Information about benchmarks and risks connected with their use

Legal basis

Regulation (EU) 2016/1011 of the European Parliament and of the Council on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds and amending Directives 2008/48/EC and 2014/17/EU and Regulation (EU) No. 596/2014 ("**BMR**"). The BMR Regulation has directly applied in Poland to the full extent since 01/01/2018.

General information

The purpose of the BMR Regulation is to ensure the credibility of benchmarks by increasing the accuracy, robustness and reliability of benchmarks and basing them to a greater extent on transactional data.

Under the provisions of the BMR Regulation, the development of benchmarks has become a regulated activity requiring authorization by the competent supervisory authority.

The extensive provisions of the BMR Regulation and its implementing acts impose detailed legal requirements on those who develop benchmarks (administrators) and those who provide data to the administrator for the purpose of determining the benchmark value, with the effect of preventing manipulation of benchmarks and ensuring their sufficiently high quality and, for users, increasing the credibility of a given benchmark.

Interest rate benchmarks such as e.g., WIBOR, LIBOR, EURIBOR, SARON, SONIA, SOFR, TONAR, €STR, TORF and others play an important role in international financial markets. These indices are commonly used in financial transactions such as loans, deposits, derivatives, bonds and structured products. They serve to measure a particular economic reality and, as a result, the financial claims of the parties to contracts based on a variable interest rate depend on their value. In the case of loans, the interest rate payable to the lender depends on a variable element, i.e., the benchmark index, and a margin which is mostly fixed throughout the term of the loan agreement.

In agreements with its customers and in financial instruments, the Bank uses interest rate benchmark rates such as WIBOR, LIBOR or EURIBOR. These indices have been functioning in financial markets in their current form for many years. However, since 2014 there has been a worldwide discussion on the reform and adaptation of the benchmarks to market realities. More and more regulators of the global financial market have drawn attention to the instability and unreliability, as well as vulnerability of such benchmarks to manipulation. This resulted in decisions to reform the indices and to gradually phase out the LIBOR indices and to eliminate the EONIA index and replace them with new indices, the so-called RFR (Risk-Free Rates) ("**RFR Indices**").

The values of benchmark indices are determined independently of the Bank by entities developing such indices according to their own methodology under the supervision of competent supervisory authorities. A given benchmark is published by an entity developing it (administrator), which has been duly authorized to do so by a supervisory authority or which benefits from a transitional period for adapting its reference rate to the requirements of the BMR Regulation.

The administrator of the benchmark defines the methodology for determining the value of the benchmark. The value of a benchmark is the value obtained by measuring its underlying market (some economic reality that the benchmark aims to measure). Depending on the economic situation, this value may be susceptible to change.

The administrator is required to select the methodology for developing the benchmark so that it complies with the law, in particular so that the measurement of the underlying market is as accurate and reliable as possible and the data used for such measurement are of sufficiently high quality.

The administrator is required to review the method adopted for developing the benchmark in terms of its adequacy to measure the underlying market, its adaptation to changing economic realities, its compliance with legal provisions and the requirements of supervisory authorities. Accordingly, the methodology for developing a benchmark may be subject to change, which may result in a change in the value of a given benchmark.

Any change in methodology must be preceded by public announcements to that effect by the administrator of the benchmark and a published consultation document, and the entire process is subject to oversight by the competent supervisory authority.

The consequence of signing a financial agreement or acquiring a financial instrument that includes a reference to a benchmark is that the customer and counterparty accept the risk of a change in the value of the benchmark resulting from market changes and changes in the benchmark development methodology, including a material change in methodology.

The Bank's customer and counterparty acknowledges that each change of the index, consisting in a change of the method of developing the benchmark or a change of its definition, including a material change of the index announced by its administrator, does not constitute a material modification of the agreement or the financial instrument.

LIBOR information

LIBOR is an interest rate benchmark developed by the ICE Benchmark Administration ("**IBA"**), which took over the role of LIBOR administrator from the BBA (British Bankers Association) in 2014. As of 29 December 2017, LIBOR was included in the list of key benchmarks under the BMR Regulation, but due to the exit of the United Kingdom (home of the IBA) from the EU, it was removed from this list as of 10 July 2021.

The IBA develops LIBOR according to a self-defined method, under the supervision of the UK Financial Conduct Authority (FCA). Details on LIBOR, including:

- description of the key elements of the LIBOR development method,
- the benchmark statement (document published by the administrator pursuant to Article 27 of the BMR Regulation), and
- procedures for receiving and investigating complaints that relate to the determination of the benchmark

were published by IBA on its website: www.theice.com/iba.

The Financial Conduct Authority ("**FCA**"), the relevant supervisory authority for the IBA, announced[1], that, as of the end of 2021, it does not intend to exercise its powers under the BMR Regulation and take action to "coerce" banks to provide the data necessary to determine LIBOR. Therefore, working groups engaged in the development of alternative indices to LIBOR recommend that we prepare adequately for the disappearance of LIBOR by gradually moving away from its use in contracts[2].

According to the FCA's positions dated 5 March 2021[3] and 29 September 2021[4] the FCA has announced that:

a) the following indices will permanently cease to be developed:
   - CHF LIBOR (all tenors) • as of the end of December 31, 2021;
   - EUR LIBOR (all tenors) • as of the end of December 31, 2021;
   - GBP LIBOR (O/N, 1W, 2M and 12M) – as of the end of December 31, 2021;
   - JPY LIBOR (S/N, 1W, 2M and 12M) • as of the end of December 31, 2021;
   - USD LIBOR (1W and 2M) – as of the end of December 31, 2021;
   - USD LIBOR (O/N, 12M) – as of the end of June 30, 2023;

b) the following rates will no longer be representative for the underlying market and economic reality that these rates were intended to measure:
   - GBP LIBOR (1M, 3M and 6M) – as of the end of December 31, 2021;
   - JPY LIBOR (1M, 3M and 6M) – as of the end of December 31, 2021;
   - USD LIBOR (1M, 3M, 6M) – as of the end of June 30, 2023;

and their representativeness will not be restored, and it is not clear at this point whether and in what form these indices will be developed once they are no longer representative. At the same time, the FCA directed the IBA[5] to develop and publish synthetic GBP LIBOR (1M, 3M and 6M) and JPY LIBOR (1M, 3M and 6M) by the end of 2022. At the same time, the FCA has indicated in its position statement that it will determine by the end of 2021 the legacy contracts in which these indices may continue to be applied.

Moreover, in response to ongoing changes and potential disruptions in the functioning of the financial markets in the EU that could pose a systemic risk to the financial system in the EU, the European Commission, acting pursuant to the BMR Regulation, has designated by law a statutory substitute for LIBOR CHF[6]. The European Commission has designated the benchmarks of the SARON Compound family in such a way that, as of January 1, 2022, the respective substitutes with the corresponding adjustment will be applied by law in all contracts and financial instruments that referred to LIBOR CHF according to the following rules:

CHF LIBOR term	Substitute	Adjustment (in percentage points)

[1] https://www.fca.org.uk/news/speeches/the-future-of-libor
[2] https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2020/ARRC-Best-Practices.pdf
3 https://www.fca.org.uk/news/press-releases/announcements-end-libor
4 https://www.fca.org.uk/news/press-releases/further-arrangements-orderly-wind-down-libor-end-2021
[5] https://www.fca.org.uk/publication/libor-notices/article-21-3-benchmarks-regulation-first-decision-notice.pdf
6 https://eur-lex.europa.eu/legal-content/PL/TXT/PDF/?uri=CELEX:32021R1847&from=PL

1M	1 month compound rate SARON (SAR1MC) ISIN CH0477123886	-0.0571
3M	3 month compound rate SARON (SAR3MC) ISIN CH0477123902	0.0031
6M	3 month compound rate SARON (SAR3MC) ISIN CH0477123902	0.0741
12M	3 month compound rate SARON (SAR3MC) ISIN CH0477123902	0.2048

EONIA information

According to the BMR Regulation - EONIA is a key interest rate benchmark for which the European Money Market Institute ("**EMMI**") is the administrator. The EMMI is developed by EONIA according to a self-defined methodology, under the supervision of the Belgian Financial Services and Markets Authority (FSMA). Details on EONIA, including:

- description of the key elements of the EONIA development method,
- a benchmark statement; and
- procedures for receiving and investigating complaints that relate to the determination of the benchmark

were published by EMMI on its website: https://www.emmi-benchmarks.eu/emmi/

In February 2018, EMMI, acting as EONIA rate administrator, announced that it had no intention of achieving EONIA rate compliance with the BMR Regulation[7]. In September 2018, the Working Group on Risk-Free Rates for the Eurozone recommended replacing the EONIA rate with the EURO rate (€STR) as the risk-free rate for Euro-denominated financial instruments and contracts[8]. Subsequently, on March 14, 2019, the Working Group published a position statement recommending a switch from the EONIA rate to the €STR rate. The position statement also set out the method for determining the spread between the €STR and the EONIA rate[9], which was then calculated and indicated by the European Central Bank at 8.5 base points[10]. As a result, the EMMI has announced the discontinuation of EONIA rate development as of January 3, 2022. [11]

7 https://www.emmi-benchmarks.eu/euribor-eonia-org/eonia-review.html
8 https://www.ecb.europa.eu/paym/interest_rate_benchmarks/WG_euro_risk-free_rates/shared/pdf/20190314/Item_4_reorganisation_of_the_WG_on_euro_RFR_and_next_steps.pdf
9 https://www.ecb.europa.eu/press/pr/date/2019/html/ecb.pr190314_1~af10eb740e.en.html
10 https://www.ecb.europa.eu/press/pr/date/2019/html/ecb.pr190531~a3788de8f8.en.html
11 https://www.emmi-benchmarks.eu/assets/files/D0194C-2019%20EONIA_consultation_feedback_press_release.pdf

In response to ongoing changes and potential disruptions to the functioning of financial markets in the EU that could pose a systemic risk to the financial system in the EU, the European Commission has designated by law, on the basis of the BMR Regulation, a statutory substitute for EONIA[12]. The European Commission has indicated the €STR benchmark in such a way that, as of January 3, 2022, this substitute, together with an adjustment of 0.085, will be applied by law in all contracts and financial instruments which referred to EONIA.

Consequences of the changes

The LIBOR and EONIA benchmark interest rate indices disappearing according to the above schedules are to be replaced by the RFR Indices or forward benchmark rates relevant for the currency of the contract. A number of working groups working under the supervision of the competent financial regulators have been laboring on identifying new alternative indices to replace LIBOR and EONIA in the future. The purpose of such an indication was to determine RFRs which, after adding an appropriate adjustment (spread), would ensure economic invariability of the value of the base rate used in a given contract or financial instrument. The mechanism for determining the adjustment may result from contractual provisions or other actions appropriate to the contractual relationship, or from applicable laws, recommendations, or the designation made by a specific entity, which regulate the procedure in such cases. In principle, when determining the value of the adjustment, the Bank relies on a methodology analogous to the one published in the Bloomberg "IBOR Fallback Rate Adjustments Rule Book"[13]. According to this methodology the adjustment is calculated as the median of the differences, for a period of 5 years or less (if the substituted benchmark or alternative benchmark was calculated for a shorter period). The Bank also does not rule out determining the value of the adjustment based on other mechanisms previously agreed with the Customer

This means that a potential customer of the Bank should feel no economic difference between the LIBOR and EONIA benchmark used until then and the new RFR Index. For specific currencies, the Bank will apply the following RFR Indices:

- LIBOR USD →SOFR
- LIBOR CHF → SARON
- GBP LIBOR → SONIA
- JPY LIBOR → TONAR
- EUR LIBOR → EURIBOR (for credit products) or €STR (for deposits)

Taking into consideration product specifics, type of documentation, solutions adopted by the Bank as well as the regulatory environment, recommendations and indications of specific entities - the Bank will appropriately apply the following forward benchmark rates:

- LIBOR USD → CME Term SOFR
- LIBOR CHF → SARON Compound
- LIBOR GBP → Refinitiv Term SONIA
- LIBOR JPY → TORF

12 https://eur-lex.europa.eu/legal-content/PL/TXT/PDF/?uri=CELEX:32021R1848&from=EN
13 https://data.bloomberglp.com/professional/sites/10/IBOR-Fallback-Rate-Adjustments-Rule-Book.pdf

The Bank does not rule out the use of other RFRs, Forward RFRs or other benchmarks appropriate to a given benchmark relationship.

A consequence of the adoption by the European Commission of relevant legal acts designating statutory substitutes for LIBOR CHF and EONIA is that for such contracts or financial instruments it will not be necessary to sign amending agreements (annexes), which would contractually sanction the introduction of a substitute together with an adjustment to the contractual relationship with the Customer. Depending on the contractual relationship, the Bank will provide Customers affected by the European Commission's implementing regulations with:

- a new repayment schedule incorporating the new borrowing rate, determined on the basis of the SARON Compound or the €STR index with appropriate adjustments; and
- a proposal for an annex to the contracts, which will contain, among others, provisions describing the rules to be followed in the event of temporary or permanent unavailability of SARON Compound or €STR, thus implementing the regulatory requirements imposed on the Bank under the BMR Regulation.

In relation to benchmark indices other than CHF LIBOR and EONIA, the Bank has prepared new documentation for foreign currency products that will include as a base index, the RFR Index or another forward index replacing LIBOR with an appropriate adjustment and interest calculation method.

General information on alternative RFR rates

RFRs are calculated under the supervision of national regulatory authorities, on the basis of real interbank market transactions. They are overnight rates, calculated daily and then adapted to specific tenors (periods such as 3M, 6M, etc.) by using an appropriate method. Therefore, they are not identical in their construction and application to the existing interest rate benchmarks. First of all, they are determined at or before the beginning of the period to which they apply, which gives assurance as to the amounts due accrued at the end of that period. Below are illustrated examples of differences in the construction of both solutions – RFRs and term interest rate benchmarks (on the example of the LIBOR benchmark):

- The LIBOR benchmark is determined by reference to future and uncertain interest rates on deposits, while the RFR Rates are determined on the basis of values embedded in the past;
- The LIBOR benchmark is a term interest rate for multiple periods (tenors) such as: O/N, 1W, 1M, 2M, 3M, 6M, 12M, while RFRs are only O/N (overnight) rates with no element of timeliness;
- The LIBOR benchmark incorporates a premium for the Bank's credit risk and the risk of term liquidity. On the other hand, the RFR Rates, as a rule, contain a very small additional premium or do not contain it at all due to the construction of the overnight interest rate and the fact that they are sometimes secured;
- The LIBOR benchmark for each currency is developed and calculated by one administrator, while the RFR Rates for each currency are developed and calculated by different administrators in different countries, leading to the emergence of certain distinctiveness and characteristics for each of the RFR Rates.

Due to the construction of the RFR Rates (they are calculated on a daily basis), it may be necessary to adapt them to contracts and instruments in which the tenor (period) rate was used, e.g. 3M or 6M. For this reason, also RFR Term Rates, the so-called “compounded rates” are developed, which allow for setting interest rates for longer interest periods ("**RFR Term Rate/Rates and RFR Rate/Rates**") by using the RFR Rates.

These RFR Term Rates, such the "SONIA 3-months Compound Rate", are calculated on the basis of the daily values of the underlying RFR Rate – in this example, the SONIA benchmark. The administrator that calculates such a RFR Term Rate takes into account a certain period of publication of the RFR Rate (e.g. SONIA), which corresponds to the interest period (for the "SONIA 3-months Compound Rate" it will be three months), and then determines the period of observation of that RFR Rate. The period of observation does not have to coincide with the interest period for which the RFR Term Rate is going to be used – therefore, the final value of the RFR Term Rate will be known even before the end of the interest period. The period of observation of the underlying rate may begin, for example, a few days before the commencement of the interest period for which it will apply. Given the above, the value of the RFR Term Rate, "the compounded rate", which will apply to this interest period, will be known the same number of days earlier.

The administrators use various models and mathematical formulas to calculate the RFR Term Rates, however the aim of such an operation is to ensure a comprehensive replacement of term rates with RFR Rates. Thanks to the adjustment applied, the economic effect of using such an operation should not differ from the effect obtained by using term benchmarks.

Information about interest rate changes

The interest rate of a financing agreement or a payment resulting from the purchase of a financial instrument is reviewed in accordance with the contractual interest rate term (e.g., the interest rate term for LIBOR 3M lasts 3 months). On the date of determination of the interest rate for the next interest period, the Bank will use the current applicable reference rate, as published by the relevant reference rate administrator, in accordance with the BMR Regulation and Delegated Regulation 2018/65, to calculate the interest rate[14].

General risks associated with different benchmarks

The following general risks associated with the use of benchmarks can be identified:

- certain benchmarks, including their methodology, may be subject to change by the administrator of a particular benchmark for regulatory or business reasons;
- the administrator of a particular benchmark may decide to cease to provide the benchmark or the competent authority may withdraw the administrator's authorization for benchmark provision;
- benchmarks may cease to be representative of a given market or economic reality due to the cessation of the contribution of relevant input data by contributors necessary to provide a given benchmark, or benchmarks may lose their reliability adequate to measure a given underlying market as a result of a decision of the competent supervisory authority;

[14]Commission Delegated Regulation (EU) No. 2018/65 is a supplementary act to the BMR Regulation as regards the clarification of certain definitions; including clarifying exhaustively what the European Commission understands by the term "Making available to the general public" for the purposes of the definition of "Publication" of a benchmark or index referred to in the BMR Regulation

- benchmarks may cease to be published or developed in their entirety (e.g. LIBOR as a benchmark ceases to exist) or in relation to a specific tenor (e.g. WIBOR as a benchmark will still exist, but the cessation of its provision will only apply to 6M WIBOR) or a specific currency (in the case of LIBOR, GBP LIBOR disappears), and relevant alternative benchmarks may not be designated;

- there may be a legitimate need to amend financial contracts or financial instruments by reference to risk-free rates.

The risk of changing a benchmark methodology by an administrator

A benchmark provider acting on the basis of its authorization as part of its professional activity is entitled to make a change to the benchmark development methodology in accordance with the procedure set out in the benchmark documentation published by the administrator on its website. In accordance with the general information usually published by the administrator regarding the process of changing the benchmark development methodology, the administrator's change is usually preceded by the public consultation process, where the administrator will determine the scope of the proposed change and provide justification. A justification for making a change in the benchmark development methodology may be for the administrator, for example, the need to adapt the benchmark development methodology to the requirements of the BMR Regulation, the guidelines of the supervisory authority or recommendations of the supervisory entity. The change made by the administrator in the benchmark development methodology may result in a change in the benchmark's value. An increase or decrease in the benchmark's value as a result of the change in the development method made by the administrator may affect the value of mutual considerations between you and the Bank in connection with the concluded contract, or the valuation of the financial instrument/financial product held by you.

The risk of ceasing to provide a benchmark by an administrator on a permanent or temporary basis

The entity that provides a given benchmark in the course of its professional activity is entitled to cease to provide the benchmark permanently using the procedure described in the benchmark documentation published by the administrator on its website, subject to authorizations of supervisory authorities in that scope, which arise from Articles 21 and 23 of the BMR Regulation. An administrator may decide to cease to provide a benchmark, in particular for business reasons (a non-economic factor) or because the administrator considers that the data used by the administrator to provide the benchmark is not representative of the market or economic reality that the benchmark is intended to measure. The cessation of provision of the benchmark is preceded by a public consultation process which usually lasts several months, in the course of which the administrator sets the date from which it intends to cease to provide the benchmark.

In addition, the benchmark development methodology usually indicates that there are circumstances in which an administrator may not be able to determine a benchmark value on a given date, for example if the administrator does not receive sufficient data to determine the benchmark value on a given date.

The consequence of the administrator's permanent or temporary cessation of provision of a benchmark may be the inability to use the benchmark by the Bank to determine the value of mutual considerations resulting from the contract concluded between the Bank and you. In such a situation, the provisions of the binding contract between you and the Bank will apply.

Information about WIBID and WIBOR indices

WIBOR is a key interest rate benchmark within the meaning of the BMR Regulation, developed as at the date of the issue of the Information Document by GPW Benchmark S.A.

WIBOR is developed according to a method independently defined by GPW Benchmark S.A. under the supervision of the Polish Financial Supervision Authority (Komisja Nadzoru Finansowego - KNF). Details of WIBOR, including a description of the method of its development and procedures for receiving and processing complaints regarding the process of its determination, have been published by GPW Benchmark S.A. on its website at: www.gpwbenchmark.pl/.

On 06/12/2019, the Polish Financial Supervision Authority received from GPW Benchmark S.A. an application for authorization to operate as an administrator of interest rate benchmarks, including a key interest rate benchmark. The submission of the application before the end of 2019 means that, pursuant to Article 51(1) and 51(3) of the BMR Regulation, the transitional period during which entities supervised by the Polish Financial Supervision Authority may continue to use the WIBID and WIBOR benchmarks was extended. The period lasted until the conclusion of the administrative proceedings on the granting of the aforementioned authorization. The administrator informed about the proceedings process on its website at: www.gpwbenchmark.pl/.

On December 16, 2020, the KNF issued a permit for GPW Benchmark S.A. to operate as an administrator of interest rate benchmarks, including key benchmarks. The authorization of GPW Benchmark S.A. by the KNF means that the financial supervision authority has recognized the process of determining the WIBOR benchmark as compliant with the requirements imposed by the BMR Regulation In connection with the authorization, GPW Benchmark S.A. published a benchmark statement on WIBID and WIBOR referred to in Article 27 of the BMR Regulation containing key information about WIBID and WIBOR[15]. Based on the authorization received, GPWB has been authorized to develop other interest rate indices, the determination process of which is to be carried out in accordance with the requirements of the BMR Regulation.

Receiving the authorization to operate as a WIBID and WIBOR administrator does not mean that the method of their determination will not be modified. Such a position was expressed in the announcement of the KNF, according to which: "*The UKNF expects the method of developing the interest rate benchmark to be further improved so that it is easily adaptable to changing economic realities"*[16]*.* It should also be noted that the BMR Regulation requires benchmark administrators to conduct a cyclical review of the method for determining the WIBID and WIBOR benchmark rates in 2022.

Specific risks concerning WIBOR/WIBID include, in particular:

- the risk of abandoning the bilaterality of rates, i.e., suspending the publication of WIBID,
- the risk of a significant change in the method of developing the benchmark index,
- the risk of discontinuation of development of a selected WIBOR tenor, e.g., WIBOR 1Y.

[15] https://gpwbenchmark.pl/pub/BENCHMARK/files/WIBID_WIBOR/Oswiadczenie2021_1.pdf
[16] https://www.knf.gov.pl/knf/pl/komponenty/img/Stanowisko_UKNF_%20WIBOR_66559.pdf

Information on EURIBOR

EURIBOR is a key interest rate benchmark within the meaning of the BMR Regulation, developed as at the date of providing the information document by the European Money Markets Institute (EMMI), based on the authorization granted by the Belgian Financial Services and Markets Authority on 02/07/2019.

EURIBOR is developed according to a method independently determined by the EMMI under the supervision of the Belgian Financial Services and Markets Authority. The details of EURIBOR, including a description of the key elements of the EURIBOR methodology, the Benchmark Statement (this document is published by the administrator pursuant to Article 27 of the BMR Regulation) and the procedures for receiving and handling complaints regarding the process of determining the EURIBOR benchmark, have been published by the EMMI on its website at: www.emmi-benchmarks.eu/euribor-org/.

Information on the SOFR and CME Term SOFR indices

Name and address of the SOFR administrator

The SOFR index is developed and published by the "Federal Reserve Bank of New York" which is a US bank of the Federal Reserve System and therefore a third country entity. The SOFR is determined based on overnight deposits collateralized by U.S. securities in the repo market.

Detailed information on the index is published on the Fed's website

The CME Term SOFR is a different index than the SOFR. On July 29, 2021, the CME Term SOFR was formally approved by the Alternative Reference Rates Committee (ARRC) as an alternative index to USD LIBOR. The CME Term SOFR is a dollar forward interest rate benchmark calculated and published by CME Group Benchmark Administration Limited and therefore a third country entity. The CME Term SOFR is a forward-looking index published for the following tenors 1M, 3M, 6M and 12M. The methodology for determining the CME Term SOFR uses a combination of USD SOFR OIS and one-month and three-month futures SOFR contracts.

Information about the SONIA and SONIA Term indices

A working group at the Bank of England has recommended the SONIA as an alternative index to GBP LIBOR and as a risk-free index for all sterling products and contracts.

The SONIA (Sterling Overnight Index Average) is an interest rate benchmark for sterling calculated and published by a third country entity, the Bank of England. The SONIA is based on actual transactions and reflects the average of the interest rates that banks pay to borrow sterling on a daily basis from other financial institutions and other institutional investors.

While the SONIA index has been developed since 1997, it has been reformed and as of August 3, 2020 it is published as the SONIA Compounded Index. Thus, it has simplified the calculation of compound interest rates, and ensured the standardization of the method by publishing it as an official source.

Details of the SONIA, including a description of the key elements of the method for developing the SONIA and the procedures for receiving and dealing with complaints about the benchmarking process, have been published by the Bank of England on its website at: www.bankofengland.co.uk

The Refinitiv Term SONIA is a different index than the SONIA. The Refinitive Term SONIA is a sterling forward interest rate benchmark calculated and published by a third country entity, Refinitiv Benchmark Services (UK) Limited. The underlying inputs for calculating the Refinitive Term SONIA rate are obtained from various vendors and processed according to the cascade methodology. The basic source of data are the quotes obtained from electronic platforms for centrally cleared GBP SONIA OIS contracts.

Information on the TONAR and TORF indices

In 2018, the Cross Industry Committee on Japanese Yen Interest Rate Benchmarks was established, consisting of financial and institutional investors and non-financial companies. Its purpose is to conduct the necessary work to facilitate and guide the reform of the Japanese yen interest rate benchmarks.

In 2019, the Committee, together with the Bank of Japan, conducted a public consultation on the selection of alternative benchmarks for JPY LIBOR, the results of which revealed an industry preference for two options: the Tokyo Interbank Offered Rate ("TIBOR") and the Tokyo Overnight Average Rate ("TONAR"). The Committee and the Bank of Japan stated that entities are free to choose which of two alternative options to JPY LIBOR they wish to use.

The TONAR is a risk-free rate based on an unhedged overnight call rate and is developed by a third country entity, the Bank of Japan.

In February 2020, the Committee appointed QUICK Corp as agent for the calculation and publication of the forward reference rate, and in May 2020, QUICK Corp began publishing prototype forward rates of various tenors on a daily basis. The TORF is one of the alternative interest rate benchmarks that replace LIBOR JPY. The TORF is calculated and published by QUICK Benchmarks Inc. (a third country entity) based on derivative transactions whose underlying asset is an unhedged overnight call rate.

Information on the SARON and SARON Compound indices

A working group at the Swiss National Bank recommended the SARON index as an alternative index to CHF LIBOR and as a risk-free index for all Swiss franc products and contracts.

The SARON (Swiss Average Rate Overnight) is an interest rate benchmark for the Swiss franc calculated and published by SIX Financial Information Nordic AB (hereinafter: "**SIX**"). The SARON is based on the collateralized money market and calculated as a one-day reference rate based on data from the Swiss franc settled repo market.

The SARON Compound index is derived from daily SARON indices. It was proposed by the Swiss National Working Group on Swiss Franc Reference Rates and accepted by the Swiss National Bank as an alternative index to CHF LIBOR. In addition, the European Commission adopted an implementing regulation under which, as of January 1, 2022, the SARON Compound index will replace LIBOR CHF in all types of financial contracts concluded within the European Union. The SARON Compound index also meets the requirements imposed by the BMR Regulation.

Repo transactions have become a key pillar of the money markets, and the Swiss National Bank uses them as a means to implement its monetary policy. The SARON is based on transactions and quotes made in this market, as it is a key part of the financial industry and central bank activity. The repo market is characterized by high liquidity, high regulation and high reliability.

The SARON and SARON Compound are developed according to a method independently defined by SIX under the supervision of the Swiss Financial Market Supervisory Authority. The details of SARON and SARON Compound, including a description of the key elements of their development methodology, the Benchmark Statement (this document is published by the administrator pursuant to Article 27 of the BMR Regulation) and the procedures for receiving and handling complaints regarding the process of determining the benchmark, have been published by the SIX on its website at: www.six-group.com

The administrator of the SARON Interest Rate Reference Index and the SARON Compound is SIX Financial Information AG, with its registered office in Zurich, i.e. a third country administrator. However, the administrator located in the European Union, i.e., SIX Financial Information Nordic AB, Stockholm, using the procedure provided for in Article 33 of the BMR, obtained on January 21, 2021 the approval of the aforementioned benchmark. The approval was granted by the Swedish financial supervision authority Finansinspektionen (FI). On this basis, the European Securities and Markets Authority (ESMA) has entered the SARON and SARON Compound interest rate benchmark indices in the register referred to in Article 36 of the BMR Regulation.

Information on the €STR index

€STR (Euro short-term rate) is the benchmark rate of interest for the Euro calculated by the European Central Bank. The €STR reflects the cost of wholesale unsecured overnight borrowings in Euro by banks located in the Eurozone, based on data from the Eurosystem. The €STR is published by the European Central Bank. Detailed information on the index is published on the ECB's website.