path 2 (comprising a,b,c) should achieve the same result. That is, S*(1+H)/F = 1+L

If S, F and L are observable, one can infer H using the above formula. H so derived is normally referred to as swap-implied rates. For this exercise, the WG uses USD HIBOR fixing as a proxy of L. In practice, banks make their own estimation of prime banks' USD

2.16 Post global financial crisis however, although the two sets of data continue to track one another, there are periods when HIBOR stayed slightly above the swap-implied rates. Having considered the following factors, the WG concludes that the degree of deviation is reasonable:

- *USD funding cost* – For this review the WG proxied USD funding cost by both USD LIBOR. In practice, banks make their own estimation of prime banks' USD funding cost, which could be different from these fixing results. It follows that the swap-implied rates as calculated by reference banks could be different from those estimated by the WG in this exercise.
- *Supply-demand factor* – Inflows of funds to Hong Kong since 2009 has resulted in ample HKD liquidity. To manage their balance sheet, banks may be keen to switch their surplus HKD funds into US dollars such that the latter can be used for say making USD loans. This increases the supply of HKD in the USD/HKD swap market, thus pushing down the swap-implied rates. In short, the difference between HIBOR fixing results and swap-implied rates reflected a strong preference by banks in switching HKD into USD using USD/HKD swap.
- *Market illiquidity* – Since the global financial crisis the unsecured wholesale funding market has become very illiquid, as manifested by

the significantly wider spreads between the bid and the offer rates. Since HIBOR refers to the offered rate, it may at times stay above the rate derived from actual USD/HKD swap transactions.

2.17 The WG also reviewed the relationship between HIBOR fixing results and the rates on overnight index swaps (OIS), as well as the yields of EFB of similar maturity. The WG noted that most of the time HIBOR was fixed at a spread over the other two rates. The spread represents the credit risk premium charged on prime banks, as compared with the risk-free rate. The WG further notes that at times of severe liquidity shock (e.g. late 2007 and late 2008), the spread of HIBOR over the other two increased drastically. This is reasonable because during liquidity squeeze market players (i) hoard liquidity by piling into short term government paper and (ii) refrain from offering interbank lending as this will consume their liquidity. The conclusion is consistent with an analysis conducted by the HKMA shortly after the global financial crisis[3]. Overall, the WG considers that HIBOR fixing has been effectively reflecting the liquidity conditions of the market.

2.18 HKD FRA is a derivative contract through which contracting parties express their expectations on the level of HKD interest rates on a specific date in the future. For instance, the market price of a 1x4 FRA reflects market expectations on the level of 3-month HIBOR to be fixed one month from the trade date. Assuming a perfectly efficient market, the same forward rate (i.e. 3-month rate one month from the trade date) can be derived from the HIBOR fixing results[4] on the trade date. With more easily observable transactions, FRA prices provide a reliable reference of the market view on forward rates. Since HIBOR fixing results should also be reflecting the market level of HKD interest rates, the forward rate as derived from the HIBOR fixing results should track closely with the corresponding FRA prices. To this end, a back-testing exercise was conducted and the WG is satisfied that the two sets of data (i.e. 1 x 4 FRA prices and the same forward rate derived from HIBOR fixing results) do track each other closely under normal market conditions.

2.19 The WG also compared the HIBOR fixing results with the local banks' HKD composite interest rate as published by the HKMA (Chart 2.1). During brief periods of acute liquidity shock (e.g. late-2008), the results of HIBOR fixing surged noticeably above banks' overall HKD funding costs, suggesting that liquidity risk premium has been included to reflect the market conditions. It is interesting to

[3] "An indicative decomposition of the HIBOR-OIS spreads", HKMA Half-yearly Monetary and Financial Stability Report, December 2008

[4] Theoretically a bank can borrow HKD for a term of 4 months at 4-month HIBOR and deposit the funds for 1 month at 1-month HIBOR. The net borrowing cost represents the forward interest rate for the 3-month period from the second to the fourth month.

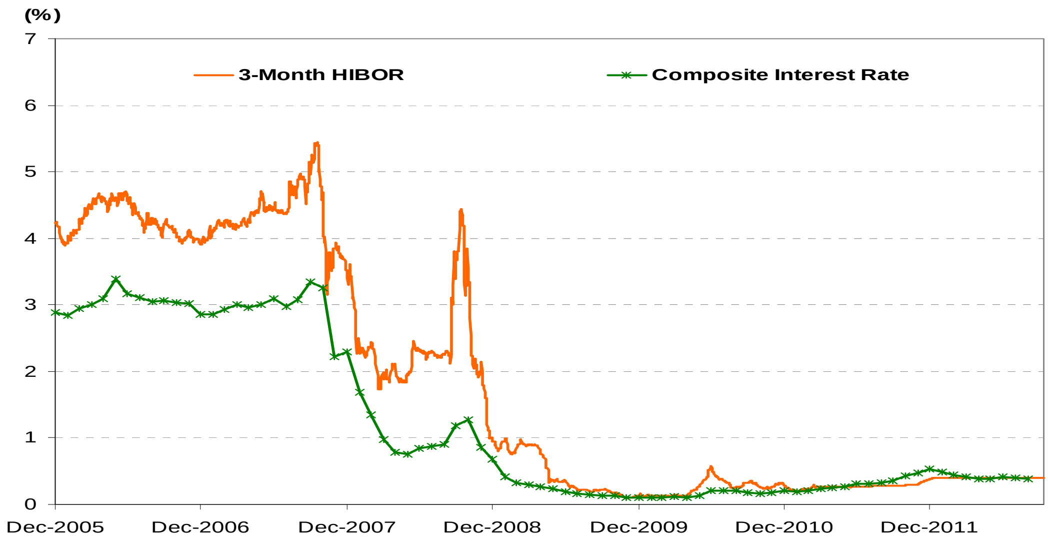
note that after the global financial crisis the spread between HIBOR and local banks' HKD composite interest rate had come down significantly and for a brief period to the negative territory. There are several reasons behind the apparent structural change.

- *Increased credit differentiation* – Due to significant credit differentiation after the global financial crisis, the funding cost of prime banks has become substantially lower than the average funding cost of local banks. As such, the spread between HIBOR (the wholesale funding cost of prime banks) and HKD composite interest rates (the average funding cost of all local banks) should come down.

- *Low interest rate environment* – A key reason behind the spread between HIBOR and HKD composite interest rates is that local banks hold a significant portion of non-interest bearing funds (e.g. current account deposits), which can greatly drag down banks' average funding cost as compared to their wholesale funding cost. However, when interest rates come down to near zero interest level, the impact will be significantly lower.

- *Structural shift toward stable funding sources* – Since the global financial crisis, banks see the need to reduce reliance on less stable wholesale funding sources and seek more stable funding sources such as retail deposits. This structural shift is likely to result in less demand for wholesale funding and greater appetite for growing customer deposits. As interest expense for customer deposits represents a significant portion of HKD composite interest rates, increase in customer deposit rates as a result of keen competition would push up HKD composite interest rate, hence, the spread between HIBOR and HKD composite interest rates should reduce.

Chart 2.1: HIBOR vs composite interest rate



2.20 Another observation of the WG is that the standard deviation of HIBOR submissions by individual reference banks is significantly lower than that for USD LIBOR. This is considered reasonable. As the HIBOR reference banks are essentially reporting the same thing, i.e. their estimation of the funding cost of prime banks, while the LIBOR contributing banks are reporting the estimation of their own funding costs, which are likely to be more dispersed especially after the global financial crisis.

2.21 The WG also observes that the non-bank users of HIBOR, e.g. corporate borrowers of HKD loans, have also been adapting to changing market conditions. Specifically, corporate borrowers understand that HIBOR represents only the funding cost of prime banks which commands a small credit premium, they have therefore been willing to accept loan terms with a significantly wider spread over HIBOR (e.g. HIBOR +150 bps as compared to HIBOR+50 bps before the global financial crisis). In this regard, one key concern of the corporate sector is that since credit spreads are fixed for the entire term of a loan contract, any material change in the HIBOR fixing process could pose significant financial impact on them. For instance, if the definition of HIBOR is to be changed such that reference banks' report their own funding costs, the fixing results would rise and the loan payments they pay would increase.

Conclusion

2.22 The WG concludes that there has been no noticeable anomaly in HIBOR fixing. Market participants do not seem to have significant concerns over the quality of the fixing process. Most importantly, both banks and other users of HIBOR have adapted to the changing market conditions based on the HIBOR definition.

2.23 In view of the above, the WG concludes that the current definition of HIBOR should be retained. The WG sees no tangible benefits of changing the definition or replacing it with an alternative benchmark noting that such fundamental changes to the current regime will cause significant disruptions to the large number of existing contracts with reference to HIBOR and result in higher borrowing costs to some existing bank customers.

Room for refinement

2.24 Despite the WG's conclusion above, the WG sees room for enhancing the robustness of the HIBOR fixing mechanism. In particular, as explained in the section under "robustness of HIBOR" above, the significant reduction in unsecured interbank transactions (especially between prime banks) since the outbreak of the global financial crisis has increased the need for reference banks to exercise judgment in estimating the funding cost of prime banks. A more structured governance and control framework is therefore desirable to ensure that judgments are made diligently, independently, and consistently.

2.25 In formulating a comprehensive proposal to refine the HIBOR fixing mechanism, the WG has carefully considered the recommendations made in the Wheatley Review. The WG is of the view that due to different construct of LIBOR fixing and HIBOR fixing, some of the recommendations are not applicable in Hong Kong's context. For instance, Wheatley Review recommends deferring the publication of quotations by reference banks in order to reduce the banks' worry about the associated labelling effect on them, which, as explained above, is a lesser concern under the definition of HIBOR. The WG also considers that there may not be a need to introduce a separate statutory regime for regulating the administration of, and submission to, HIBOR, as proposed by Wheatley Review in the context of LIBOR because:

- Reference banks in Hong Kong do not have significant incentives to misreport HIBOR;

- Back-testing of HIBOR fixing results show no noticeable anomaly;
- Both banks and corporations have already made necessary adaptations based on the current definition of HIBOR;
- Thus far there is no significant public concern about the risk of HIBOR being manipulated; and
- The HKMA have sufficient powers under the Banking Ordinance to ensure effective supervision of HIBOR fixing activities.

2.26 Nevertheless, the Wheatley Review contains a range of recommendations that aims to improve the governance and controls of the LIBOR fixing process that may be worth considering for enhancing the robustness of HIBOR fixing.

2.27 Having considered Hong Kong's own circumstances and the Wheatley Review's recommendations, the WG proposes a five-pronged approach to refine the HIBOR fixing mechanism, the details of which are set out in Chapters 3 to 7.

Chapter 3: Clear guidance for reference banks on rate submission

3.1 Chapter 2 reviews the implications of the global financial crisis for the HIBOR fixing processes – the main impact being the drastic reduction of directly relevant transaction data to support submissions, rendering it inevitable for reference banks to increasingly rely on indirectly relevant data and judgment.

3.2 While the approach adopted by reference banks in determining rates for HIBOR submission purpose is considered reasonable given the prevailing market conditions of the HKD interest rates markets, the WG recommends that, as the first prong and a cornerstone of the five-pronged approach, a Rate Submission Guidance (RSG) be developed as a priority. Industry's comments should be sought in developing the guidance. This RSG should also be submitted to the HKMA for comments and endorsement. This chapter sets out the key elements that the WG recommends to be included in the RSG.

Key elements of the RSG

3.3 The WG concludes that HIBOR submissions should be explicitly and transparently supported by transaction data.

3.4 To ensure consistency and transparency in the use of transaction data, a clear hierarchy of transaction types should be developed in the specific context of the HKD interest rate market. A clear hierarchy serves two main purposes:

(a) Submitting staff and their managers at reference banks will have a clear roadmap to guide their judgment in prioritising the reference of transaction data. This will help ensure that all relevant factors are consistently considered with appropriate weights.

(b) A clear hierarchy imposes discipline on the reference banks to go through a due process in determining the rates to be submitted. If a submitter considers that the pre-specified hierarchy cannot be adhered to because of specific circumstances prevailing at the time of submission, documented justifications should be maintained for review by the manager overseeing the submission as well as by other independent reviewers such as the internal auditors.

3.5 The WG recommends the following hierarchy of transaction types:

(a) Top priority should be given to transactions undertaken by the reference bank itself in the interbank unsecured lending market:

(i) *Where the reference bank is a prime bank, both its borrowing from any bank and its lending to other prime banks are directly relevant; and*

(ii) *Where the reference bank is a non-prime bank, its lending to prime banks is directly relevant. However, its borrowing from prime banks is indirectly relevant.*

(b) Where directly relevant transactions are not observable or considered not sufficient (e.g. transaction size too small to be of reference value), rate submissions should make reference to indirectly relevant transaction data, including the following:

(i) *USD/HKD swaps which is one of the most actively traded instrument for seeking HKD funds in our market;*

(ii) *Other derivative instruments including HKD FRA and HIBOR futures, if there are active trades; and*

(iii) *Other related markets, including but not limited to, repurchase agreements and Exchange Fund Bills.*

(c) Quotes by money brokers offered to prime banks can be used as a reference.

3.6 While reference banks should adhere to the above hierarchy as far as practicable, expert judgment is needed to determine whether and how adjustment should be made to transaction data to ensure the submission is representative of the HIBOR definition. The rationale behind the adjustments should be clearly documented.

3.7 Users of HIBOR should recognise that expert judgment, if exercised with discipline and under stringent oversight, serves an important function in ensuring the robustness of HIBOR. It avoids unnecessary volatility in the benchmark interest rate. To illustrate this point, it is useful to consider the hypothetical scenario in Box 3.1. It is important to acknowledge the fact that there are numerous other similar scenarios and it is impossible to set out in a rule book how each of the scenarios should be dealt with, rendering expert judgment indispensible in the rate submission process.

Box 3.1: A hypothetical scenario

During the morning session of a trading day, market rumours disrupted the interbank market and led to a brief period of sharp rises in HKD interest rates at around 10:30am, with some trades done at elevated levels. The rumours were quickly confirmed to be unfounded and HKD interbank interest rates reverted to normal level, but very few trades were done during 10:30am to 11:00am. In this scenario, if reference banks stick rigidly to the transactions done around 10:30am and do not exercise any judgment on what they believe should be the right level of interest rates, HIBOR would be fixed at substantially higher levels and unnecessarily affect floating rate borrowers.

3.8 To strike a balance between adhering to a clear hierarchy of data sources and exercising expert judgment, the WG recommends the following guidelines on when and what judgment should be made:

(a) *Assessment of relevance* – Despite the overarching principle of making submissions with the explicit and transparent support of transaction data, reference banks will inevitably need to exercise judgment on the relevance of transaction data. Typically, the following factors will be considered:

- *Proximity of time* – Transactions done just before the time of making submissions should normally be given more weight. In the absence of such trades, reference banks may need to look farther backward in time for transaction data. In evaluating the relevance along the time dimension, reference banks should explicitly assess whether there have been notable changes in market conditions during the time gap. For instance, if market conditions have been very stable all along, transactions done a day before might be still considered relevant. In contrast, if a market moving event happens just before the time of submission, even transactions done in the morning on the same day may become not relevant.

- *Reasonableness of transaction size* – Although this is not explicitly spelt out, it is commonly understood that for transaction data to be relevant they should be of reasonable sizes. There is no hard and fast rule as to what is reasonable and judgment is therefore needed. To facilitate consistent exercising of judgment along the size dimension, reference banks should regularly compile statistics to support their judgment. If for example statistical data suggest that a ticket size of HK$ 50 million is not uncommon, reference banks should accept transactions of this size as relevant unless there are strong justifications suggesting otherwise.

- *Bid offer spread* – In a transaction where a non-prime bank lends HKD to a prime bank, it is likely that the contract rate reflects the bid price quoted by the prime bank to the non-prime bank, rather than the offer price quoted by the non-prime bank to the prime bank. This is because non-prime banks are usually price takers while prime banks have more power in setting the price. Since HIBOR refers to the offer rate, reference banks may make adjustment for the bid-offer spread as necessary. Reference banks should document the reasoning of their judgment including the market information used to support the size of adjustment being made.

(b) In making reference to indirectly relevant transaction data, appropriate adjustments should be made to ensure the submission is representative of the HIBOR definition. While reference banks may develop different techniques for this purpose, these techniques should be documented and reviewed by the manager overseeing the HIBOR fixing process as well as other independent reviewers. The effectiveness of these techniques should be assessed regularly with a view to making necessary refinements. Amongst other things, adjustments are normally made for one or more of the components of HIBOR as set out in paragraph 3.11.

3.9 The WG also discussed whether there should be a clearly defined list of prime banks to facilitate submissions. Members however came to the conclusion that it is not feasible to come up with a fixed list of banks as the list of banks changes as market conditions change. There is the risk of subjecting HIBOR to unnecessary volatility by setting a fixed list of prime banks. One may subject the list to frequent reviews and announce this change to all reference banks. However, the news that a bank is being removed from the list could unsettle the market and adversely affect the bank concerned. The idea of developing a fixed list of prime banks was therefore considered not practical. Having said that, the WG also noted the need to provide more guidance on the definition of prime banks to the reference banks in the RSG.

3.10 Prime bank is a conceptual reference to a group of financially strong banks which are able to command the minimal level of credit risk premium as compared to other financial institutions. Prime banks are usually characterised by good credit rating, a broad funding base, good reputation, and a strong balance sheet, and can readily access central bank liquidity facility through possessing a high level of eligible securities. Reference banks should take into account the above characteristics when judging whether a particular bank is a prime bank or not at the time of submission. It should be noted that another factor to be considered is the degree of credit risk differentiation among banks. The wider the credit risk differentiation, the smaller the number of prime banks will be.

Components of HIBOR

3.11 The WG proposes a modular approach in analysing HIBOR. Broadly speaking, HIBOR can be regarded as comprising the following components:

(a) *Interest rate* – This is also known as the risk-free rate, typically referring to the rates on OIS or yields of local currency denominated paper issued by the government. The yields of EFBs could however be affected by supply-demand factors that are not directly related to the interest rate component. In particular when the market sentiment is panicky, flight to safe haven could push the yields of EFB to very low levels. Historical data suggest that in extreme cases the yields of EFB could be pushed down to the negative territory.

(b) *Credit risk premium for prime banks* – This component is not easily observable. Certain price information may help reference banks to judge whether changes should be made to this component. Examples of related price information include observed changes in credit default swap (CDS) spreads of prime banks and observed changes in the market yields of senior unsecured debt they issued. As the terms and conditions of these instruments are very different from those of HIBOR, reference banks should exercise judgment as to whether and how the price information should be used, bearing in mind that this component should not include the additional idiosyncratic credit risk premium of non-prime banks.

(c) *Market liquidity risk premium* – For a market with limited market liquidity, market makers would need to widen the spread between the bid and offer rates in order to compensate for the additional risks they face as a result of market illiquidity. If reference banks have reasons to believe that market liquidity for the unsecured wholesale funding market has improved, they may exercise judgment to adjust their submissions downward, and if vice versa adjust upward.

(d) *Funding liquidity risk premium* – Due to the global financial crisis and the ensuing regulatory initiatives, the banking industry has attached greater importance to liquidity risk management. As a consequence, banks are willing to pay a higher price to secure more stable and longer term funding, and they will similarly charge a higher price for giving up liquidity in the form of unsecured interbank lending. Reference banks may exercise judgment on whether there are notable changes to the funding liquidity risk premium charged by prime banks.

3.12 The structural composition of HIBOR as proposed in paragraph 3.11 above is not meant to be regarded as a standard model. Reference banks may apply a different structure or include other components in their analysis. In any case, the structure of analysis should be comprehensively documented and subject to regular review.

3.13 As mentioned in paragraph 3.8 (b) above, when making adjustments based on indirectly relevant transaction data, banks may adopt various techniques. Proprietary techniques are acceptable provided that they are supported by diligent analysis and satisfactory back-testing results. In addition, the following techniques may also be considered provided that they are subject to regular review on their effectiveness:

(a) Interpolation or extrapolation from available data; and

(b) Drawing inference from the bank's own transaction data and the difference in credit risk premium between reference banks and prime banks. For instance, if a reference bank judges that its credit standing relative to prime banks has remained stable, it may observe the changes of its own funding cost and use them to infer the funding cost of prime banks.

3.14 Reasonableness check should be conducted to ensure that all apparent anomalies are looked into and explained for. Reference can be made to the section on back-testing in Chapter 2 of this report, which covers some of the reasonableness check steps conducted by the WG in this review.

Chapter 4: Developing a Code of Conduct

Objectives and scope

4.1 The WG recommends that a Code of Conduct (the Code) be developed to provide a handle for oversight by (a) reference banks internally, (b) administrator at industry level (see Chapter 5), and (c) the HKMA at regulatory level. The RSG as recommended in Chapter 3 should also be enshrined in the Code.

4.2 In addition to RSG, the Code should cover the following important aspects in order to ensure the quality of the HIBOR fixing process at reference bank level:

(a) Effective governance structure to ensure adequate accountability of senior management;

(b) Effective systems of control to ensure prevention or detection of anomaly, be it intentional or not; and

(c) Ethical standards and best practices that personnel involved in rate setting process should observe.

4.3 In order to cope with changes in market conditions, the Code should be regularly reviewed such that enhancements can be introduced where appropriate and necessary. It is envisaged that the Code will continue to evolve to take into account new market developments, as well as new international standards on industry best practices to be observed in the setting of financial benchmarks.

4.4 The recommendations of the WG on the key elements of the Code are set out below, which have taken note of proposals in the Wheatley Review, as well as the "Principles for Financial Benchmarks" developed by the Global Financial Markets Association. Industry participants should contribute and be consulted in finalising the detailed provisions in the Code.

Governance structure

4.5 There are two features of an effective governance structure at each reference bank: (a) adequate senior management oversight and clear accountability, and (b) presence of independent review function.

4.6 *Senior management oversight* – Reference banks should ensure adequate senior management oversight for the rate submission process by designating a senior executive to oversee, and be accountable for, all matters relating to the HIBOR submission process, including but not limited to:

- Ensuring the reasonableness of rate submissions, and the use of appropriate data and judgment in the rate corroboration process;
- Putting in place effective systems of control, including written policies and procedures for such controls, to ensure integrity of the rate submission process within the bank;
- Ensuring appropriate segregation of duties to address possible conflicts of interest concerns within the bank arising from the rate fixing process; and
- Taking all necessary measures to avoid external influence over the rate submission process.

4.8 The management responsibility for ensuring the integrity of the fixing process does not only stop at the designated senior executive. Reference banks should make clear that other relevant senior management members are also accountable to the quality of the HIBOR fixing process. For instance, the Chief Risk Officer of a reference bank is ultimately accountable for the independent risk management quality of the bank. Since the HIBOR fixing process may give rise to reputation or legal risk (e.g. misreporting behaviors within the bank), he or she shall be accountable for the adequacy of internal controls for the process. By the same token, since the Chief Executive Officer (CEO) of a reference bank takes overall responsibility for the proper standards of conduct, as well as sound and prudent business practices of the bank, he or she should also be accountable for all issues relating to the fixing process.

4.9 *Independent review function* – Reference banks should assign risk management staff independent of the front office and the designated senior executive to conduct regular review, focusing in particular on assessing whether expert judgment has been exercised in a reasonable and consistent fashion.

Systems of control

4.10 *Submitter-approver process* – Reference banks should put in place a submitter-approver process and assign the right personnel for these roles to ensure the process is conducted in an independent and professional manner.

- The role and responsibility of the designated submitter and approver, including their alternates, should be well defined and properly documented; their authorization should be clearly set out in writing.

- The approver and submitter should possess experience in the relevant markets and should possess the appropriate level of seniority in the institution.
- The approver and submitter should be given sufficient training and guidance on the rate determination process, as well as this Code, and other ethical standards that they are expected to meet in their roles.
- The approver should possess sufficient expertise and seniority to challenge the rates proposed by the submitter.

4.11 *Rate corroboration process* – Reference banks should put in place detailed policies and procedures on determination of HIBOR submissions. Such policies and procedures should include:

- Collection of transaction data and other price information in line with the guidelines set out in the RSG;
- Procedures for rate corroboration in accordance with the hierarchy set out in the RSG;
- Approved techniques for making adjustment to indirectly relevant transaction to ensure submissions are representative of HIBOR definition;
- Requirement to keep records of the data used in the rate corroboration and documentation of grounds for applying expert judgment; and
- Validation and approval procedures to be followed before making submissions.

4.12 *Segregation of duties* – Reference banks should ensure that there is appropriate segregation of duties to address the possible conflicts of interest arising from its role as both contributor and user of the reference rates, including but not limited to:

- Putting in place necessary segregation of duties between staff involved in rate corroboration process and staff involved in proprietary trading of interest rate derivatives, the degree of segregation should be commensurate with the scale and complexity of the relevant operations of the reference bank;
- Putting in place necessary arrangement to ensure that only the

necessary internal transaction data are passed on to the responsible staff for rate corroboration purpose; and

- Where the bank's proprietary interest rate derivatives positions are significant, the submitters should not be given access to information about the proprietary positions.

4.13 *Independent review* – Reference banks should develop commensurate independent review processes. Typically, three levels of independent review should be established, including: (a) regular review by the Risk Management or Financial Control department, (b) unscheduled compliance check, and (c) annual audit review. Some banks may also choose to engage external auditors to conduct in-depth quality review. While the scope of review may vary from time to time, the following steps should be taken where necessary:

Scope of review

- Ascertaining the proper maintenance of records of the rates corroboration and submission process, including data used and justifications for any departure from the normal rate corroboration process;
- Assessing reasonableness of rates contributed, by conducting back-testing analysis and other review statistics (e.g. frequency of results trimmed, deviation of submissions from fixing results);
- Performing review on the sufficiency of senior management oversight, e.g. by checking whether the approver and the designated senior executive have been inquisitive and critical when reviewing the work of submitters;
- Evaluating whether issues arising from the fixing process (e.g. inquiries from the administrator of HIBOR) are thoroughly followed up and resolved;

Escalation procedures

- Preparation of regular reports to senior management on results of the reviews, in particular any anomalies identified in the review process, so that corrective actions could be taken in a timely manner and appropriate disciplinary actions could be taken against staff in breach of the Code or the reference bank's internal policies; and
- Establishing procedures for the reporting of material breaches or unethical/abusive behaviors concerning the rate submission process to

compliance or legal personnel, as well as the escalation of these issues to the CEO and Board of Directors, as well as the owner and administrator of the reference rate, and the HKMA and other authorities if appropriate.

4.14 *Compliance with the First Conduct Rule* – Reference banks should ensure that they observe the Rule set out in Section 6 of the Competition Ordinance which prohibits agreement, concerted practice and decisions that distort competitions in Hong Kong. Among other things, reference banks should not act in concert by divulging to one another detailed information about their pricing policies so as to influence the fixing results.

4.15 *Handling of complaints and whistle-blower reports* – Reference banks should establish and document procedures for handling complaints arising from the benchmark setting process and reports made by submitters, approvers, and other whistle blowers, including:

- Proper recording of all such complaints and reports;
- Timely allocation of sufficient and independent staff resources to review and investigate these complaints and reports; and
- Procedures for timely reporting of material complaints and reports to the CEO and Board of Directors, the owner and administrator of HIBOR, and the HKMA.

Ethical standards

4.16 Reference banks should develop a set of ethical standards specifically addressing the HIBOR fixing process. Staff training should be regularly conducted to remind staff of the ethical standards expected of them. Among other things, the following should be observed:

- The determination of rates should be based on the sole objective of reflecting the definition of HIBOR (for submitters and approvers);
- Refrain from attempting to influence the rate setting process of the reference bank for staff not involved in the HIBOR fixing process;
- Refrain from attempting to influence the rate setting process of other banks (for all staff); and
- Report in a timely manner any observed unethical or abusive behaviors of staff within the reference bank or employees of other banks (e.g. a

submitter should immediately report to the senior management if he/she was approached by a colleague in an attempt to influence the rate setting process).

Endorsement by HKMA

4.17 The WG further recommends that this important Code be submitted to the HKMA for its endorsement. This arrangement would provide a handle for the HKMA to exercise supervisory oversight on the reference banks. This would be akin to the current supervisory arrangement for monitoring and ensuring banks' compliance with the Code of Banking Practice which has proved effective.

Chapter 5: Enhancing the independent administration of the HIBOR fixing process

5.1 Same as the interbank offered rate in major financial markets, the HIBOR is administered by an industry body of banks. There is the concern of insufficient independence as banks as contributors for the fixing process administer themselves. The WG considers that there is merit in considering arrangements that could enhance the independence of the administration of HIBOR fixing.

Key attributes of a credible administrator

5.2 The WG considers it desirable for the HKAB to entrust its administrative role for HIBOR to a separate credible organisation. A credible administrator should possess three attributes as set out in paragraphs 5.3 to 5.5 below.

5.3 Ability to keep pace with market changes and initiate necessary enhancements – The WG concludes that it is important for HIBOR, created by the market for the market, to evolve with the market and continue to serve its functions. The administrator should therefore be at the forefront of financial market development and possess first-hand information about the changing market dynamics.

5.4 Free from conflicts of interest – There are problems if banks responsible for contributing rates are solely responsible for administering the fixing process. Such arrangement puts to doubt the administrator's ability to challenge the submissions of reference banks and take appropriate follow-up actions to look into anomalous submissions. It follows that the new administrator cannot be an association making up of banks only.

5.5 Balanced representation – A credible administrator should be able to balance the interests and needs of different stakeholders when dealing with matters and complaints arising from the fixing process, and proposing changes to the fixing mechanism in the light of market developments.

5.6 The WG recommends that the HKAB should seek the endorsement of the HKMA before enlisting an organisation to take up the role of an administrator. TMA can be one of the potential candidates.

5.7 With the strong presence of treasury professionals, the TMA should be able to detect promptly changing market conditions and introduce refinements to the HIBOR fixing mechanism in a timely manner. On the issue of independence, while the treasury professionals usually come from banks, membership in TMA is reasonably diverse and includes money market participants, representatives from the corporate sector, legal and accounting professions, as well as the HKMA. The more balanced representation ensures that it will take into account the interests of different players when managing matters relating to the fixings and proposing changes in the future.

HKAB should remain the owner of HKD HIBOR

5.8 The WG considers it important to ensure that HKAB remains the owner of the HIBOR fixing to avoid any undue disruption to the large number of existing legal contracts with reference to HIBOR. Specifically, strong governance and oversight of the administration of HIBOR can be readily achieved by having this role entrusted to a credible institution without a change of ownership.

Near term initiatives of the new administrator

5.9 The WG recommends that the new administrator, upon taking up the role of the administrator of HIBOR, should devise an action plan covering the following initiatives (paragraphs 5.10 to 5.14 set out the details):

- Discuss with the HKAB on the mode of cooperation between the two parties. The responsibilities of the administrator should be set out clearly in writing;
- Develop the Code set out in Chapter 4, the RSG set out in Chapter 3 in consultation with market participants, and submit them for HKMA’s endorsement;
- Devise a timetable for timely implementation of the Code and RSG by all reference banks;
- Establish an efficient governance structure comprising a ***Surveillance and Governance Committee*** (SGC) responsible for scrutinising the quality of submissions by reference banks. The SGC should be supported by dedicated staff resources carrying out day-to-day surveillance work;
- Liaise with the calculating agent (see Box 5.1 on current arrangement) to identify work that can be done to strengthen the surveillance capability of the new administrator; and
- Establish a ***Benchmark Review Committee*** (BRC) responsible for reviewing the need to address issues relating to HIBOR fixing

activities, with a view to ensuring the smooth functioning of HIBOR as the financial market continues to evolve.

Box 5.1: HKICL's role regarding HIBOR

In 2008, the HKAB changed its designation of HIBOR's calculating agent from a newswire service company to the Hong Kong Interbank Clearing Limited (HKICL), a private company jointly owned by the HKMA and the HKAB. The main reason for the change is to ensure fair dissemination of HIBOR fixing results to all major newswire servicers. In addition, the calculating agent is responsible for preparing two regular statistical reports summarising the data of HIBOR submissions by reference banks. The reports are made available to the HKAB, all reference banks, and the TMA.

Mode of cooperation between the administrator and the HKAB

5.10 While the mode of cooperation should be agreed between the administrator and the HKAB, prior consultation with the HKMA is recommended. Amongst other issues, the following should be covered:

- The HKAB, by entrusting only the administrative role to the administrator, retains full ownership and ultimate responsibility in respect of all issues relating to HIBOR.
- The administrator in carrying out its role will independently (a) conduct surveillance work to ensure the quality of HIBOR fixing process, (b) as an ongoing exercise, review the HIBOR fixing arrangement with a view to proposing further enhancements to improve the robustness of HIBOR, (c) develop effective procedures to handle complaints and reports by whistle blower on HIBOR related issues, and (d) establish clear procedures for the timely reporting of suspected irregularities to the HKMA.
- The HKICL should remain as the calculating agent of HIBOR. The HKAB should authorise the administrator to directly seek the support of the HKICL in carrying out its duties.
- The HKAB should provide explicit consent for the administrator to report any irregularities or anomalies relating to HIBOR fixing directly to the HKMA without prior consultation with the HKAB.

- The administrator is responsible only for scrutinising the overall robustness of HIBOR but not the day-to-day compilation of HIBOR fixings, which should remain the duty of the HKICL.

Establishing an effective governance structure

5.11 To ensure sufficient oversight of the rate setting process, the administrator should establish a SGC responsible for scrutiny of individual submissions and fixing results, as well as other issues relevant to the administration of HIBOR. Membership of the surveillance committee should be sufficiently broad, and should include non-reference banks and corporations which are users of the reference rate. The committee should meet on a quarterly basis and the following issues should be regularly reviewed.

5.12 ***General quality of submissions****:* As set out in Box 5.1, currently, two reports are being prepared by the calculating agent. These reports enable reviewers to assess the general quality of submissions such as the timeliness of submissions and the degree of dispersion of the submitted rates. The administrator should initiate an exercise to enable more systematic and sophisticated evaluation of the quality of submissions. Together with the HKAB, the administrator should also establish policies and procedures for handling consistently poor inputs from serving reference banks. The disciplinary actions to be introduced may include issuance of warning letters, as well as the suspension or termination of the reference bank status in case of ongoing negligence.

5.13 ***Scrutiny of individual banks' submissions:*** In addition to reviewing the general quality of submissions, the administrator should assign dedicated staff resources to conduct statistical analysis to detect signals of possible anomalies in the rate submission process. Examples of warning signals include (a) submissions with a particularly high frequency of being trimmed out in the fixing process, (b) submissions exhibiting a pattern deviating significantly from the peers, and (c) submissions exhibiting a sharply increased degree of dispersion with no noticeable change in market conditions. The administrator should make necessary inquiries to ensure that submissions by reference banks are professionally determined in accordance with the RSG. Escalating procedures should be established to report to SGC cases giving rise to suspicions of collusive behaviour among reference banks or attempts to compromise the fixing results by selected reference banks. For time-sensitive cases potentially involving severe misconduct, procedures should be laid down so as to ensure the timely escalation to the SGC, the CEO of the reference banks concerned, as well as the regulator for follow-up actions or further investigations.

5.14 As noted in paragraph 5.3, the administrator should keep under review the functioning of the benchmark interest rate and ensure it continues to meet the needs of the market and serve the functions it was created for. To this end, the administrator should establish a BRC to be responsible for reviewing the proper functioning of HIBOR in the changing financial markets. On at least a half-yearly basis, and more frequently if market situations or changes in the supervisory landscape demand, the BRC should meet to discuss and review the following issues:

(a) Whether the definition, calculation methodology and fixing mechanism continues to be appropriate;

(b) Whether the scope of benchmark continues to serve the users of HIBOR and relevant contracts;

(c) Whether there is a need to update the RSG or provisions in the Code; and

(d) Other issues relevant to the administration of the benchmark interest rate.

Ensuring continuous, accurate and timely publication

5.15 HKAB may continue to designate the HKICL as the calculating agent for compiling the fixings. As such, existing technical and operational procedures for submitting rates (e.g. to whom submissions should be made, submission time window, etc.) can remain unchanged.

5.16 The administrator should make all reasonable efforts to promote the consistent, accurate and timely publication of the reference rate. It should engage in discussion with the HKICL to review and refine procedures for handling contingent events (e.g. technical problems, weather, etc.) that could interrupt the normal rate collection or publication process, as well as the handling of errors identified by reference banks after publication of the fixings. Going forward, the relevant procedures should also be laid down and made available to all contributors and end users.

5.17 To ensure unfettered access to HIBOR by market participants, the HKAB may want to continue engaging the existing data vendors for the distribution of the fixings. The new administrator should review the established policies and procedures for safeguarding confidential information and controls to prevent the premature, unauthorized or preferential disclosure of information concerning the reference rate.

Putting in place complaints handling procedures

5.18 The WG recommends that complaints arising from the rate setting process should in the future be referred to the administrator, which should draw up the procedures for handling complaints. Among other things, it will establish procedures for recording those complaints. The follow-up actions to be taken for complaints of different nature will also be developed. There will also be written procedures for handling substantiated complaints. Depending on the materiality of those complaints, the follow up actions could include notification to HKAB as rate owner or escalation to the regulator for supervisory review or investigations.

Chapter 6: Confining the scope of HIBOR fixing to tenors that have strong market demand

6.1 The WG also explored proposals for improving the different aspects of the fixing mechanism. These proposals include:

(a) Whether it is desirable to confine submissions to tenors that have strong market demand;

(b) Whether the trimmed-mean approach should be retained;

(c) If the trimmed-mean approach should be retained, whether the level of trimming should be increased; and

(d) Whether there is a need to change the number of reference banks for the fixing process.

6.2 After careful consideration, the WG concluded that only the first proposal should be pursued at least for the time being. The paragraphs below set out the reasons and arguments leading to this proposition.

Confining submissions to frequently used tenors

6.3 HIBOR is currently published for fifteen maturities. According to feedback from market participants, some of the maturities for HIBOR are rarely referenced in financial contracts. At the same time, transactions for these maturities seldom take place in the unsecured interbank market. As it is difficult for reference banks to support the rates contributed with actual transactions data, reference banks are relying on interpolation and extrapolation techniques to derive the rates to be contributed for these maturities. In view of the marginal benefit of publishing these odd tenors, the WG recommends that the number of maturities to be submitted and published for HIBOR be reduced from fifteen to 7. Hence, it is proposed that HIBOR should continue to be published for tenors including overnight, 1-week, 1-month, 2-month, 3-month, 6-month, and 12-month, but HIBOR should cease to be available for 2-week, 4-month, 5-month, 7-month, 8-month, 9-month, 10-month, and 11-month.

6.4 The WG is mindful of the possible impact this change could have on existing contracts that are referenced to the maturities to be dropped. We therefore propose a 12-month phase out period to allow the lapsing of existing contracts or necessary adaptations by contracting parties if the contracts run beyond the date for suspending these tenors.

6.5 Apart from putting in a relatively long phase-out period, the WG also considers it important to ensure wide publication of this change so as to ensure a smooth transition. For this purpose, HKAB and TMA should prominently announce this change on their websites, alongside the daily fixings. In addition, they should consult their members and make sure they review existing contracts and the proposed 12-month transition period is feasible to market participants;. Besides, they should also ensure the new financial contracts will not make reference to the phasing out tenors. Assuming this proposal is adopted by HKAB, the infrequent tenors identified should be phased out in 2014.

Changing the trimmed-mean approach

6.6 The WG considered whether the trimmed-mean approach should be retained for compiling the fixings. Reference banks are required to estimate the offer rates at which HKD deposits are quoted to prime banks at 11.00 a.m. The fixing results and individual banks' submissions are published after 11.15 a.m. on a daily basis. The frequency and timeliness of the fixings are the major reasons behind the popularity of choosing HIBOR in the pricing and settlement of certain financial contracts.

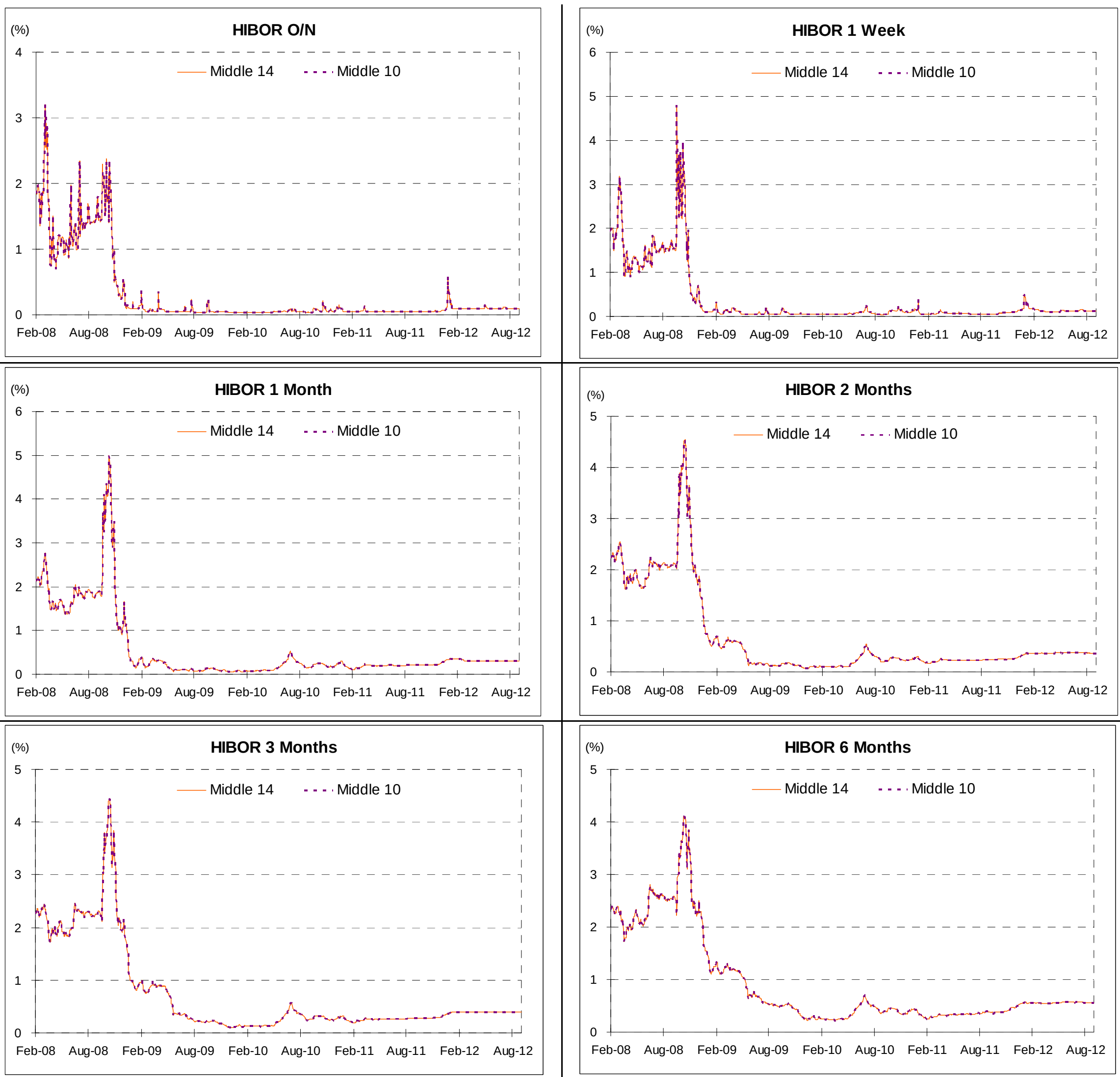
6.7 Ideally, thorough checking should be performed on all data submitted by reference banks before calculation is performed to derive the fixing rates and the fixing can be calculated using the simple average. However, the time and data constraint means it is not feasible to perform in-depth checking on individual submissions by referencing all relevant transactions executed around 11.00 a.m. before the daily publications. As such, we see the need to continue adopting the trimmed-mean approach which contains an automatic built-in mechanism for handling outliers in the data set received from reference banks. The calculating agent should however continue to perform reasonable checking on data submitted to make quick enquiries with the reference banks with the aim of identifying obviously unreasonable submissions (e.g. the "fat finger" errors).

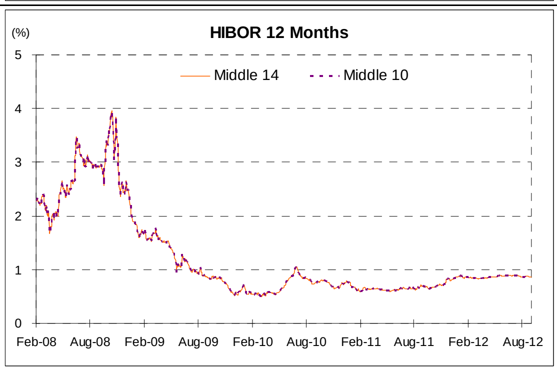
Changing the level of trimming

6.8 While the trimmed-mean approach is proposed to be retained, the WG also conducted analysis and explored the need for changing the level of trimming employed in calculating the fixings. With 20 submissions received daily, the current practice is to take out the top 15% and bottom 15% of submissions and then take average of the rates that remain.

6.9 Theoretically, the higher the level of trimming, the lower the influence of outliers in the rate fixing process. Taken to the extreme, one may use the median to calculate the fixing by trimming the top 45% and bottom 45% of rates contributed. However, if only the middle two observations are used in compiling the fixings, one sacrifices the benefit of looking at rates submitted by the majority of the group. We therefore considered increasing the level of trimming from 30% to 50% by excluding the top 25% and bottom 25% in calculating the mean. The charts in figure 6.1 compare the fixing results when the level of trimming is at 30% and at 50%. The charts suggest that the fixing results from either approach is not significantly different based on past available historical data.

Figure 6.1:
Trimming at 30% versus 50%





NOTE:

Middle 14 (trimming at 30%)

Among rates quoted by 20 reference banks, the three highest and the three lowest are eliminated. The remaining 14 rates are then averaged. The level of trimming is therefore at 30% as 70% of the 20 rates collected are used to calculate the average.

Middle 10 (trimming at 50%)

Among rates quoted by 20 reference banks, the five highest and the five lowest are eliminated. The remaining 10 rates are then averaged. The level of trimming is therefore at 50% as 50% of the 20 rates collected are used to calculate the average.

6.10 Separately, the WG noted that the level of trimming for calculating the fixings is specified in the HKAB FRA terms. As such, changing the level of trimming could risk bring disruptions to existing HKAB FRA. Weighing the pros and cons, the WG considers it not worthwhile to pursue this change.

Changing the number of reference banks in the fixing panel

6.11 As HIBOR reflects the funding cost of prime banks in the unsecured wholesale funding market. Theoretically, the rate contribution process could include only banks which enjoy the prime bank status. However, if only a few banks are required to submit rates, the fixing process will become more susceptible to collusion and manipulation. This is particularly true if the fixing process emphasises actual transactions data and transactions in the underlying market is thin and only involve a few players. It is therefore essential for the rate submission process to include a reasonable number of banks to address the potential problem of prime banks influencing the fixing results. Based on the rates they transact and observe in other transactions, the non-prime banks are able to provide checks and balances. As such, the inclusion of non-prime banks is valuable in the fixing process and assist in discovering the funding cost of prime banks.

6.12 The WG considered whether there is a need to expand the size of existing panel for HIBOR. Having regard to the fact that there are not a significant number of active players in the unsecured wholesale funding market, the current panel size of 20 is considered reasonable for ensuring the quality of submissions. The WG therefore proposes no change to the panel size for the moment. Having said that, there may be a need to adjust the panel size when market evolves. As the panel size for determining the fixings is specified in current HKAB FRA terms, there is a need to modify the standard terms used in these contracts so as to allow flexibility in making changes in the future.

Chapter 7: Reviewing and enhancing provisions in contracts that reference HIBOR

7.1 The WG considers it advisable for the banking industry to explore means of promoting more consistent application of HIBOR in financial contracts. In this regard, the WG reviewed selected contracts that make reference to HIBOR and noted room for improvement in some of them. For instance, some contracts are not adequately clear as to how contingency events such as HIBOR unavailability should be handled. Some other contracts (e.g. HKD FRA) have details of the HIBOR fixing mechanism written in their terms, allow little flexibility for future refinements in the HIBOR fixing mechanism and rendering it difficult to introduce refinements even if circumstances warrant. These observations suggest that industry efforts can be made to promote standardisation in terms the way HIBOR is made reference to and the backstop arrangement if HIBOR is for some reasons unavailable. Specifically, the WG envisages room for refinement for the following:

(a) ***Backstop arrangement –*** As part of business continuity planning, financial contracts should contain clear and well-tested backstop arrangement for contingent scenarios when HIBOR is unavailable. While certain types of financial contracts like HKAB FRA do have such arrangement in place, it is unclear whether other contracts like loan agreements contain such provisions. To this end, efforts should be made to promote standardised and operationally feasible backstop arrangement for HIBOR unavailability.

(b) ***Variants of contractual language referencing HIBOR*** – Similar to the backstop arrangement, apparently there are no specific standards on the exact language used in financial contracts referencing HIBOR. Some contracts may refer to the trade name "HIBOR" or "HIBOR-HKAB", while some contracts may provide a fuller description. Greater consistency in the language used to reference HIBOR will make it easier in the future to manage any changes to the HIBOR fixing mechanism.

(c) ***Reference to HIBOR in HKAB FRA –*** A particular case in point for (b) above is HKAB FRA contract, whose terms provide a full description of the HKAB Interest Settlement Rates (see Box 7.1). The WG believes this form of reference lacks flexibility for the industry to deal with changing market conditions. As mentioned in Chapter 6, in theory, a higher level of trimming is something worthy-exploring. However, since the current level of trimming (6 out of 20) is written in the terms of the HKAB FRA, introducing changes may disrupt this segment of the market.

Similarly, the number of reference banks in the fixing panel is also written in the HKAB FRA. While in this review the WG sees no material advantages of changing these parameters at least for the time being, it cannot be ruled out that in future such changes would be desirable. To allow more flexibility in introducing enhancement to the fixing mechanism in the long run, considerations should be given to changing the standard terms of existing FRA. New contracts should incorporate the changes proposed, while existing contracts shall gradually phase out to allow a smooth transition.

Box 7.1 – Extract from HKAB FRA

"HKAB Interest Settlement Rates" means, in respect of the Contract Period, the rates published, by HKAB. Such rates shall be calculated by taking the rates quoted to HKAB by 20 HKAB Designated Banks as being in their view the offered rate at which deposits in Hong Kong dollars for the Contract Period are being quoted to prime banks in the Hong Kong interbank market at 11.00 a.m. on the relevant Business Day (save as provided in paragraph D7 of these terms and conditions) for Settlement Date value and eliminating the three highest (or, in the event of equality, three of the highest) and the three lowest (or, in the event of equality, three of the lowest), taking the average of the remaining 14 rates and then (if necessary) rounding the resultant figure upwards to 5 decimal places.

7.2 The WG recommends that the HKAB, with the assistance of the TMA if necessary, should take the lead in encouraging market participants to review the terms in existing contracts and identify provisions that could be clarified to mitigate possible disputes and hurdles to improvement in the HIBOR fixing mechanism in the future.

Annex 1

Working Group on HIBOR Review

Terms of Reference

1. **Background** – In the light of market concerns over the credibility of the interest settlement rate fixing mechanisms in a number of overseas markets, the Hong Kong Association of Banks (HKAB) has decided to conduct a review of the HIBOR[5] fixing mechanism, in consultation with the Treasury Markets Association (TMA).

2. **Scope** – For the purpose of this review exercise, HIBOR fixing mechanism should cover five areas:
   - (i) Definition of HIBOR;
   - (ii) Methodology adopted in determining rates to be submitted;
   - (iii) Financial products and instruments that are linked to HIBOR;
   - (iv) Statistical filtering of submitted rates; and
   - (v) Governance and controls at HKAB and reference bank level.

3. **Objectives** – The ultimate objective is to ensure there exist credible and representative benchmark(s) which could be used as (i) a basis for settlement of HKD interest rate derivative contracts and (ii) an index of interest rate for HKD financial contracts including loans. To this end, the review exercise should aim to:
   - (i) assess whether reference banks have significant incentives to misreport their HIBOR submissions, if so, what can be done to minimise such incentives;
   - (ii) identify potential areas of enhancement to the current HIBOR fixing mechanism and explore the different options for change by analysing the pros and cons of each of the options;

[5] The name on HKAB's website should be HKD Interest Settlement Rate, but this is commonly referred to as HIBOR in the markets

(iii) identify and adopt the key principles for evaluating the trade off between the pros and cons of each of the explored options, and decide on the best option(s) to be pursued; and

(iv) devise a comprehensive action plan with a clear and reasonable timetable for the implementation of the chosen option(s).

Annex 2

Working Group on HIBOR Review

Membership List

Convenor

1. Christopher Chan, Managing Director and Chief Investment Officer Asia, JPMorgan Chase Bank, N.A.

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Abbreviations

BIS	Bank of International Settlements
BRC	Benchmark Review Committee
BBA	British Bankers Association
CD	Certificate of Deposit
CEO	Chief Executive Officer
Code	Code of Conduct
CDS	Credit Default Swap
EFB	Exchange Fund Bills
FRA	Forward Rate Agreement
HKAB	Hong Kong Association of Banks
HKICL	Hong Kong Interbank Clearing Limited
HKMA	Hong Kong Monetary Authority
IOSCO	International Organisation of Securities Commissions
OIS	Overnight Index Swaps
RSG	Rate Submission Guidance
SGC	Surveillance and Governance Committee
TMA	Treasury Market Association
WG	HIBOR review Working Group under the TMA
Wheatley Review	The Wheatley Review of LIBOR: final report