

Preparation of the IBOR transition and reform of the benchmarks from the perspective of the NORD/LB

As of April 2021.

IBOR transition with the NORD/LB.

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Background information.

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Background:

For several years, regulators and central banks have been working to reform today's variable benchmark interest rates. The reform projects will take place in a variety of currency areas, including the euro area, the US, the United Kingdom (UK), Switzerland, Canada, Japan, Hong Kong, Singapore and Australia. The aim is to increase the reliability and robustness of the variable reference interest rates. According to the definition of the supervisory bodies, this should be done, if possible, by means of transaction-based reference interest rates.

There are local reference interest rates in the individual currency areas. In addition to the EURIBOR (Euro Interbank Offered Rate), the USD LIBOR (London Interbank Offered Rate) and GBP LIBOR is the best-known reference rate. Each of the reference interest rates mentioned is the basis for a variety of financial instruments, including the calculation of interest payments on derivatives, loans and bonds.

On 5 March 2021, the FCA approved the official IBOR end or the following so-called "Index Cessation Effective Dates" proclaims:

- Immediately after 31 December 2021, the publication of all GBP, EUR, CHF and JPY LIBORs will be discontinued, as well as the publication of USD LIBORs with maturities of 1 week and 2 months.
- the publication of the remaining USD LIBORs will cease immediately after June 30, 2023.

For more information on the FCA's official announcement of the IBOR cessation, please visit the FCA homepage at:

<https://www.fca.org.uk/news/press-releases/announcement>

Since most IBORs will no longer be published from the beginning of 2022, RFR-based markets will need to be established by then. Exception to this is the reformed EURIBOR, which can still be used as a reference interest rate, and some USD LIBORs (Overnight, 1, 3, 6 and 12 months), which will continue until 30 June 2023.

It is of great importance for NORD/LB to safeguard the interests of its customers and to fulfil their responsibilities as a regional bank and position in the financial system. NORD/LB uses significant resources to meet this challenge. With the support of the Executive Board, a project for the conversion of the reference values (IBOR-Transition Project) has been set up. It is particularly important for NORD/LB to remain in dialogue with its customers and to assist them in all aspects of the changeover.

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Overview and background of the current transition.

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Overview and background of the current transition (I/VII):

IBORs are interest rate benchmarks on which global financial instruments and contracts worth more than USD 350 trillion are based. The move from IBORs to alternative risk-free rates (RFRs) affects financial institutions and market participants alike and will require intensive customer service, renegotiation of contracts and reassessment of existing contracts.

What will change?

Around the world, supervisors are promoting initiatives to reduce the financial system's dependence on Interbank Offered Rates (IBORs) and to switch to alternative risk-free reference rates. IBORs are average rates at which some banks can borrow in the interbank market for a certain term, also known as tenor. The periods range from same-day (overnight) to 12 months. For decades, the international financial markets used interbank offered rates: the London Interbank Offered Rate (LIBOR), the Euro Interbank Offered Rate (EURIBOR) and the Tokyo Interbank Offered Rate (TIBOR). For a wide range of financial market transactions – derivatives, loans, deposits, bonds and securitisations with a euro value in the trillions - IBORs play a key role as reference interest rates. The notional value of derivative contracts based on IBORs amounts to hundreds of trillions of euros.

Why does it change?

The lack of short-term money market transactions continues to be a structural problem of the variable reference rates used today. This is the case even though changes have been implemented in the actual determination and the guidelines for the collection of the variable reference interest rates. The small amount of corresponding transactions is due to structural changes in the refinancing strategy of market participants since the global financial crisis in 2008. The background for the change in refinancing strategies is, among other things, the sharp reduction of unsecured borrowing in the interbank area on a short-term basis. However, the current IBOR rates are calculated from precisely these reduced transactions.

Due to the insufficient liquidity in the underlying business segments, the British regulator FCA (Financial Conduct Authority) already announced in July 2017 that the panel banks are no longer obliged to transmit data for determining LIBOR rates from the end of 2021. This statement triggered the transition, also known as the "IBOR transition", and the corresponding activities of supervisory authorities, central banks and interest groups.

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Overview and background of the current transition.

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Overview and background of the current transition (II/VII):

What potential advantages do alternative risk-free interest rates offer?

Alternative risk-free interest rates have several major advantages. They are based on solid markets with high liquidity as well as on actual transactions rather than on "expert judgements". They are considered to be more appropriate reference rates as they do not involve a risk premium such as that included in interbank bid rates.

Who is affected?

The shift to alternative risk-free interest rates will affect individuals, companies and institutions that use a wide range of financial services based on IBORs as a reference rate. Some examples include family businesses that finance their expansion with loans based on IBORs, students who have to repay long-term loans based on an IBOR after graduation, or international companies that want to hedge against interest rate or exchange rate fluctuations with derivatives based on IBORs. Retirement provision products, and thus the pensioners using these products, will also be affected, as the regular amounts paid out will come from investments with an interest rate based on an IBOR.

When shall the transition take place?

The conversion of the EONIA to €STR has already been successfully completed. NORD/LB has already completed the discounting change over clearing and is currently devoting itself to the bilateral changeover and the upcoming business changeover.

The reform of the EURIBOR was completed in November 2019. As a result, EURIBOR can continue to be used as a reference interest rate.

A list of the major currencies (USD, GBP, JPY and CHF) and the corresponding dates regarding the setting of reference interest rates and maturities can be found on the following pages.

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Overview and background of the current transition (III/VII):

Cessation of LIBOR?

The FCA (*Financial Conduct Authority*) as the regulator of the Administrator of the LIBOR Reference Rates, on 05.03.2021 has officially announced that the LIBOR reference rates for the 5 currencies USD, GBP, CHF, JPY and EUR (EUR LIBOR, this does not apply to EURIBOR!) will no longer be published on the basis of today's methodology. As a result, the so-called spread adjustment under the ISDA fallback mechanism was fixed for all LIBOR reference values.

With the exception of USD term bands O/N, 1 month, 3 months, 6 months and 12 months the publication of all LIBOR reference interest rates is discontinued as of 31.12.2021 or are classified as no longer representative. The USD LIBOR reference interest rates not set as of December 31, 2021 will be set as of 30.06.2023. A detailed list of currencies, maturities and corresponding dates regarding the setting can be found on the following pages.

The FCA will consult on the publication of a so-called synthetic LIBOR for the currencies GBP, USD and JPY in maturities 1M, 3M and 6M. It is to be assumed that the use of this synthetic LIBOR in the context of new business is prohibited and severely restricted for existing business (so-called Tough Legacy).



This publication follows the results of a previous consultation with the IBA (ICE Benchmark Administration), the administrator of the LIBOR reference rates.

Further details on the individual reference interest rates can be found on the following pages.

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Overview and background of the current transition.

2 Overview and background of the current transition (IV/VII):




	Reference rate and tenors:	Last date of publication based on panel banks / loss of representativeness:	Reflections on the publication non-representative synthetic LIBOR
 GBP LIBOR	Main tenors: 1 month GBP LIBOR 3 month GBP LIBOR 6 month GBP LIBOR	31 December 2021	As of 01.01.2022. Currently no end date known, max. 10 years, i.e. 31.12.2031.
	Other tenors: Overnight GBP LIBOR 1 week GBP LIBOR 2 month GBP LIBOR 12 month GBP LIBOR	31 December 2021	Not planned according to FCA
 USD LIBOR	Main tenors: 1 month USD LIBOR 3 Month USD LIBOR 6 Month USD LIBOR	30 June 2023	As of 01.07.2023. Currently no end date known, max. 10 years, i.e. 30.06.2033.
	Other tenors: 1 week USD LIBOR 2 Month USD LIBOR	31 December 2021	Not planned according to FCA
	Other tenors: Overnight USD LIBOR 12 Month USD LIBOR	30 June 2023	Not planned according to FCA

Source: FCA on 05.03.2021 - <https://www.fca.org.uk/publication/documents/future-cessation-loss-representativeness-libor-benchmarks.pdf>

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Overview and background of the current transition.

2 Overview and background of the current transition (V/VII):

	Reference rate and tenors:	Last date of publication based on panel banks / loss of representativeness:	Reflections on the publication of a non-representative synthetic LIBOR
	All CHF LIBOR tenors.	31 December 2021	Not planned according to FCA.
	All EUR LIBOR tenors.	31 December 2021	Not planned according to FCA.
	Main tenors: 1 month JPY LIBOR 3 Month JPY LIBOR 6 Month JPY LIBOR	31 December 2021	01.01.2022 – 31.12.2022
	Other tenors: Spot Next JPY LIBOR 1 week JPY LIBOR 2 Month JPY LIBOR 12 Month JPY LIBOR	31 December 2021	Not planned according to FCA.

Source: FCA on 05.03.2021 - <https://www.fca.org.uk/publication/documents/future-cessation-loss-representativeness-libor-benchmarks.pdf>

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Overview and background of the current transition.

2 Overview and background of the current transition (VI/VII):

What are the challenges?

The replacement of today's variable reference interest rates is complex. The currently planned approaches differ considerably between the different jurisdictions and have individual implementation roadmaps and potentially different outcomes.

Based on the current state of the transition, there will be no globally consistent and consistent solution. The transition will affect both new and existing products relating to the variable reference interest rates in different ways. Further developments, in particular with regard to the possible impact on financial instruments, should be observed.

At this stage, the economic impact of replacing today's benchmark interest rates is not yet foreseeable. Regulators and central banks are therefore currently working with industry representatives to identify potential impacts and define measures.

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Overview and background of the current transition.

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Overview and background of the current transition (VII/VII):

NORD/LB will play its due role in the transition

The existing variable reference interest rates are used in a variety of financial products, so that an end to the publication of interest rate fixings can have a significant impact on operating processes and financial effects. It is therefore important that market participants analyze the effects and take appropriate countermeasures. These may include, but are not limited to, the following measures.






- Identification of products that use the variable reference interest rates.
- Identification of the nominal volume concerned, including the maturity profile.
- Review and, if necessary, adjustment of the existing legal product documentation to ensure that suitable robust measures exist to replace the reference interest rate if a reference interest rate ceases to apply.
- Ensuring that the corresponding risks from the discontinuation of the reference interest rates are known and addressed.
- Examination of whether, in the case of new products, already known alternatives to the current variable reference interest rates can be used or whether a sufficiently robust regulation exists on how to proceed in the event of the short-term and long-term discontinuation of the variable reference interest rate.
- Identification of the IT applications affected by the discontinuation of the current variable reference interest rates and definition of measures to implement the necessary adjustments.

NORD/LB has an active role in the implementation of this reform and will be pleased to answer your questions. We recommend that our customers and other market participants actively consider the upcoming changes and evaluate how these changes will affect the respective organization and the affected products. For this purpose, it may also be necessary to seek assistance from third parties. The Bank also recommends that any questions and assessments that may arise be shared with the relevant interest groups at national and international level. This expressly includes participation in relevant public consultations.

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Key aspects of the various IBOR rates and risk-free reference interest rates.

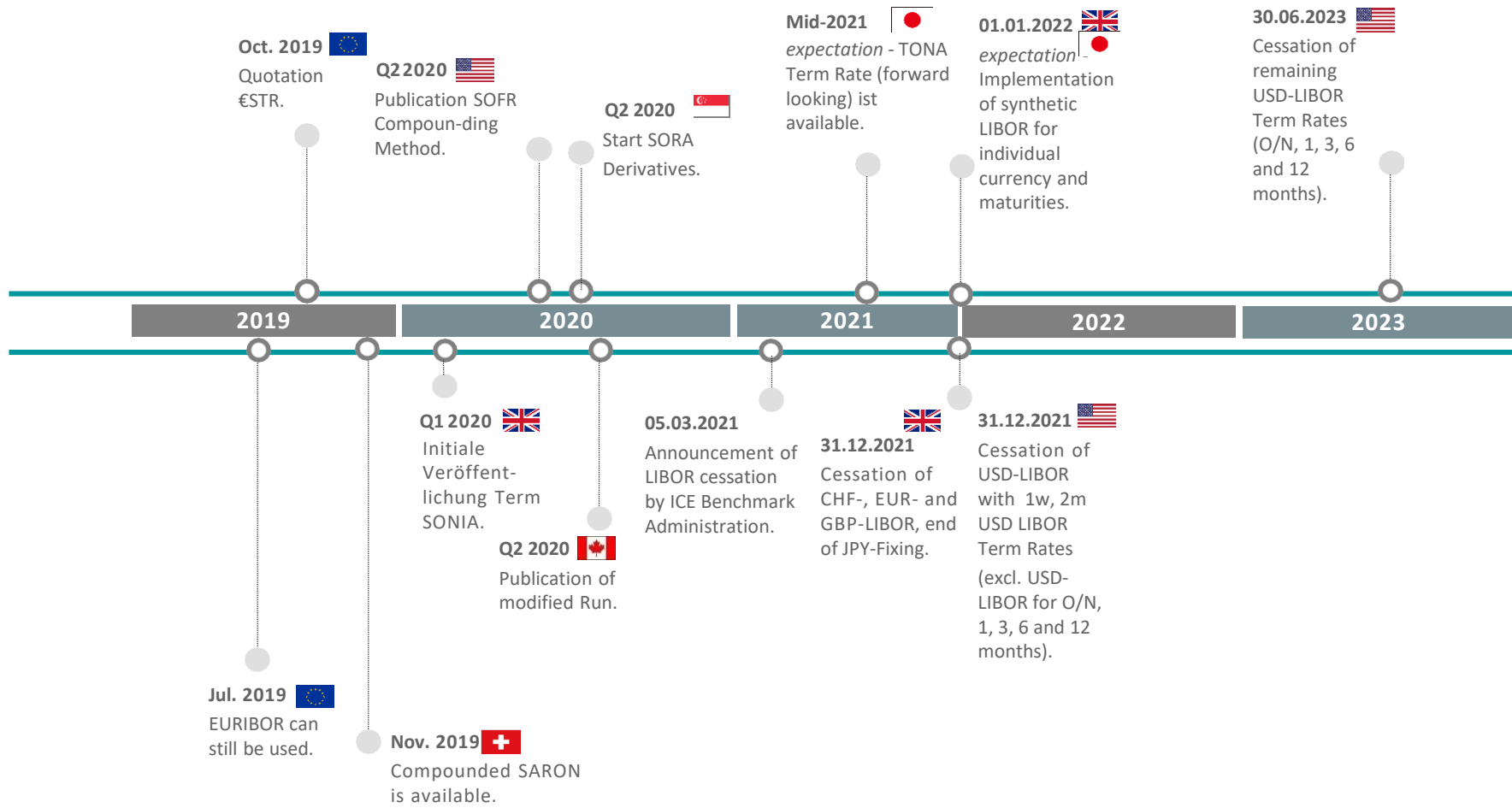
3 Key aspects of the different IBOR rates and risk-free reference interest rates:

Jurisdiction					
IBOR:	EONIA, EURIBOR, Euro LIBOR	USD LIBOR	GBP LIBOR	CHF LIBOR	JPY LIBOR, JPY TIBOR, EUROYENTIBOR
Alternative Reference Rate:	Euro Short-Term Rate (€STR)	Secured Overnight Financing Rate (SOFR)	Reformed Sterling Overnight Index Average (SONIA)	Swiss Average Rate Overnight (SARON)	Tokyo Overnight Average Rate (TONA)
Description:	<ul style="list-style-type: none"> - Includes institutional overnight deposit transactions 	<ul style="list-style-type: none"> - O/N, almost risk-free interest rate that correlates closely with other money market interest rates - Based entirely on real transactions - Covers multiple market segments for repo markets 	<ul style="list-style-type: none"> - O/N, almost risk-free interest rate - Based entirely on real transactions - Covers institutional overnight deposit transactions 	<ul style="list-style-type: none"> - Introduced in 2009 - Interbanks Reference interest rate for O/N repo transactions - Shows the interest paid on Interbank-Overnight Repo 	<ul style="list-style-type: none"> - Transaktionsbasiert - Includes the daily money market
Summary:	<ul style="list-style-type: none"> - EONIA will be replaced by €STR + 8.5 bp spread since 2 Oct 2019, will be released until the beginning of 2022 and will be no longer available thereafter. - Euribor Remains. 	<ul style="list-style-type: none"> - SOFR already available and in use (futures, derivatives & securities) - USD LIBOR is replaced by SOFR 	<ul style="list-style-type: none"> - SONIA already available and in use (futures, derivatives & securities) - GBP LIBOR is replaced by SONIA 	<ul style="list-style-type: none"> - SARON already available and in use (Futures & Derivatives) - CHF LIBOR is replaced by SARON without term structure 	<ul style="list-style-type: none"> - TONA identified as an alternative successor reference - TIBOR as an unsecured daily money rate is calculated according to today's stand also preserved
Secured vs. Unsecured:	Unsecured & Overnight	Secured & Overnight	Unsecured & Overnight	Secured & Overnight	Unsecured & Overnight
Working Group:	Working Group on Euro Risk-Free Rates	The Alternative Reference Rates Committee (ARRC)	Working Group on Sterling Risk-Free Rates	The National Working Group on Swiss Franc Reference Rates (SNB)	Cross-Industry Committee on Japanese Yen Interest Rate Benchmarks
ARR Administrator:	European central bank	Federal Reserve Bank of New York	Bank of England	SIX Swiss stock exchange	Bank of Japan
Available since:	02 October 2019	03. April 2018	23. April 2018	25. August 2009	01. November 1997
Details to Term Rates:	There will be a forward-looking term structure. 4 providers (EMMI, ICE IBA, Refinitiv, FTSE Russell) have presented methodologies; first tests expected in early 2021	Man arbeitet an Indicative Forward Looking SOFR Term Rates, which are not to be published until 2021.	Term SONIA Reference Rate (TSRR) was published in August 2020.	No Forward-Looking Term Rates planned; Using a Backward-Looking Compounded Saron. Runtimes 1W, 2W, 3W, 1M, 2M, 3M, 6M, 9M, 12M are already produced by SIX Group.	Planning is ongoing for a term rate based on TONA and TIBOR. Prototypes are already being released by Quick Corp. Final development is expected by mid-2021.

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Market events and schedule.

4 Market events and schedule:



Abkürzungen: Financial Conduct Authority (FCA), Bank of England (BOE), Benchmark-Verordnung (BMV), Secured Overnight Financing Rate (SOFR), Sterling Overnight Interbank Average (SONIA), International Organization of Securities Commissions (IOSCO), Euro Short-Term Rate (€STR), Euro OverNight Index Average (EONIA).






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How to stay up to date.

5 To stay up to date:

NORD/LB intends to use this site to report regularly and promptly on market developments and industry-related announcements. For general information on the IBOR transition, please refer to the information published by regulatory authorities, working groups and other industry organizations. A selection of the most important websites can be found on the table.

Further information on specific NORD/LB products and services, including those that may affect you, will be provided in due course by your contact or relationship manager.

 Europe	ECB
 United States	FRBNY/ARRC
 United Kingdom	BOE FCA
 Switzerland	SNB
 worldwide	ISDA Was LMA LSTA

Abkürzungen: Financial Conduct Authority (FCA), Bank of England (BOE), European Central Bank (ECB), Alternative Reference Rates Committee (ARRC), Federal Reserve Bank of New York (FRBNY), Schweizerische Nationalbank (SNB), International Swaps and Derivatives Association (ISDA), ICE Benchmark Administration (IBA), Loan Market Association (LMA), Loan Syndications and Trading Association (LSTA).

IBOR-transition with the NORD/LB.

Frequently asked questions.

6

Frequently Asked Questions (I/II):

What is LIBOR and what does it's future look like?

LIBOR stands for London Inter-bank Offered Rate, an average interest rate calculated on the basis of reported estimates by selected banks in London. LIBOR rates are calculated for five currencies and seven different maturities (from overnight to twelve months), are managed by the ICE Benchmark Administration (IBA) and are subject to control by the UK Financial Conduct Authority (FCA).

Andrew Bailey, CEO of the FCA, pointed out in a speech in 2017 the risks of a permanent loss of LIBOR and stated that the FCA will no longer require panel banks to report LIBOR after 2021.

Regulators, working groups and committees around the world have looked at the selection of alternative reference interest rates based on transaction data rather than reporting. Regulators, banks, industry organisations and trade associations are working together to replace interbank reference rates with risk-free alternatives. You can find out when and in which of the five main currency the LIBOR will be eliminated, see pages 7 and 8 of this document.

What is EURIBOR and what does it's future look like?

The Euro Interbank Offered Rate (EURIBOR) is a reference rate calculated daily on the basis of reports from a panel of selected banks. It is administered by the European Money Markets Institute (EMMI) and is based on the average interest rates at which banks in the euro zone provide each other with unsecured loans on the interbank market.

The EMMI successfully reformed the EURIBOR in 2019. The new hybrid methodology is based on a hierarchical approach comprising three levels. The first level is based on transactions executed on the previous TARGET day. The second level is based on transactions from a wider range of money market maturities using formulas provided by EMMI. The third tier is based on transactions from a range of markets and/or other data closely related to the unsecured euro money market, using a combination of modelling techniques and/or the judgement of the panel bank. Levels two and three shall only be applied hierarchically in a stepwise manner if there are insufficient transactions for the previous level(s).

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Frequently asked questions.

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Frequently asked questions (II/II):

What is EONIA and what does it's future look like?

The current risk-free reference rate for the euro area is the EONIA, which is the daily weighted average of overnight unsecured lending rates in the euro area interbank market. The EONIA was linked to the newly introduced €STR (Euro Short-Term Rate) with a fixed spread (8.5 BP). The EONIA may be used until the end of 2021, so that by then all EONIA denominated contracts must be converted to the €STR.

In 2018, the Euro Working Group introduced the Euro Short-Term Rate (€STR) as a risk-free alternative and replacement for the EONIA. This rate is managed by the ECB and was first published in October 2019.

What does ISDA Benchmarks Supplement covers?

The ISDA Benchmarks Supplement enables parties to adapt their ISDA master agreements and, in the case of transactions based on reference values (OTC derivatives), to include certain trigger events and general fallback clauses in the agreement. The Supplement has been drafted against the background of the EU Reference Values Regulation (Article 28(2)), which requires robust fallback provisions to be included in all contracts with reference values as the reference basis.

What is NORD/LB approach to the ISDA Benchmark Supplement's?

NORD/LB has adopted the ISDA Benchmark Supplements Protocol, with a preference for its application to existing and new transactions.

What is the case for transactions not carried out under an ISDA master agreement?

Non-ISDA-compliant agreements and contracts also need to be complemented by more robust fallback arrangements, similar to the ISDA framework contracts, although a more individualised approach can be adopted.

In due course, NORD/LB will approach its customers to initiate the procedure for adapting the agreements and contracts. Customers who wish to discuss their contracts can also contact us by e-mail at IBORtransition@nordlb.de.

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