

## 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 Regulation”). The BMR Regulation has directly applied in Poland to the full extent since 01/01/2018.

**General overview:** The purpose of the BMR Regulation is to ensure proper functioning of the benchmark market, inter alia, by specifying the methods of benchmarks development and supervision over the entities that develop those benchmarks and make them available to market players. In addition, it strengthens 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 provisions of the BMR Regulation and its implementing acts impose specific legal requirements on the entities developing the benchmarks (administrators) and on the entities providing data to the administrator for the purpose of determining the value of a benchmark. A major element was the introduction by the BMR Regulation of the obligation for each bank using a benchmark to have an action plan in the event of a material change or discontinuation of a benchmark, and to reflect that plan appropriately in contracts with clients.

Interest rate benchmarks play an important role in international financial markets. These rates are commonly used in financial transactions such as loans, deposits, derivatives, bonds and structured products.

In the case of loans, the interest rate payable to the lender may depend on a variable element, i.e., the benchmark rate, 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, EURIBOR, SARON and SOFR, depending on the currency of the product. In the case of a floating interest rate, an increase in the value of a benchmark increases the interest portion of a loan instalment, raising the total cost of the loan.

Since 2014, there has been a global discussion on benchmark reform. The ongoing reforms resulted, among other things, in decisions to reform the rates and to gradually phase out the LIBOR rates and to eliminate the EONIA rates and replace them with new rates, the so-called RFR (Risk-Free Rates) (“RFR Rates”).

The values of benchmark rates are determined independently of the Bank by entities developing such rates according to their own methodology under the supervision of competent supervisory authorities. A given benchmark is published by the entity that develops it (administrator), who is licensed to do so by its regulatory authority. A complete register of benchmark administrators and BMR-approved benchmarks is maintained by the European Securities and Markets Authority:

[https://registers.esma.europa.eu/publication/searchRegister?core=esma\\_registers\\_bench\\_entities](https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_bench_entities);  
[https://registers.esma.europa.eu/publication/searchRegister?core=esma\\_registers\\_bench\\_benchmarks](https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_bench_benchmarks)

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 rate, consisting in a change of the method of developing the benchmark or a change of its definition, including a material change of the rate 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. The IBA develops LIBOR according to a self-defined method, under the supervision of the UK Financial Conduct Authority (FCA).

The details of LIBOR, including a description of the key elements of the LIBOR 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 were published by IBA on its website: [www.theice.com/iba](http://www.theice.com/iba).

The Financial Conduct Authority ("FCA"), the relevant supervisory authority for the IBA, announced, 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 rates to LIBOR recommended that we prepare adequately for the disappearance of LIBOR by gradually moving away from its use in contracts. According to the FCA's positions dated 5 March 2021 and 29 September 2021 the FCA has announced that:

a) the following rates 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. The FCA will require USD LIBOR to continue to be published in synthetic form for 1M, 3M and 6M tenors until 30 September 2024, after which the rate will be permanently discontinued.

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 CHF LIBOR. 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 CHF LIBOR.

During 2022, the FCA also issued a number of communications that in practice modified the dates originally set in 2021

for ending the use of LIBOR. On 29 September 2022, the FCA also announced that GBP 1M LIBOR and GBP 6M LIBOR will only be published in "synthetic" form until the end of March 2023. Then, on 23 November of the same year, it was confirmed that: (ii) GBP LIBOR (1M, 6M) would be published until the end of March 2023; (i) JPY LIBOR (1M, 3M, 6M) would be published until the end of 2022; (iii) USD LIBOR (ON/1Y) would be published until the end of June 2023; (iv) GBP LIBOR (3M) would be published until the end of March 2024.

At the same time, the FCA opened a public consultation on the further future of USD LIBOR, in which it considers: publishing USD LIBOR (1M, 3M, 6M) until the end of September 2024. The public consultation ended on 6 January 2023 and the results are to be known at the end of first quarter of 2023.

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

## • EONIA information

According to the BMR Regulation – EONIA was a key interest rate benchmark for which the European Money Market Institute (“EMMI”) was the administrator. EONIA was developed by EMMI 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 methods, • a benchmark statement; and • procedures for acceptance and examination of complaints related to determination of the benchmark were published by the 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. 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.

<https://www.emmi-benchmarks.eu/euribor-eonia-org/eonia-review.html>

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, which was then calculated and indicated by the European Central Bank at 8.5 base points. As a result, the EMMI has announced the discontinuation of EONIA rate development as of January 3, 2022. 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. 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 interest rate benchmarks disappearing according to the above schedules have been or are being replaced by the RFR Rates or forward benchmark rates, as appropriate, 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 determining new alternative rates 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 equivalence 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. As a rule, the Bank determines the adjustment value based on a methodology similar to that published in the Bloomberg “IBOR Fallback Rate Adjustments Rule Book.”

According to that methodology, the adjustment is calculated as the median of differences for a period of 5 years or less (if the replaced benchmark or alternative rate 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 Rate. For specific currencies, the Bank will apply the following RFR Rates:

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

[https://www.ecb.europa.eu/paym/interest\\_rate\\_benchmarks/WG\\_euro\\_riskfree\\_rates/shared/pdf/20190314/Item\\_4\\_reorganisation\\_of\\_the\\_WG\\_on\\_euro\\_RFR\\_and\\_next\\_steps.pdf](https://www.ecb.europa.eu/paym/interest_rate_benchmarks/WG_euro_riskfree_rates/shared/pdf/20190314/Item_4_reorganisation_of_the_WG_on_euro_RFR_and_next_steps.pdf)

[https://www.ecb.europa.eu/press/pr/date/2019/html/ecb.pr190314\\_1~af10eb740e.en.html](https://www.ecb.europa.eu/press/pr/date/2019/html/ecb.pr190314_1~af10eb740e.en.html)

<https://www.ecb.europa.eu/press/pr/date/2019/html/ecb.pr190531~a3788de8f8.en.html>

[https://www.emmi-benchmarks.eu/assets/files/D0194C-](https://www.emmi-benchmarks.eu/assets/files/D0194C-2019%20EONIA_consultation_feedback_press_release.pdf)

[2019%20EONIA\\_consultation\\_feedback\\_press\\_release.pdf https://eur-lex.europa.eu/legal-content/PL/TXT/PDF/?uri=CELEX:32021R1848&from=EN](https://eur-lex.europa.eu/legal-content/PL/TXT/PDF/?uri=CELEX:32021R1848&from=EN)

<https://data.bloomberglp.com/professional/sites/10/IBOR-Fallback-Rate-Adjustments-Rule-Book.pdf>

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

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

#### • General information on alternative RFR rates

RFRs are calculated under the supervision of national regulatory authorities, generally 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, e.g. WIBOR, LIBOR, EURIBOR:

- The term interest rate 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 3M, 6M, 12M, while RFRs are only O/N (overnight) rates with no element of timeliness;
- The term interest rate 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;

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, Term RFRs, the so-called "compounded rates", are being developed, which allow the use of RFRs to determine the interest rate for longer interest periods ("Term RFR(s)"). Said Term RFRs, such as SARON 3 months Compound Rate, are calculated on the basis of daily values of the underlying RFR – here, SARON. The administrator that calculates such a RFR Term Rate takes into account a certain period of publication of the RFR Rate (e.g. SARON), which corresponds to the interest period (for the "SARON 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 WIBOR 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 2018/6514, to calculate the interest rate.**

#### • Information about WIBID and WIBOR rates

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/](http://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](http://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.

[https://gpwbenchmark.pl/pub/BENCHMARK/files/WIBID\\_WIBOR/Oswiadczenie2021\\_1.pdf](https://gpwbenchmark.pl/pub/BENCHMARK/files/WIBID_WIBOR/Oswiadczenie2021_1.pdf)  
[https://www.knf.gov.pl/knf/pl/komponenty/img/Stanowisko\\_UKNF\\_%20WIBOR\\_66559.pdf](https://www.knf.gov.pl/knf/pl/komponenty/img/Stanowisko_UKNF_%20WIBOR_66559.pdf)

Based on the authorization received, GPWB has been authorized to develop other interest rate benchmarks, 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.” 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 rate,
- the risk of discontinuation of development of a selected WIBOR tenor, e.g., WIBOR 1Y.

Additional information on the current reform of WIBOR and WIBID rates may be found in the News tab.

In Poland, a reform of benchmarks has been underway since mid-2022, including the setup of the so-called National Working Group on Benchmark Reform (“NGR”) made up of representatives of the Office of the Polish Financial Supervision Authority, the National Bank of Poland, the Ministry of Finance, the Bank Guarantee Fund, the Polish Development Fund, the Warsaw Stock Exchange, the National Depository for Securities, Bank Gospodarstwa Krajowego, GPW Benchmark S.A. and representatives of banks, investment funds and insurance companies as well as industry organizations affiliating financial market entities. The aim of the NGR was, first of all, to develop an action plan for efficiently and safely laying out the process of replacing the WIBOR reference rate with the WIRON benchmark, which took the form of a “Road Map.”

The Road Map published by the NGR is the product of analyses and work carried out at the NGR, which sets out the timetable for replacing WIBOR with WIRON. The timetable presented there was developed on the assumption that the process of replacing WIBOR would comply with the provisions of the BRM Regulation, that a liquid market for cash and derivative financial instruments using WIRON would be created, that all financial market participants would be operationally and technically prepared for the replacement of the WIBOR reference rate by WIRON, that the required changes in Polish and European Union legislation would be implemented, and that full awareness of the reform and its consequences would be built among all financial market participants, in particular consumers. The Road Map is not a source of generally applicable law, but only indicates certain turning points in the replacement of WIBOR by WIRON, which financial market participants can expect in the future. The dates indicated in the Road Map are the result of arrangements that all members of the NGR group are aiming at in the process of replacing WIBOR with WIRON. Due to the many interrelated elements and the level of complexity involved in the replacement of WIBOR, it cannot be ruled out that the Road Map may change (including the adjustment dates set therein).

Currently, the Road Map assumes the following turning points in the process of replacing WIBOR with WIRON:

- by the end of 2022, the target RFR-type benchmark was to be selected;

This stage has been completed. To learn more about the NGR recommendation go to:

[https://www.knf.gov.pl/dla\\_rynku/Wskazniki\\_referencyjne/aktualnosci?articleId=79459&p\\_id=18](https://www.knf.gov.pl/dla_rynku/Wskazniki_referencyjne/aktualnosci?articleId=79459&p_id=18) .

- by the end of 2023, WIRON is to be gradually introduced in new contracts and financial instruments, which will build the basis for overhauling the operation of the financial system in Poland. This stage is a continuous process that is currently underway. Preparation of the systems and operational processes at Banks takes time.

- by the end of 2024, the space is planned to be built for phasing out the products and instruments using WIBOR in favor of the products and instruments using WIRON;

This stage is also a continuous process requiring the involvement of all financial market participants and public administration agencies. The process of extracting WIBOR from products and financial instruments boils down to adopting one of the following legal solutions that may be used in the event WIBOR ceases to be published:

- amendment of the Act on Macroprudential Supervision, which authorizes the Minister for financial institutions to appoint the so-called substitute, the relevant adjustment, adaptation changes and the effective dates of the new benchmark;
- amendments to existing contracts which have not included a fallback clause in the event WIBOR ceases to be published;

- a proposal to sign an annex authorizing WIBOR replacement with WIRON;

The selection of an appropriate mechanism to replace WIBOR with WIRON depends on your product at the Bank, the type of documents signed, as well as the related factual circumstances.

- by the end of 2024, it is assumed that WIBOR will cease to be calculated and published;

You can find details of the Road Map at the address below:  
[https://www.knf.gov.pl/knf/pl/komponenty/img/mapa\\_drogowa\\_procesu\\_zastaczenia\\_wskaznikow\\_referencyjnego\\_79\\_725.pdf](https://www.knf.gov.pl/knf/pl/komponenty/img/mapa_drogowa_procesu_zastaczenia_wskaznikow_referencyjnego_79_725.pdf)

WIBOR will be replaced in individual Customer relationships on the basis of a regulation of the Minister for financial institutions, which will most likely indicate WIRON as a replacement for WIBOR, or based on contractual provisions. Discontinuation of the publication of WIBOR or the date of such discontinuation have not yet been officially confirmed. According to the adopted NGR plan, the publication of WIBOR is to cease at the beginning of 2025.

#### • **WIRON information**

WIRON is currently an interest rate benchmark in the meaning of the BMR Regulation. WIRON is developed and published by GPW Benchmark S.A. on the basis of an authorization granted by the Polish Financial Supervision Authority. Detailed information on the value of the benchmark, a description of the key elements of the benchmark development method, the procedure for complaints related to the determination of WIRON and the rules for its publication are available on the website of GPW Benchmark S.A.

WIRON is an interest rate benchmark that is close to the risk free rate (RFR) and is developed on the basis of actual deposit transactions on the wholesale money market concluded with a tenor starting on the transaction day and ending on the next business day (O/N – overnight).

WIRON is intended to be used as an interest rate benchmark within the meaning of the BMR Regulation. According to the assumptions of the Road Map, it will replace WIBOR and will be used in financial contracts, e.g. credit agreements, but also in financial instruments.

#### • **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/](http://www.emmi-benchmarks.eu/euribor-org/).

#### • **Information on the SOFR and CME Term SOFR rates**

Name and address of the SOFR administrator. The SOFR rate 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 rate is published on the Fed's website. The CME Term SOFR is a different rate than the SOFR. On July 29, 2021, the CME Term SOFR was formally approved by the Alternative Reference Rates Committee (ARRC) as an alternative rate to USD LIBOR. The CME Term SOFR is a term 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 rate 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. Citi and Citi Handlowy trademarks are registered trademarks of Citigroup Inc. used under a license. Citigroup Inc. and its subsidiaries are also entitled to the use of certain other trademarks used herein.

#### • Information about the SONIA and SONIA Term rates

A working group at the Bank of England has recommended the SONIA as an alternative rate to GBP LIBOR and as a risk-free rate 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 rate 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](http://www.bankofengland.co.uk) The Refinitiv Term SONIA is a different rate than the SONIA. The Refinitiv 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 Refinitiv 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 rates

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 rates

A working group at the Swiss National Bank recommended the SARON rate as an alternative rate to CHF LIBOR

and as a risk-free rate 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 rate is derived from daily SARON rates. It was proposed by the Swiss National Working Group on Swiss Franc Reference Rates and accepted by the Swiss National Bank as an alternative rate to CHF LIBOR. In addition, the European Commission adopted an implementing regulation under which, as of January 1, 2022, the SARON Compound rate replaced LIBOR CHF in all types of financial contracts concluded within the European Union, unless otherwise agreed by the parties to the contract. The SARON Compound rate 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](http://www.six-group.com)

The administrator of the SARON and the SARON Compound interest rate benchmarks 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 benchmarks in the register referred to in Article 36 of the BMR Regulation.

#### • Information on the €STR rate

€STR (Euro short-term rate) is the interest rate benchmark for the Euro calculated by the European Central Bank (ECB). 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 rate is published on the ECB's website.

#### • 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 (including significant 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 temporarily or permanently;
  - 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;

- benchmarks may cease to be published or developed in their entirety or in relation to a specific tenor (e.g. a benchmark will still exist, but the cessation of its provision will only apply to the 6-month/6M period) or a specific currency (e.g. GBP LIBOR), 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.

**The risk that a benchmark may cease to be developed in its entirety or partially in relation to a specific rate and the relevant alternative benchmark is not designated.**

A benchmark provider acting as part 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. A benchmark may cease to be developed

partially, i.e. in relation to a specific tenor or a specific currency. In such a case, the administrator will announce that as of a specific date, it will stop publishing the reference rate, e.g. for the 6M tenor or for a specific currency

(e.g. Swiss Franc). Such an event took place in relation to LIBOR.

**The risk that the competent authority may withdraw the administrator's authorization for benchmark provision**

The entity developing a given benchmark operates on the basis of an authorization obtained in the course of appropriate administrative proceedings conducted by the supervisory authority, the subject of which is to assess whether the entity meets the conditions referred to in the BMR Regulation. In the cases indicated in Art. 35 of the BMR Regulation, the supervisory authority may withdraw the authorization granted to the administrator, which will result in removal from the relevant register of administrators. Such a situation may take place, for example, in a situation where a given administrator no longer meets the conditions under which it was authorized. In that case, the given benchmark cannot be used in contracts or financial instruments. In the case of benchmarks developed by entities from third countries (e.g. United Kingdom), revocation of administrator's authorization by the European Securities and Markets Authority, as referred to in Art. 31 of the BMR Regulation, will have a similar effect to withdrawal of authorization.

**Benchmarks may cease to be representative of a given market or economic reality they are supposed to measure**

The administrator's internal procedures specify the rules for periodic review of the method of determining a given benchmark. If a review establishes that a benchmark does not reflect the market or the economic reality it is intended to measure, the administrator may decide to change the methodology or to discontinue the benchmark. The consequences of a change in benchmark development methodology or its discontinuation have been discussed above.