

March 5, 2018

General Incorporated Association JBA TIBOR Administration

“Compliance with “IOSCO Principles for Financial Benchmarks (19 principles)”

(Executive Summary)

- ✧ The “Final Report on Principles for Financial Benchmarks” (“IOSCO Principles”)¹ published by the International Organization of Securities Commissions (“IOSCO”) in July 2013 sets out that Benchmark Administrators should publically disclose the extent of their compliance with the IOSCO Principles on an annual basis. In light of this, the JBA TIBOR Administration² (“JBATA”) is pleased to announce the results of self-assessment on the JBA TIBOR (a collective term representing two financial benchmarks, i.e. Japanese Yen TIBOR and Euroyen TIBOR; the same shall apply hereinafter) calculated and published by JBATA (the self-assessment base date: March 5, 2018).
- ✧ In consideration of the IOSCO Principles and international discussions aiming for the financial benchmark reform at the Financial Stability Board (“FSB”) and other bodies, in order to maintain and enhance the credibility and transparency of the JBA TIBOR, JBATA has been promoting the JBA TIBOR reform since its establishment and initiation of operation in April 2014, and implemented the reform on July 24, 2017 as detailed below.
 - With a view to complying with the IOSCO Principles and realizing benchmarks that are “better anchored in actual transactions” as recommended in the “Reforming Major Interest Rate Benchmarks”³ issued by the FSB in July 2014, JBATA carried out public

¹ “Principles for Financial Benchmarks Final Report”
(<http://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf>)

² On April 1, 2014, JBATA was formed to establish a more independent and neutral administration framework for the JBA TIBOR. The JBA TIBOR calculation and publication operations were transferred from the General Incorporated Association Japanese Bankers Association on the same day and we initiated its operation therefrom. With regard to the background relating to the establishment of JBATA, please see the “Report on the Review of JBA TIBOR Administration” released by the Japanese Bankers Association in December 2013 (<https://www.zenginkyo.or.jp/en/news/detail/nid/373/>).

³ “Reforming Major Interest Rate Benchmarks”
(http://www.fsb.org/wp-content/uploads/r_140722.pdf)

consultation for three times (i.e. the first in December 2014⁴, the second in August 2015⁵ and the third in November 2016⁶) and discussed the JBA TIBOR reform in order to enhance its credibility and transparency.

- In February 2017, JBATA announced that the JBA TIBOR reform would be implemented on July 24, 2017 to, among other things, standardize and clarify the calculation and determination process of reference banks' submission rates, and implemented the reform as scheduled.
 - With the implementation of the JBA TIBOR reform, the JBA TIBOR Code of Conduct which sets out rules to be abided by reference banks was revised to standardize and clarify the calculation and determination process of reference banks' submission rates and a calculation method which determines the submission rate without discretion (hereinafter referred to as “waterfall methodology”) based on various data including actual transaction data of the underlying market (i.e. the Japan unsecured call market in the case of Japanese Yen TIBOR and the Japan Offshore Market in the case of Euroyen TIBOR; the same shall apply hereinafter) was introduced.
 - With the introduction of the above waterfall methodology, the use of expert judgment, which has been focused in the financial benchmark reform initiative as it may give rise to reference bank's arbitrariness is now limited to emergency situations (e.g. affected by large-scale disaster and sudden financial market turmoil) and is excluded from the day-to-day calculation and determination process of submission rates. As a result, the credibility and transparency of the process for determining the JBA TIBOR has been enhanced.
- ✧ While JBATA is aware of some issues as mentioned later in the sections relating to Principle 7 and Principle 13, it evaluates that compliance with the IOSCO Principles has been achieved substantially as a result of the implementation of the JBA TIBOR reform.
- ✧ Note that this assessment result reports the extent of the JBA TIBOR's compliance with

⁴ First consultative document “Promoting the JBA Tokyo Inter Bank Offered Rate (‘JBA TIBOR’) Reforms following reports by Financial Stability Boards (‘FSB’) and International Organization of Securities Commissions (‘IOSCO’)”
(http://www.jbatibor.or.jp/english/Consultation_Paper_E.pdf)

⁵ Second consultative document “Promoting the JBA Tokyo Inter Bank Offered Rate (‘JBA TIBOR’) Reforms” (http://www.jbatibor.or.jp/english/pdf/2nd_Conlultative_Document_E.pdf)

⁶ Third consultative document “Revision to the ‘JBA TIBOR Code of Conduct’, etc. for Implementing the JBA Tokyo Inter Bank Offered Rate (‘JBA TIBOR’) Reforms”
(http://www.jbatibor.or.jp/english/pdf/161130_3rd_Consultative_Document_EN.pdf)

the IOSCO Principles as of the base date and does not assure that it will remain unchanged going forward. Taking into consideration that the extent of compliance is subject to changes according to, among other things, changes in an environment of the JBA TIBOR's underlying market, JBATA will not only work on the challenges discussed above but also conduct a periodic self-assessment on an annual basis pursuant to the IOSCO Principles and will continue to take appropriate actions in order to comply with the IOSCO Principles as well as to maintain and enhance the credibility and transparency of the JBA TIBOR.

<Compliance with the IOSCO Principles>

✧ Governance

➤ Principle 1 Overall Responsibility of the Administrator

The JBA TIBOR is a benchmark for short-term Japanese yen interest rates calculated and published by JBATA and is widely used as a representative benchmark for Japanese yen.

JBATA assumes overall responsibility for the JBA TIBOR administration, including the definition of the JBA TIBOR, processes for determining benchmark and its governance arrangements. In addition, such processes and arrangements are prescribed in the JBA TIBOR Operational Rules and the JBA TIBOR Code of Conduct (hereinafter collectively referred to as “JBA TIBOR Operational Rules, etc.”) and are published on the JBATA’s website.

JBATA is designated as a specified financial benchmark administrator under the revised Financial Instruments and Exchange Act (“Act”) which took effect in May 2015 and is subject to regulation and supervision under the Act. Pursuant to the Act which reflects the IOSCO Principles and requires specified financial benchmark administrators to develop “operational rules”, JBATA developed the JBA TIBOR Operational Rules, etc. and obtained approval from the Financial Services Agency of Japan (“FSA”) on November 26, 2015 (and started their application on the same day).

Subsequently, JBATA partially revised the JBA TIBOR Operational Rules, etc. as part of the JBA TIBOR reform, and obtained approval for such revisions from the FSA on February 20, 2017 (and started their application from July 24, 2017).

➤ Principle 2 Oversight of Third Parties

The following third parties are related to the calculation and publication of the JBA TIBOR. The JBA TIBOR Operational Rules, etc. and the Guidelines on Outsourcing JBA TIBOR Calculation/Publication Operations (“Outsourcing Guidelines”) stipulate policies and procedures for JBATA’s management or supervision of such third parties and the following steps have been taken.

✓ Reference banks

Reference banks are supervised through monitoring in accordance with the JBA TIBOR Code of Conduct as described below.

- Monitoring of submission rates
- Monitoring of the establishment of internal rules
- Monitoring of the implementation of in-house training
- Monitoring of the results of internal and external audits
- On-site monitoring of the extent of compliance with the Code of Conduct

✓ Service provider (SoftBank Corp.)

Policies and procedures for the management or supervision of the operations outsourced to SoftBank Corp. which is the service provider are set out in the JBA TIBOR Operational Rules, the Outsourcing Guidelines and the Outsourcing Agreement. JBATA is supervising SoftBank Corp. through monitoring and other activities as follows:

- Review of rate calculations and permission of rate publications by JBATA
- Submission of reports regarding the execution of operations (quarterly)
- On-site monitoring of the implementation of outsourced services and the establishment of processes and procedures for outsourced services
- Monitoring of recordkeeping of documents

✓ Backup organization (Osaka Bankers Association)

The operations outsourced to the Osaka Bankers Association which is the backup organization are provided in the JBA TIBOR Operational Rules, the Outsourcing Guidelines and the Agreement on Outsourced Operations. The Osaka Bankers Association is supervised through monitoring and other activities as follows:

- Submission of reports regarding the execution of operations (quarterly)
- Monitoring of the status of recordkeeping of documents

➤ Principle 3 Conflicts of Interest for Administrators

JBATA has established the JBA TIBOR Operational Rules, etc. and the Conflict of Interest Management Policy identifying conflicts of interest that may arise in the course of the JBA TIBOR administration and stipulating measures to manage and mitigate such conflicts of interest as described below. JBATA also posts these rules and policy on its website and takes these measures.

- The majority of JBATA's Board members shall be elected from those persons who do not work for or belong to financial institutions.

- Members of the JBA TIBOR Oversight Committee (hereinafter referred to as “Oversight Committee”) shall be elected from those persons who do not work for or belong to financial institutions.
- Revision of the JBA TIBOR’s definition and other similar matters shall be reviewed by the Oversight Committee.
- In order to ensure the soundness of rate submissions by reference banks, a code of conduct shall be developed, reference banks shall establish an internal framework and JBATA shall review the extent of their compliance with such a framework.
- Ensure that an appropriate operational framework is established by, for example, limiting the scope of operations outsourced to the service provider to simple tasks associated with aggregation, calculation and publication.
- Publicly disclose those documents (including relevant policies and procedures and audit results) that are considered to be important from the perspectives of managing conflicts of interest or ensuring the benchmark transparency. (If it is considered that any individual conflicts of interest should be disclosed to users of the JBA TIBOR, they will be deliberated by the Oversight Committee to consider whether they need to be disclosed, and be published if determined by the Board of Directors to do so.)
- For matters relating to conflicts of interest, information shall be handled in a strict and fair manner to ensure thorough information security management appropriate to each case (including appropriate management of entry/exit into/from the JBATA’s office which is physically separated). JBATA shall take appropriate approaches to related parties in order to ensure that they will take sufficient measures to manage conflicts of interest in a timely and appropriate manner and to consider establishing procedures for appropriately managing exchange of information between particularly those who are engaged in activities which give rise to the risk of conflicts of interest.
- Executives and employees of JBATA and respective members of the JBA TIBOR Planning Committee (hereinafter referred to as “Planning Committee”), the JBA TIBOR Administration Committee (hereinafter referred to as “Administration Committee”) and the Oversight Committee shall not leak any classified information obtained with respect to JBATA’s operations to any third parties.
- Executives and employees of JBATA and respective members of the Planning Committee, the Administration Committee and the Oversight

Committee shall not use information obtained about the operations for the benefit of themselves or third parties.

- JBATA shall establish a whistleblowing system in order to detect at an earlier stage manipulation or fraudulent act in relation to the JBA TIBOR.
- JBATA shall ensure that compensation arrangements for its executives and employees and committee members are designed and implemented in a manner that gives a sufficient consideration to risk management and compliance aspects in order to avoid incentivizing the JBA TIBOR manipulation. Examples for such an action are to prohibit linking the compensation arrangement to the level of the JBA TIBOR.

In addition, the Oversight Committee which is exclusively comprised of experts who do not work for or belong to financial institutions (e.g. lawyers, CPAs and academics) assesses, through periodic monitoring, whether the above measures for managing conflicts of interest need to be reviewed, and performs the review (March 2016, March 2017 and March 2018).

Furthermore, statements of whether the Board members and the Oversight Committee members have conflicts of interest are collected from all of them and published on the JBATA's website, disclosing information on the management of conflicts of interest, together with relevant rules, to users and related authorities.

➤ Principle 4 Control Framework for Administrators

JBATA assumes overall responsibility for the integrity of the calculation and publication of the JBA TIBOR and has in place a governance framework needed to ensure the integrity and transparency of the benchmark administration.

The Board of Directors is formed as a decision-making body of JBATA. As prescribed by the JBA TIBOR Operational Rules, the majority of its members are being elected from the persons other than those who are working for or belonging to financial institutions.

Under the Board of Directors, the Oversight Committee is formed so that it is exclusively comprised of experts who do not work for or belong to financial institutions (e.g. lawyers, CPAs and academics) and has a high level of independence. This committee reviews the appropriateness of the benchmark administration and provides recommendations to the Board of Directors on remedial measures.

Furthermore, JBATA has in place a whistleblowing framework in order to detect at an earlier stage manipulation or fraudulent act in relation to the JBA TIBOR as well as the Code of Conduct which sets out, among other things, rate submission rules to be abided by reference banks and frameworks which need to be established by reference banks. JBATA discloses the Code of Conduct on its website and it has been implemented.

JBATA supervises reference banks by monitoring their compliance with the Code of Conduct as described below.

- Monitoring of submission rates
- Monitoring of the establishment of internal rules
- Monitoring of the implementation of in-house training
- Monitoring of the results of internal and external audits
- On-site monitoring of the extent of compliance with the Code of Conduct

The above control framework is stipulated in the Operational Rules, which is disclosed on the JBATA's website.

➤ Principle 5 Internal Oversight

The Operational Rules provide that the Oversight Committee which is exclusively comprised of experts who do not work for or belong to financial institutions (e.g. lawyers, CPAs and academics) shall carry out assessment of the appropriateness of the JBATA TIBOR administration framework and shall provide recommendations on remedial measures to the Board of Directors. The Oversight Committee has been implementing such rules.

More specifically, the Oversight Committee carries out assessment of the appropriateness and provides recommendations on remedial measures to the Board of Directors with respect to the following matters.

- Matters relating to the management of conflicts of interest in operating the JBA TIBOR
- Matters relating to response to comments and complaints, etc. from authorities and third parties relevant to the JBA TIBOR operation
- Matters relating to periodic assessments of the adequacy and appropriateness of the Code of Conduct

- Matters relating to monitoring of the extent of reference banks' compliance with the Code of Conduct and monitoring of rate submission (including monitoring of the status of establishing internal policies and procedures, the status of implementing internal training, results of internal and external audits and rate submission)
- Matters relating to establishment, revision, and termination of policies and procedures on the JBA TIBOR (including revisions to the JBA TIBOR Operational Rules, etc.)
- Matters relating to review of JBATA's internal audit plan and audit results
- Matters relating to penalties or other similar actions imposed on reference banks

The term of the Oversight Committee members is two years (which may be extended up to four terms, in principle). They are elected by the Board of Directors.

When replacing a member, a replacement shall be elected from experts who are well-versed and well-experienced in the fields of financial economy, law and financial accounting, etc., who are capable of independently reviewing the appropriateness of conducting specified financial benchmark administration activities and if necessary, of providing recommendation to the Board of Directors, and who do not work for or belong to financial institutions.

✧ Quality of the Benchmark

➤ Principle 6 Benchmark Design

“Underlying interest” which JBA TIBOR seeks to measure is indicated explicitly by, among other things, the name of the benchmark as described in Article 1 of the Operational Rules (i.e. “JBA TIBOR (Tokyo Interbank Offered Rate)”) and by the definition prescribed in Article 4 (i.e. “rate which reference banks deem as prevailing market rates, assuming transactions between prime banks on the Japan unsecured call market (the Japan Offshore Market in case of the Euroyen TIBOR) as of 11:00 a.m.”), and JBA TIBOR is calculated as the simple average of interest rates submitted by reference banks which excludes two highest quotes and two lowest quotes from reference banks.

In order to ensure appropriate rate submission based on the definition of the JBA

TIBOR by reference banks, JBATA has established, disclosed on its website and implemented the Code of Conduct which sets out, among other things, rate submission rules to be abided by reference banks, frameworks which need to be established by reference banks and other relevant matters.

As part the JBA TIBOR reform efforts, the Code of Conduct was partially revised on February 20, 2017 (and took place on July 24, 2017). With this revision, in particular, the waterfall methodology was introduced, standardizing and clarifying the calculation and determination process of reference banks' submission rates, with a view to realizing a benchmark that is "better anchored in actual transactions". Since July 24, 2017, reference banks are calculating and determining their submission rates using a calculation method that does not give rise to arbitrariness in accordance with the waterfall methodology (see Appendix for details of the waterfall methodology).

Furthermore, in order to ensure reference banks' compliance with the Code of Conduct, reference banks are obliged to conduct external and internal audits on an annual basis, in principle, and are required to report the audit results which are escalated to the Oversight Committee to assess their appropriateness.

Starting from April 2015, the Oversight Committee performs monitoring to ensure that JBA TIBOR appropriately reflects "underlying interest" which it seeks to measure by comparing data of interbank transactions in the Japan unsecured call market (or data of interbank transactions in the Japan Offshore Market in the case of Euroyen TIBOR) collected from reference banks with each reference bank's submission rates.

To make the benchmark design of the JBA TIBOR more appropriate, JBATA has taken the following actions, including the JBA TIBOR reform.

(1) Introduction of minimum data criteria

The Code of Conduct partially amended on July 4, 2014 (and applied from October 6, 2014) stipulates that where unsecured call transactions ("Euroyen transactions" in case of Euroyen TIBOR) between prime banks are observable, reference banks must take such transactions into consideration.

(2) Clarification of criteria for use of expert judgment

For clarification, the Code of Conduct partially amended on July 4, 2014 (and

applied from October 6, 2014) sets out specific criteria for the use of expert judgment.

- (3) Clarification of the procedure for overseas financial institutions to apply for a reference bank and the selection procedure

The Operational Rules were partially revised on March 2, 2015 (and applied from April 1, 2015), stipulating that when the applying bank is located in a jurisdiction outside Japan, any issues which may arise from its location should be considered in the selection process.

- (4) Standardization and clarification of the processes for calculating and determining reference banks' submission rates through implementation of the JBA TIBOR reform

In order to make the JBA TIBOR a benchmark that is “better anchored in actual transactions”, the Code of Conduct was partially amended on February 20, 2017 (and applied from July 24, 2017), standardizing and clarifying the processes for calculating and determining reference banks' submission rates.

In particular, the waterfall methodology which applies prioritization when referencing actual transaction data (i.e. places the highest priority on the underlying market data, followed by data of those relevant markets highly similar to the underlying market) was introduced, and reference banks are calculating and determining their submission rates using a calculation method that does not give rise to arbitrariness since July 24, 2017.

➤ Principle 7 Data Sufficiency

In the Code of Conduct which was partially amended on February 20, 2017 (and was applied from July 24, 2017) for the JBA TIBOR reform, the waterfall methodology has been introduced to standardize and clarify the calculation and determination process of reference banks' submission rates, aiming to realize benchmarks that are “better anchored in actual transactions”. In accordance with this amendment, reference banks have started to calculate and determine their submission rates using a calculation method based on the waterfall methodology that does not give rise to arbitrariness since July 24, 2017.

The waterfall methodology applies a calculation method that is based on actual transaction data of the underlying market and other relevant data as shown below, and that avoids arbitrariness. Particularly in the following ① to ③, the use of

expert judgment is completely removed (see Appendix for details of the waterfall methodology).

- ① The level in which data of the underlying market are used
- ② The level in which data of the markets equivalent to the underlying market are used
- ③ The level in which data of the relevant markets, including the wholesale market, are used
- ④ Expert judgment

For Japanese Yen TIBOR, the amount of the transaction balance in the Japan unsecured call market (i.e. the underlying market) was temporarily decreased due to the introduction of the quantitative/qualitative monetary easing policy by negative interest rates in February 2016 but has recovered to JPY16 trillion (as of July 31, 2017) which is the level before the introduction of such monetary easing policy. Furthermore, for all tenors, reference banks determine their submission rates in “the level in which data of the underlying market are used (the above ①)” in almost all cases.

With respect to Euroyen TIBOR, on the other hand, the amount of the transaction balance for deposits and calls denominated in Japanese yen in the Japan Offshore Market (i.e. the underlying market) is only JPY610.5 billion (as of July 31, 2017), and its market size continues to be smaller compared to the Japan unsecured call market. Furthermore, the percentage of submission rates determined in “the level in which data of the underlying market are used (the above ①)” ranges from a minimum of 6% (one month tenor) up to 51% (12 months tenor) depending on tenors. The ratio is lower compared to Japanese Yen TIBOR.

As for both Japanese Yen TIBOR and Euroyen TIBOR, there is no case where the “expert judgement (above ④)” was used to calculate and determine reference rates during the period between the implementation of the JBA TIBOR reform on July 24, 2017 and the date as of the self-assessment. Submission rates have been calculated and determined based on various data including actual transaction data in the underlying market and other relevant data.

➤ Principle 8 Hierarchy of Data Inputs

JBATA sets out the following waterfall methodology as the hierarchy of data inputs in the Code of Conduct partially revised on February 20, 2017 (and applied from July 24, 2017), and discloses it on the website. The waterfall methodology is a mechanism where data of the underlying market placed at the top of the hierarchy are referenced first, followed by data of those relevant markets highly similar to the underlying market (see Appendix for details of the waterfall methodology).

- ① The level in which data of the underlying market are used
- ② The level in which data of the markets equivalent to the underlying market are used
- ③ The level in which data of the relevant markets, including the wholesale market, are used
- ④ Expert judgment

➤ Principle 9 Transparency of Benchmark Determinations

The Code of Conduct partially revised on February 20, 2017 (and applied from July 24, 2017) sets out the waterfall methodology to be used by reference banks in the process for calculating and determining their submission rates. It prescribes that the waterfall methodology is a mechanism where data of the underlying market placed at the top of the hierarchy are referenced first, followed by data of those relevant markets highly similar to the underlying market. The Code of Conduct defining the waterfall methodology is disclosed on JBATA's website (see Appendix for details of the waterfall methodology).

- ① The level in which data of the underlying market are used
- ② The level in which data of the markets equivalent to the underlying market are used
- ③ The level in which data of the relevant markets, including the wholesale market, are used
- ④ Expert judgment

Rates submitted by reference banks are the sole data sources used in the JBA TIBOR determination process and published through the service provider. The JBA TIBOR and the rates submitted by reference banks, including the two highest quotes and the two lowest quotes excluded from the calculation of the JBA TIBOR, are available to users and related regulatory authorities.

JBATA also publishes on an annual basis the breakdown (in percentage) of data factored in the calculation of each reference bank's submission rates (in March 2016, March 2017 and March 2018).

Rates submitted by reference banks are currently published simultaneously with JBA TIBOR. However, from April 1, 2019, such simultaneous publication of reference banks' submission rates will be terminated, and they will be published three months after JBA TIBOR is published.

➤ Principle 10 Periodic Review

JBATA stipulates in the Operational Rules that the definition of the JBA TIBOR, the benchmark calculation and determination process to appropriately reflect the "underlying interest" which JBA TIBOR seeks to measure, and inquiries/complaints, etc. by third parties shall be assessed and reviewed on a periodic basis. The Operational Rules are disclosed on the website and JBATA is conducting such periodic assessments and reviews accordingly.

JBATA also analyzes, among other things, the volume and market share of transactions executed by reference banks in the Japan unsecured call market, the Japan Offshore Market and other relevant markets based on actual transaction data collected from reference banks and other information, and then conducts a periodic review in light of changes in market conditions to assess whether it is necessary to revise the calculation methodology of JBA TIBOR (and such a periodic review has been conducted in March 2015, March 2016, March 2017 and March 2018). Where necessary, public consultation will be performed to change the calculation methodology.

The Operational Rules sets out the criteria for carrying out public consultation, the required notification period for such a review on the website (three months prior to the effective date) and the decision making process (such a review shall be decided by the Board of Directors after discussion at the Administration Committee and confirmation by the Oversight Committee), and is disclosed on the website.

To date, there has been no feedback or complaint from third parties requiring review of JBA TIBOR's calculation methodology.

Taking into account the status of using JBA TIBOR, a total of seven tenors (i.e. 4 months, 5 months, 7 months, 8 months, 9 months, 10 months and 11 months) were discontinued from the publication of April 1, 2015, and the 2 month tenor will be discontinued from the publication of April 1, 2019.

✧ Quality of the Methodology

➤ Principle 11 Content of the Methodology

“Underlying interest” which JBA TIBOR seeks to measure is indicated explicitly by, among other things, the name of the benchmark as described in Article 1 of the Operational Rules (i.e. “JBA TIBOR (Tokyo Interbank Offered Rate)”) and by the definition prescribed in Article 4 (i.e. “rate which reference banks deem as prevailing market rates, assuming transactions between prime banks on the Japan unsecured call market (the Japan Offshore Market in case of the Euroyen TIBOR) as of 11:00 a.m.”), and JBA TIBOR is calculated as the simple average of interest rates submitted by reference banks which excludes two highest quotes and two lowest quotes from reference banks.

JBATA provides for the JBA TIBOR calculation methodology, including the definition of important terms (e.g. prime bank), in the JBA TIBOR Operational Rules, etc. and discloses them on the website.

In particular, the Code of Conduct partially revised on February 20, 2017 (and applied from July 24, 2017) sets out the waterfall methodology to be used by reference banks in the process for calculating and determining their submission rates. It prescribes that the waterfall methodology is a mechanism where data of the underlying market placed at the top of the hierarchy are referenced first, followed by data of those relevant markets highly similar to the underlying market. The Code of Conduct prescribing the waterfall methodology is disclosed on JBATA’s website (see Appendix for details of the waterfall methodology).

- ① The level in which data of the underlying market are used
- ② The level in which data of the markets equivalent to the underlying market are used
- ③ The level in which data of the relevant markets, including the wholesale market, are used

④ Expert judgment

Furthermore, in preparation for those cases where it becomes difficult for JBATA to calculate and publish JBA TIBOR against its intention because, for example, related facilities are affected by disaster, a power outage or other similar events take place, an extreme market stress occurs and the number of the reference banks decreases; JBATA has established the Contingency Plan for JBA TIBOR Publication and the Policy on Treatment of Revisions to JBA TIBOR Official Rates on May 31, 2017 (and started its application from July 24, 2017), clarifying actions to be taken for the inappropriate calculation of JBA TIBOR official rates and reference banks' submission rates.

JBATA also analyzes the volume and market share of transactions executed by reference banks in the Japan unsecured call market, the Japan Offshore Market and other relevant markets based on actual transaction data collected from reference banks and other information, and then conducts a periodic review in light of changes in market conditions to assess whether it is necessary to review the calculation methodology of JBA TIBOR (and such a periodic review has been conducted in March 2015, March 2016, March 2017 and March 2018). Where necessary, public consultation will be conducted to review the calculation methodology.

With respect to public consultation, the Operational Rules sets out, among other things, the criteria for carrying out public consultation, the required notification period for such a review on the website (three months prior to the effective date) and the decision making process (such a review shall be decided by the Board of Directors after discussion at the Administration Committee and confirmation by the Oversight Committee), and is disclosed on the website.

JBATA seeks application for, and selects reference banks every year. The criteria for selecting reference banks and reasons for cancelling the designation of the reference bank status are prescribed in the Operational Rules.

In order to enhance the quality of the JBA TIBOR calculation method, JBATA takes following actions, including the JBA TIBOR reform:

(1) Introduction of minimum data criteria

The Code of Conduct partially amended on July 4, 2014 (and applied from

October 6, 2014) stipulates that where unsecured call transactions (“Euroyen transactions” in case of Euroyen TIBOR) between prime banks are observable, reference banks must take such transactions into consideration.

(2) Clarification of criteria for use of expert judgment

For clarification, the Code of Conduct partially amended on July 4, 2014 (and applied from October 6, 2014) sets out specific criteria for the use of expert judgment.

(3) Clarification of the procedure for overseas financial institutions to apply for a reference bank and the selection procedure

The Operational Rules was partially revised on March 2, 2015 (and applied from April 1, 2015), stipulating that when the applying bank is located in a jurisdiction outside of Japan, any issues which may arise from its location should be considered in the selection process.

(4) Standardization and clarification of the processes for calculating and determining reference banks’ submission rates through implementation of the JBA TIBOR reform

In order to make the JBA TIBOR a benchmark that is “better anchored in actual transactions”, the Code of Conduct was partially amended on February 20, 2017 (and applied from July 24, 2017), standardizing and clarifying the processes for calculating and determining reference banks’ submission rates.

In particular, the waterfall methodology which applies prioritization when referencing actual transaction data (i.e. places the highest priority on the underlying market data, followed by data of those relevant markets highly similar to the underlying market) was introduced, and reference banks are calculating and determining their submission rates using a calculation method that does not give rise to arbitrariness since July 24, 2017.

➤ Principle 12 Changes to the Methodology

JBATA has established, and discloses on the website, the Operational Rules setting out procedures for changes in the definitions or calculation methods of the JBA TIBOR, including criteria for carrying out public consultation, the required notification period for such changes on its website (three months prior to the effective date), and the decision making process (such changes shall be decided by the Board of Directors after discussion at the Administration Committee and confirmation by the Oversight Committee).

These procedures are followed when partially revising the JBA TIBOR Operational Rules etc. which sets out the JBA TIBOR calculation methodology.

Specifically, when partially revising the JBA TIBOR Operational Rules, etc. dated February 20, 2017 as part of the JBA TIBOR reform, public consultation was carried out three times (1st consultation during the period between December 2014 and February 2015; 2nd consultation during the period between August to November 2015; and 3rd consultation during the period from November to December 2016) to seek comments from various stakeholders (e.g. users).

In the following situations, changes to the definitions or calculation methods of the JBA TIBOR are to be considered.

- There is a structural change in the Japan unsecured call market or the Japan Offshore Market which requires any change to the definition or calculation methodology, etc. of the JBA TIBOR, and such a situation continues over a certain period of time or it is unlikely that the situation will recover soon.
- The underlying interest which the JBA TIBOR measures is no longer commonly used or is no longer functioning and therefore is considered to be not fulfilling any more its role as a basis of a credible benchmark, and such a situation continues over a certain period of time or it is unlikely that the situation will recover soon.
- In light of changes in the users' needs or actual market conditions, JBATA determines that it is necessary to make a change.

(History of revisions to the Operational Rules and the Code of Conduct)

- Partial revisions to the Code of Conduct on July 4, 2014 (applied from October 6, 2014)
- Partial revisions to the Operational Rules and the Code of Conduct on March 2, 2015 (applied from April 1, 2015)
- Partial revisions to the Operational Rules and the Code of Conduct on November 26, 2015 (applied from November 26, 2015)
- Partial revisions to the Operational Rules and the Code of Conduct on February 20, 2017 (applied from July 24, 2017)

➤ Principle 13 Transition

JBATA has established, and disclosed on its website, the Operational Rules stipulating processes for ceasing the JBA TIBOR publication.

In addition, JBATA recommends on its website updated April 1, 2014, users of JBA TIBOR to agree on a "fall-back" provision as an alternative arrangement or measure to prepare for the situation where the JBA TIBOR has not been published.

Under this Principle, it is required to establish a process and policy for identifying an appropriate alternative benchmark in the event that the JBA TIBOR cannot be used or its publication is suspended and transitioning to that alternative benchmark.

In relation to this Principle, there are ongoing international discussions for financial benchmark reform by the ISDA and other organizations. Such discussions include the transition to risk-free rates assumed as an alternative benchmark to IBORs (e.g. the JBA TIBOR) and the robustness of a contract under the fallback plan in the event of permanent cessation of the IBORs publication. JBATA will continue to paying attention to the development of these discussions, and consider, and take actions for, identifying an alternative benchmark appropriate to the needs for the use of the JBA TIBOR and transitioning to that alternative benchmark.

➤ Principle 14 Submitter Code of Conduct

JBATA has established, disclosed on its website, and implemented the Code of Conduct setting out, as described below, rules to be complied with and necessary procedures to be established by reference banks in connection with their rate submission.

- Set out the waterfall methodology to standardize and clarify the process for calculating and determining reference banks' submission rates. The waterfall methodology is a mechanism where data of the underlying market placed at the top of the hierarchy are referenced first, followed by data of those relevant markets highly similar to the underlying market.
- Establish a framework that ensures appropriate rate submissions, including the criteria for selecting submitters and reporting to JBATA

- Establish a framework for managing conflicts of interest, including an appropriate information barrier from personnel engaging in trading activities
- Establish a framework for prohibiting exchange/adjustments, etc. of information regarding rate submissions
- Establish a procedure for accountability regarding the rationale for rate submissions
- Establish a procedure for retaining communication records regarding rate submissions
- Conduct internal and external audits
- Establish a procedure for escalating problems, when identified, to JBATA
- Obligation for holding in-house training
- Obligation for cooperation in reviewing the administrative flow resulting from a change to the service provider, etc.
- Obligation for cooperation for inquiries from and investigation by JBATA in connection with rate submissions
- Obligation for establishing internal policies and procedures

Furthermore, JBATA supervises reference banks through monitoring of, among other things, their compliance with the Code of Conduct as follows:

- Monitoring of submission rates
- Monitoring of the establishment of internal rules
- Monitoring of the implementation of in-house training
- Monitoring of the results of internal and external audits
- On-site monitoring of the extent of compliance with the Code of Conduct

➤ Principle 15 Internal Controls over Data Collection

Currently, only rates submitted by reference banks are used to calculate JBA TIBOR and JBATA does not collect data from external parties. Accordingly, this Principle is determined to be not applicable to our assessment.

JBATA reviews the calculation of the rates submitted by reference banks to ensure their accuracy on a daily basis as well as the Oversight Committee monitors the appropriateness of reference rates.

✧ Accountability

➤ Principle 16 Complaints Procedures

The JBATA's Operational Rules and the Complaints Consultation Management Rule of JBATA set out management of complaints from users or other beneficiaries, in relation to the JBA TIBOR determination. Also, JBATA discloses information on a liaison that responds to complaints/consultation on its website.

The liaison established within the JBA TIBOR Oversight Committee Office receives inquiries and complaints regarding the JBA TIBOR via phone and e-mail and periodically reports the status of receipt of such inquiries/complaints and actions taken to address them to the Oversight Committee.

The Oversight Committee monitors the status of receipt of complaints/consultation and actions taken to address them by the liaison, and assesses the appropriateness thereof.

Records of those complaints/consultation, etc. received and addressed by the liaison are retained for five years as required by the Operational Rules.

➤ Principle 17 Audits

As required by the Operational Rules to conduct internal and external audits on an annual basis, in principle, JBATA has been carrying out internal and external audits every year from the fiscal year 2014.

Results of the internal and external audit are reported to the Board of Directors and the Oversight Committee, and the overview of the results have been disclosed on the website (in July 2015, July 2016 and July 2017).

➤ Principle 18 Audit Trail

Pursuant to the Operational Rules, JBATA retains the following evidence required by the IOSCO Principles for five years.

■ Submission rates and publication rates

- Records for the use of expert judgment if JBATA has used it in determining the rate of the JBA TIBOR
- Documents, etc. submitted from reference banks to JBATA based on the Code of Conduct
- Records of communications with reference banks and the service provider in connection with the determination of official rates
- Records that identify those persons who are involved in the relevant activities at JBATA and the service provider
- Feedbacks and complaints, etc. from external parties with respect to overall JBA TIBOR administration
- Records of internal and external audits
- Records for actions taken if any unusual actions have been taken in determining the rate of the JBA TIBOR

Furthermore, in the Code of Conduct, JBATA requires reference banks to retain the following evidence required by the IOSCO Principles for five years.

- The content of filing to JBATA with respect to submitters
- The nature of inquiries/complaints, etc. regarding rate submissions, and records as to how such inquiries/complaints, etc. have been addressed
- Materials regarding the problem of conflicts of interest in relation to rate submissions
- Exposures to products, etc. referencing the JBA TIBOR (on a basis of the entire bank, individual traders or individual desks)
- Documents relating to the determination of reference rates, and data referenced in determining reference rates, etc.
- Communication records relating to rate submissions
- Records of internal and external audits
- Records of in-house training
- Records as to how inquiries from, and investigation, by JBATA with respect to rate submissions have been addressed
- Records of revisions to internal policies and procedures

➤ Principle 19 Cooperation with Regulatory Authorities

JBATA is designated as a specified financial benchmark administrator under the Financial Instruments and Exchange Act and works closely with regulatory

authorities.

The JBATA's Operational Rules set forth that JBATA shall cooperate with relevant regulatory authorities by submitting and reporting records and audit results regarding the JBA TIBOR calculation and other relevant information immediately upon their request.

Also, JBATA appropriately cooperates with, and addresses, the IOSCO, including the review of the extent of compliance with the IOSCO Principles.

(Appendix) Details of the Waterfall Methodology

1. Waterfall methodology for Japanese yen TIBOR

1st Level Data in the observable unsecured call market		
1-1	Actual Unsecured Call transactions	• Rates in observable actual transactions data are weighted averaged to arrive at a reference rate.
1-2	Committed Quotes of Unsecured Call transactions	• Of Committed Quotes presented by brokers based on which transactions are committed to be executed, those relating to offered rates are weighted averaged to arrive at a reference rate.
1-3	Indicative Quotes of Unsecured Call transactions	• A change from the previous business day in the mean rate of quotes presented by brokers is referenced. (A change from the previous day in the mean rate of quotes is added/deducted to/from the reference rate submitted on the previous day to arrive at the reference rate of the day.)
1-4 (1)	Linear Interpolation	• If a reference rate of an adjacent tenor is calculated in line with the sub-tier [1-1], the linear interpolation method is applied to arrive at a reference rate.
1-4 (2)	Retroactive Use of actual transactions data	• Date back day by day up to the number of business days separately defined by JBATA, and if a reference rate is calculated in line with the sub-tier [1-1] in a business day, that reference rate is determined as a reference rate of the day.
1-4 (3)	Linear interpolation based on retroactively-used actual transactions data	• If a reference rate of an adjacent tenor is calculated in line with the sub-tier [1-1] or [1-4(2)], the linear interpolation method is applied to arrive at a reference rate.
2nd Level Data in the observable Japan Offshore Market and Interbank NCD market		
2-1	Data in the Japan Offshore Market, Data in the Interbank NCD market	• The treatment under the sub-tiers from [1-1] to [1-4(3)] are applied mutatis mutandis.
3rd Level Data in the observable NCD market (other than the Interbank NCD market), large term deposits, short-term government bonds market, GC repos market and OIS market		
	Data in the NCD market (other than the Interbank NCD market), Large Term Deposits, short-term government bonds market, GC repos market and OIS market	<p>• With respect to the following data, reference a change from the previous business day. (Respective changes from the previous business day in the following data ① to ⑤ are added to, or deducted from, the reference rate submitted on the previous day in accordance with the method predetermined by JBATA to arrive at a reference rate of the day.)</p> <p>① Actual transactions in the NCD market (other than the Interbank NCD market)</p> <p>② Actual transactions in large term deposits</p> <p>③ Quotes in the short-term government bonds market</p> <p>④ Quotes in the GC repos market</p> <p>⑤ Quotes in the OIS market</p>

4th Level Expert Judgment	
	<ul style="list-style-type: none"> • A rate is submitted based on expert judgment by a Person Responsible for Rate Submission and Staff Performing Rate Submission Tasks at reference banks.

2. Waterfall methodology for Euroyen TIBOR

1st Level Data in the observable unsecured call market		
1-1	Actual Euroyen transactions	• Rates in observable actual transactions data are weighted averaged to arrive at a reference rate.
1-2	Committed Quotes of Euroyen transactions	• Of Committed Quotes presented by brokers based on which transactions are committed to be executed, those relating to offered rates are weighted averaged to arrive at a reference rate.
1-3	Indicative Quotes of Euroyen transactions	• A change from the previous business day in the mean rate of quotes presented by brokers is referenced. (A change from the previous day in the mean rate of quotes is added/deducted to/from the reference rate submitted on the previous day to arrive at the reference rate of the day.)
1-4 (1)	Linear Interpolation	• If a reference rate of an adjacent tenor is calculated in line with the sub-tier [1-1], the linear interpolation method is applied to arrive at a reference rate.
1-4 (2)	Retroactive Use of actual transactions data	• Date back day by day up to the number of business days separately defined by JBATA, and if a reference rate is calculated in line with the sub-tier [1-1] in a business day, that reference rate is determined as a reference rate of the day.
1-4 (3)	Linear interpolation based on retroactively-used actual transactions data	• If a reference rate of an adjacent tenor is calculated in line with the sub-tier [1-1] or [1-4(2)], the linear interpolation method is applied to arrive at a reference rate.
2nd Level Data in the observable unsecured call market and Interbank NCD market		
2-1	Data in the observable unsecured call market, Data in the Interbank NCD market	• The treatment under the sub-tiers from [1-1] to [1-4(3)] are applied mutatis mutandis.
3rd Level Data in the observable NCD market (other than the Interbank NCD market), large term deposits, short-term government bonds market, GC repos market and OIS market		
	Data in the NCD market (other than the Interbank NCD market), Large Term Deposits, short-term government bonds market, GC repos market and OIS market	<ul style="list-style-type: none"> • With respect to the following data, reference a change from the previous business day. (Respective changes from the previous business day in the following data ① to ⑤ are added to, or deducted from, the reference rate submitted on the previous day in accordance with the method predetermined by JBATA to arrive at a reference rate of the day.) ① Actual transactions in the NCD market (other than the Interbank NCD market) ② Actual transactions in large term deposits ③ Quotes in the short-term government bonds market ④ Quotes in the GC repos market ⑤ Quotes in the OIS market

4th Level Expert Judgment	
	<ul style="list-style-type: none"> • A rate is submitted based on expert judgment by a Person Responsible for Rate Submission and Staff Performing Rate Submission Tasks at reference banks.