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Corporate Bank

A Guide to IBOR Transition

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SPECIAL

A Guide to IBOR Transition

In January 2020, the Bank of England issued a release describing the year ahead as "critical" for LIBOR transition and urging firms to accelerate efforts in ensuring they were prepared for LIBOR cessation by the end of 2021. Subsequent disruption caused by the Covid-19 pandemic has not altered this approaching deadline; after four decades as a widely-used interest rate benchmark for financial products ranging from bonds and loans to derivatives and mortgage-backed securities, the end of LIBOR is now only months away.

Its demise reflects a move away from interbank offered rates (IBORs), which have been the tools used daily by the global financial services industry for transactions and a new era in which they are superseded by a variety of specially developed risk-free rates (RFRs). This Guide to IBOR Transition details the process to date – and why it is necessary – the IBORs that have been a mainstay of the market for many years and the new breed of RFRs. The transition journey still has some distance to complete during 2021 and a second edition of this Guide may well be needed by the end of the year. In the meantime, we hope that readers find this inaugural publication useful and our team of experts is at hand to help you move from IBOR to RFR.

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Published January 2021

Contents

Foreword

By the end of 2021, the London Interbank Offered Rate (LIBOR), which has been the world's most widely used benchmark interest rate, is due to have been phased out completely as markets complete their transition to LIBOR alternatives.

LIBOR publication goes back some 35 years and came into being in response to the financial industry's wish to add bona fide trading terms to very actively traded markets. Its reach quickly extended worldwide as it became established as a globally-used instrument for around US$400trn of financial instruments including mortgages, commercial loans, bonds and derivatives, with a reference panel of up to 16 contributor banks submitting daily interest rates for Sterling (GBP) LIBOR and four other currencies: the US dollar (USD); the Japanese yen (JPY); the euro (EUR); and the Swiss franc (CHF).

Calculated daily, LIBOR was the benchmark intended to reflect the reference rate paid by banks to lend and borrow money between themselves, based on the daily rates submitted by the panel of contributing banks. It also provided the basis for determining the rates applied to a variety of other loans. LIBOR became the touchstone for financial instruments.

LIBOR is based on banks' submissions of their interbank borrowing rates. However, since the 2008-09 financial crisis, banks have needed to fund themselves in alternative ways. The absence of a sufficient number of underlying reference transactions means LIBOR is sustained by the use of 'expert judgement'.

The decline in liquidity in interbank unsecured funding markets since the 2008 financial crisis had the potential to undermine confidence in the reliability and robustness of existing interbank benchmark interest rates. Aside from the historical cases of attempted market manipulation, the uncertainty surrounding the integrity of these reference rates prompted a major review by the Financial Stability Board in 2014.

Fast forward to 16 January 2020, when the Bank of England's Working Group on Sterling Risk Free Reference Rates (RFRWG), supported by the UK Financial Conduct Authority (FCA) and Bank of England (BofE) released a set of deadlines for phasing out the GBP London interbank offered rate before its expected formal end on 31 December 2021.[1] The RFRWGs for USD, JPY, EUR & CHF LIBORs subsequently published similar targets focussed on their discontinued use.

2021 is the last year panel banks have been compelled to participate in providing their submissions to LIBOR.[2]

Overnight alternative Risk Free Rates (RFRs) have been identified as replacements for each LIBOR currency. This *Guide to IBOR Transition* sets out the transition journey from IBORs to RFRs and explains the impact on market participants.

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Conclusion

The message for anyone impacted by the discontinuation of LIBOR is to be prepared:

1. The path to transition away from LIBOR is complex.

2. Understand the differences between LIBOR and alternative reference rates, and the fallback provisions in documentation that specify the trigger events for a transition to a replacement rate.

3. LIBOR discontinuation is a certainty, and adopting a wait and see strategy is not advisable.

4. Read the consultations and the recommendations of the Industry Working Group publications.[3]

5. Produce an inventory of the systems you use that may be affected when LIBOR is no longer published. Consider the changes you need to make to enable alternative rates in your infrastructure.

6. Actively reduce reliance on LIBOR and consider using RFRs in new transactions.

7. In legacy transactions, identify those products and contracts that reference LIBOR; quantify the amount of LIBOR-linked exposure especially that which matures beyond the end of 2021.

8. Create a roadmap for transition. Consider the merits of active transition as a potential pathway.

1

Background to inter-bank lending market

1.1 IBORs and LIBOR

LIBOR's expected retirement has repercussions that reach significantly beyond the interbank market impacting a vast array of products, businesses, systems, processes, and market participants.

LIBORs are the basis of around US$400trn of loans and derivatives, from variable rate loans to interest rate swaps and are referenced in both financial and commercial contracts globally. This has implications for contracting parties to assess whether adequate provisions are in place to address the temporary (or permanent) unavailability of LIBOR and also the cost of borrowing, hedge effectiveness of derivatives and the wider accounting implications of changes to the reference rate.

Other widely-used IBORs continue to be the Euro Interbank Offered Rate (EURIBOR), a daily reference rate derived from quote submissions from a panel of 18 banks and used by a large panel of European banks to borrow money from one another[3], and the Tokyo Inter-bank Offered Rate (TIBOR), used in the Japanese inter-bank market and published daily by the Japanese Bankers Association (JBA)[4].

EURIBOR is administered by the European Money Markets Institute (EMMI) and based on the averaged interest rates at which Eurozone banks offer to lend unsecured funds to other banks in the interbank market. It has recently been reformed in order to comply with the EU Benchmarks Regulation (EU BMR) authorisation deadline of the end of 2021 (extended two years from 1 January 2020 originally, as it is classed as a critical benchmark). Over the past few years EMMI developed a plan to reform the existing benchmark in order to anchor it to transactions instead of quoted prices.

Regulators are supportive of the reformed EURIBOR and some are hopeful that it can continue to be used for years to come although the working group on euro risk-free rates launched a public consultation on fallback to EURIBOR in November 2020.

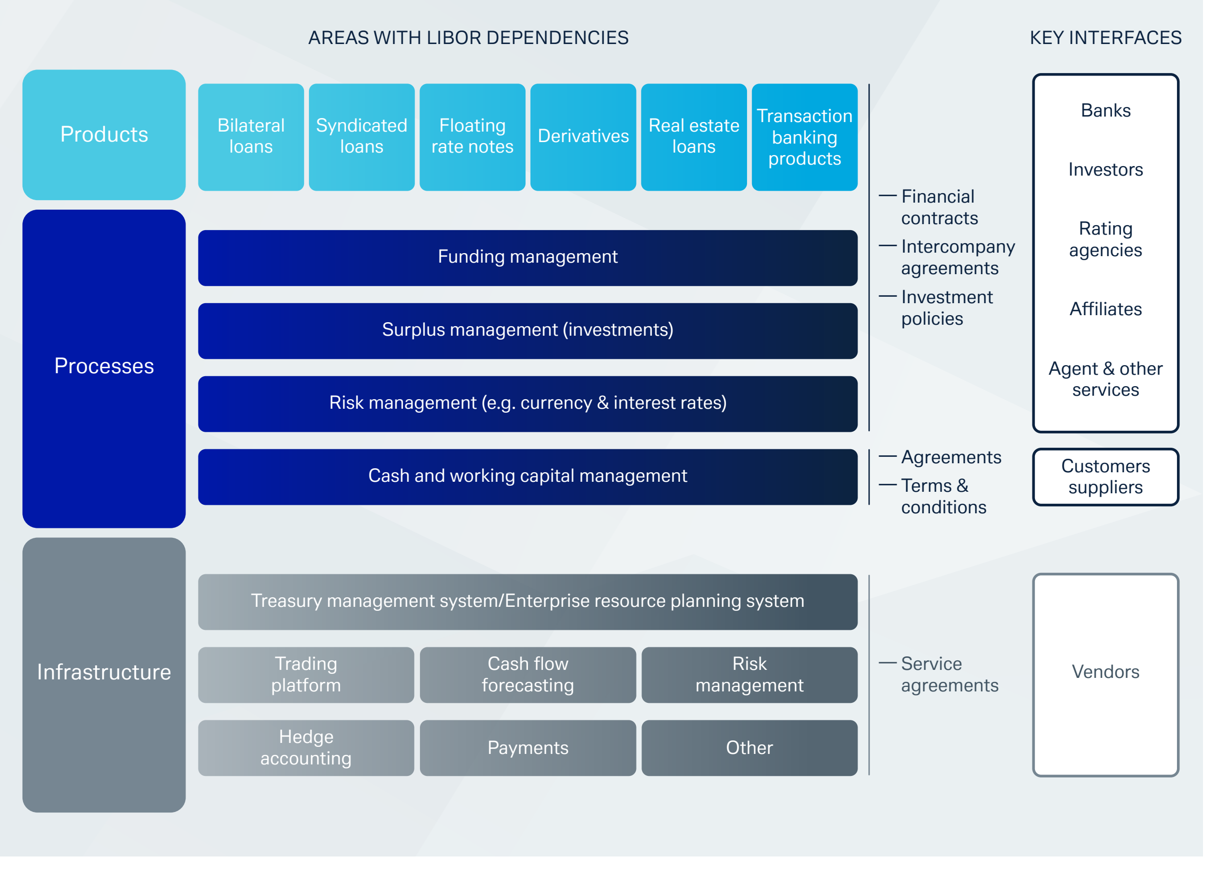
See also Figure 7 on page 15 for a run-down of the incumbent IBORs and their replacement RFRs.

1.2 Impact of IBORs on Corporates

This is summarised below in Figure 1. At the time of going to press, corporate treasurers and their partners will have less than a year to review, revise and potentially renegotiate hundreds, maybe thousands, of commercial and financial contracts that mature after 2021. They also need to model the potential impact on accounting, hedging and corporate earnings.

While some have already embarked on a transition programme, others will need to step up the pace and prioritise. In many cases, treasurers may need to upgrade or modify systems to support multiple benchmark rates, and model different benchmark rates in parallel, which adds further pressure on timelines.

Figure 1: Corporate Banking Impacts



Source: Deutsche Bank

1.3 Fallbacks

1.3.1 What is fallback language?

— This refers to the legal provisions in a contract that apply when an external event or 'trigger' occurs, leading to a temporary – or in the expected case of LIBOR, permanent – cessation of the reference rate.

— Fallback language defines the steps that should be taken to agree a new reference rate, if for some reason the rate in the transaction is no longer available.

In the context of benchmark reform, fallbacks could be triggered when LIBOR is no longer published, or when the FCA announces that LIBOR is no longer representative of the underlying market.

1.3.2 What will happen to fallback arrangements?

Historically, fallbacks in financial contracts have been designed to deal with the temporary unavailability of a benchmark, but not the permanent cessation of a benchmark. The EU BMR requires EU supervised entities to have robust fallback plans which are reflected in all of their in-scope contracts. Historical fallbacks may not meet this definition, and therefore may need to be amended to be effective for when LIBOR permanently disappears, and fair in order to balance the economic expectations of the original contracting parties.

Setting aside older legacy contracts, even more recent efforts to improve fallback language in some contracts are unlikely to meet the recent recommendations of industry working groups. The Financial Stability Board's (FSB) Official Sector Steering Group (OSSG) has recommended that market participants:

— Understand their contractual fallback arrangements;

— Ensure that those arrangements are robust enough to prevent potentially serious market disruptions in a LIBOR cessation event;

— New contracts should include robust fallbacks and legacy contracts (especially those maturing after 2021) and should be amended where possible. From October 2020 contractual arrangements in new LIBOR loans should facilitate conversion to RFR.

For clients who have exposure to LIBOR through derivatives, the International Swaps and Derivatives Association's (ISDA) IBOR Fallback Protocol is critical to ensuring that existing derivatives contracts feature durable fallbacks, given that LIBOR cannot be relied on to be published after the end of 2021.[5] Firms that choose to adhere to the Protocol will agree that existing derivatives transactions they have entered into with other adherents will incorporate ISDA's new IBOR fallback language as a supplement to the 2006 ISDA definitions. The protocol was published in October 2020 with the supplemental fallback language becoming effective for existing contracts (for adhering parties) and new contracts (for all parties regardless of adherence) as of 25 January 2021.[6] To comply with the EU BMR for non-IBOR benchmarks, firms are also adopting the ISDA Benchmark Supplement to improve fallback robustness.

Some contracts will have fallback provisions to transition to a different reference rate if the benchmark rate stipulated in the contract is no longer viable. This is the most benign – but not the most common – situation. To take debt contracts as an example, fallback provisions are not consistent across jurisdictions or financial institutions. Treasurers and internal business partners also need to analyse fallback provisions and ensure that these are reflected in financial and commercial systems so that interest, penalty and other payments are correct.

In other cases, the contract clause which refers to the reference rate may lack certainty, while the rest of the contract remains in force. A party may then argue their LIBOR-referenced contract is frustrated if no alternative benchmark can replace LIBOR to allow the contract to be performed. This affects not just financial contracts, but also supplier, contractor and customer contracts that have late payment penalty clauses that reference LIBOR. Similarly, discount rates on leases and impairment testing of non-financial assets, such as goodwill also frequently reference LIBOR.

1.4 IBORs under the spotlight

IBORs have been under the spotlight since the LIBOR rigging scandal, leading to the Wheatley review in 2012 (see section 2.1 below),[7] that recommended comprehensive reform of LIBOR. As the FSB explained in 2013, "The post-crisis decline in liquidity in interbank unsecured funding markets, undermined confidence in the reliability and robustness of existing interbank benchmark interest rates. Uncertainty surrounding the integrity of these reference rates represents a potentially serious source of vulnerability and systemic risk."[8]

Andrew Bailey, former FCA Chief Executive and current Governor of the Bank of England, stated in July 2017 that the FCA would no longer encourage or compel banks to make LIBOR submissions after 2021.

This statement was in partial recognition that the unsecured, inter-bank lending market no longer exists as it used to, having been irrevocably changed during and after the 2008-09 financial crisis; the volume of LIBOR-based term funding as a source of funds for banking operations has precipitously declined. Today, the volume of completed transactions, especially in certain underlying tenors and currencies (CCYs), is no longer sufficient to support LIBOR's continued use.

> The increase in the most widely used LIBOR rates in March put upward pressure on the financing cost of those paying LIBOR-based rates
>
> *Financial Stability Board*

1.5 Towards Risk-Free Rates

1.5.1 Transitioning away from LIBOR

When evaluating interest rate derivative markets, a significant chunk of trading activity is in market participants attempting to hedge general level to central bank policy rates (so Risk-Free Rates or RFRs), which in turn leads to an improved transmission of monetary policy into financial markets. For borrowers, this means lower volatility and lower rates in times of crisis.

As most are aware, LIBOR is a combination of both risk free rate and inter-bank credit risk; it embeds an expectation of what central policy rates will be and an element of credit risk reflecting that bank term unsecured rate.

For a non-financial corporate, there is little logic in seeing its interest payments go up when the financial system is under stress. Yet that is what happens with LIBOR; the credit spread element widens in periods of stress. A prime example was provided at the onset of the Covid-19 pandemic in March 2020, where despite the world's central banks action to cut benchmark interest rates, there was a dislocation of corresponding LIBORs (see figures 2 to 6).

Market participants who had already transitioned away from LIBOR– for example to the Sterling Overnight Index Average (SONIA), the Bank of England's chosen GBP RFR – will already have realised the benefit of doing so in recent months.

RFRs followed the rate cuts, LIBOR did not. "Where is LIBOR? Shooting upward," wrote a disgruntled Jeffrey Snider[9], Head of Global Research at Alhambra Partners on 27 March 2020. "As of yesterday, 3-month LIBOR was 1.35% compared to effective Fed funds of 0.10% and GC repo (UST) at 0.09%. SOFR was practically zero."

"The increase in the most widely used LIBOR rates in March put upward pressure on the financing cost of those paying LIBOR-based rates," commented the FSB. "For those borrowers, this offset in large part the reductions in interest rates in those jurisdictions where central banks have lowered policy rates."

Term credit premium jumped up at possibly one of the worst times ever, reinforcing the case for moving away from LIBOR. In future, RFRs should provide all market participants with an interest rate that exhibits behaviours that are easier to understand.

1.5.2 RFRs compared with LIBOR Q1 and Q2 2020

The below Figures 2-6 compare overnight risk free rates (RFRs), with three month (3m) LIBORs and RFRs in Q1 and Q2 2020.

Figure 2: USD/SOFR vs LIBOR Q1 and Q2 2020

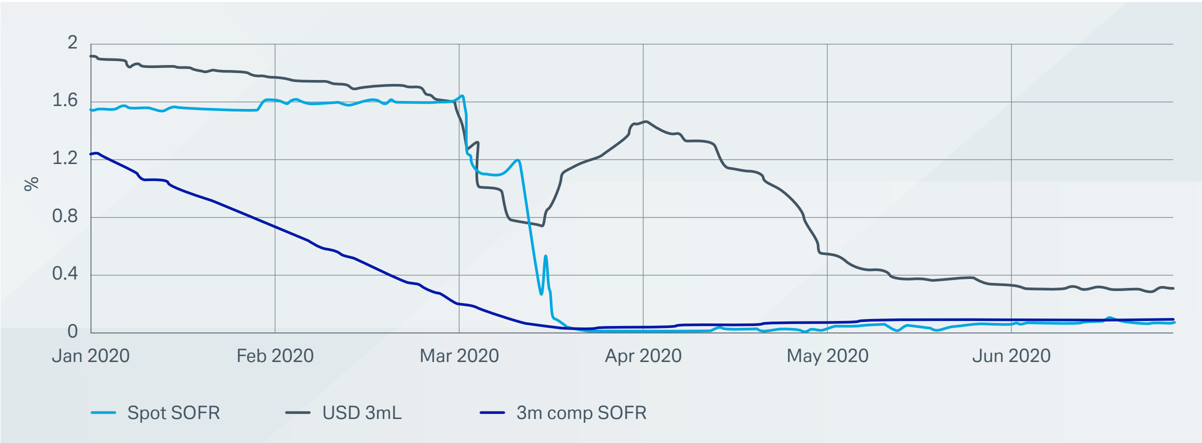


Figure 3: GBP/SONIA vs LIBOR Q1 and Q2 2020

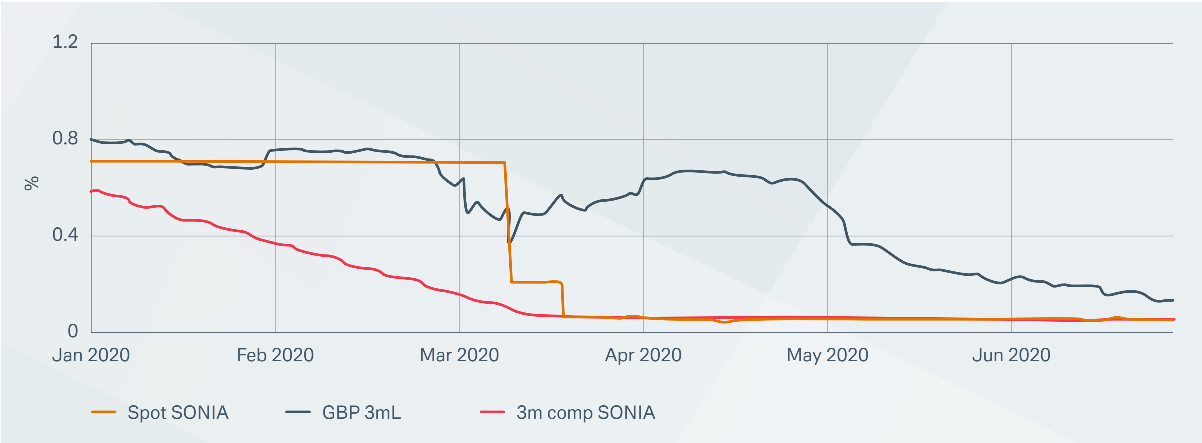


Figure 4: EUR/ESTR vs LIBOR Q1 and Q2 2020

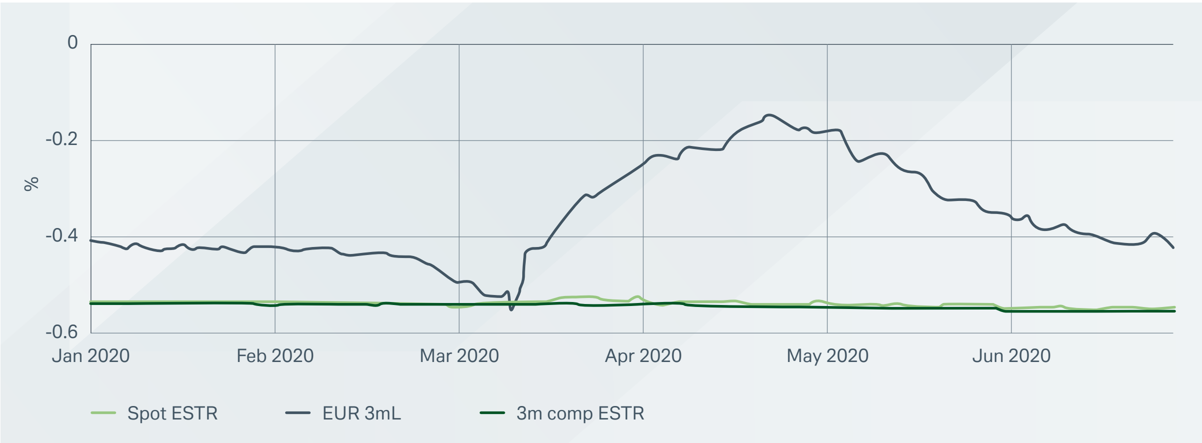


Figure 5: CHF/SARON vs LIBOR Q1 and Q2 2020

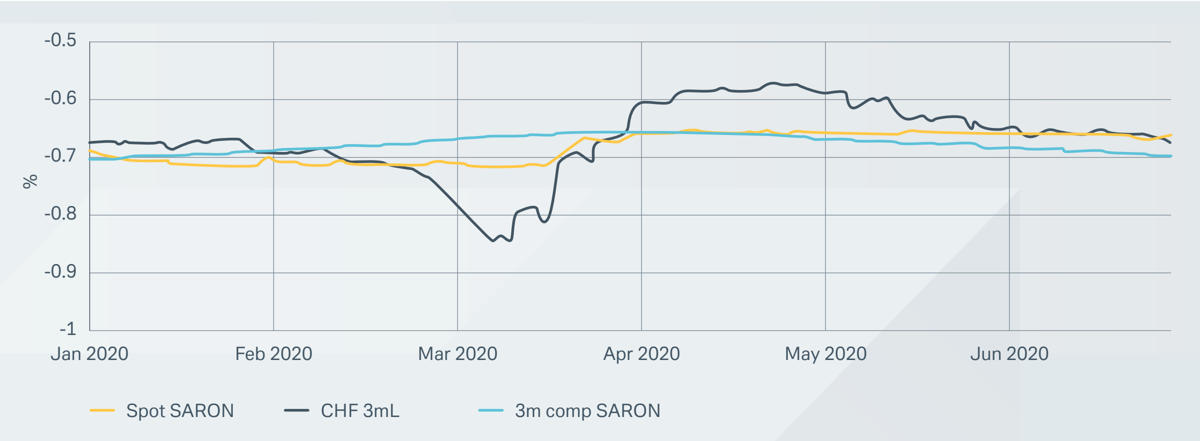
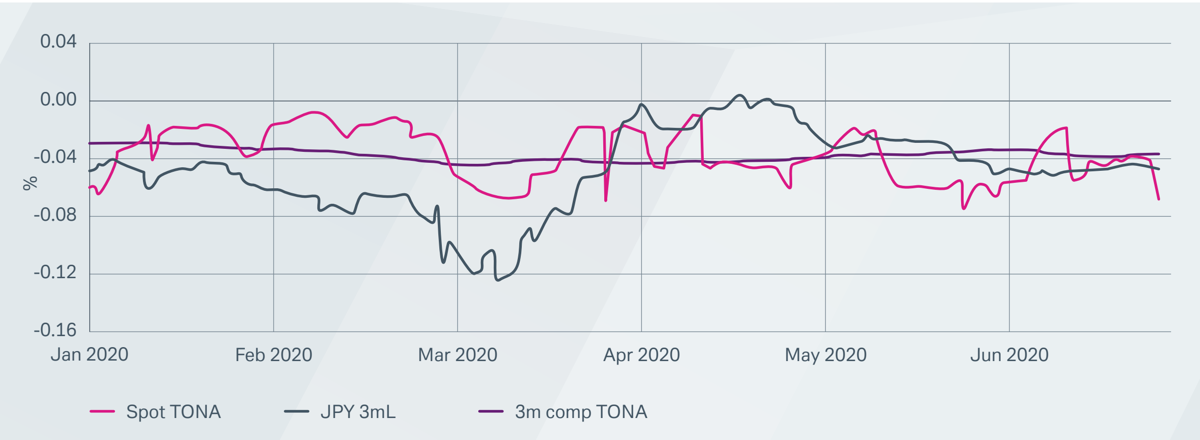


Figure 6: JPY/TONA vs LIBOR Q1 and Q2 2020



Source for figures 2 to 6: Deutsche Bank

1.5.3 Beyond the interbank market

As Deutsche Bank's *flow* magazine[10] reported in its H2 2019 issue *(Leaving LIBOR)*, as the world's most widely used benchmark interest rate, the retirement of LIBOR has repercussions extending beyond the interbank market; as the basis of around US$400trn of loans and derivatives – 10 times the size of US GDP – from variable rate loans to interest rate swaps and referenced since the 1980s in both financial and global markets globally.

Global regulators are now playing an active role in communicating the urgency for a faster transition away from IBORs. In meetings and speeches around the world, regulators have pressed institutions to limit new business referencing LIBOR and to develop plans to mitigate and to reduce dependencies on LIBOR commensurate with a firm's exposures and risks.

2

IBOR reform

2.1 The path of reform

In June 2012 the LIBOR manipulation scandal broke and a number of banks were accused of adjusting their LIBOR submissions for their own and their traders' gains, rather than confirming the rates at which they were making loans. Regulators stepped in, bringing a round of fines and starting a process of reform.

The process was kick started when Martin Wheatley, the incumbent Managing Director of the UK Financial Services Authority (FSA) published *The Wheatley Review of LIBOR – the Final Report* in September 2012.[11]

Wheatley called for banks submitting rates to LIBOR to base them on actual inter-bank deposit market transactions and to keep records of those transactions; for individual banks' LIBOR submissions to be published after three months; and for any manipulation of benchmark interest rates to be subject to criminal sanctions. A number of reforms were subsequently implemented during 2013 and administration of LIBOR was handed over by the BBA to the Intercontinental Exchange Benchmark Administration (IBA) on 1 February 2014[12].

Anthony Browne, BBA Chief Executive said, "Restoring confidence in LIBOR as a reliable benchmark is an absolute priority for the BBA and we have been working hard with regulatory authorities and the Government to put in place the necessary reforms ahead of it transferring to a new owner." He added, "We are enacting the reforms as set out by Martin Wheatley in his review of LIBOR and this is another important milestone in that process."[13]

"Since the financial crisis, LIBOR really has become the rate at which banks don't lend to each other," commented the Bank of England's former Governor, Mark Carney, in May 2018[14], underlining that by then the future of LIBOR and other IBORs had been under a cloud for some years. Carney's comment on LIBOR's limitations echoed those made nearly a decade earlier by his predecessor as BoE Governor Mervyn King. As the global financial crisis unfolded in 2008 he told the UK Parliament in November[15] that since its onset "hardly anybody is willing to lend to any bank around the world for three months unsecured; they want to lend secured". As a consequence LIBOR had become "in many ways the rate at which banks do not lend to each other...it is not a rate at which anyone is actually borrowing."

2.2 Pillars of benchmark reform

In February 2013, the G20 asked the FSB to review the major interest rate benchmarks – LIBOR, EURIBOR and the Tokyo Inter-bank Offered Rate (TIBOR); collectively the IBORS – and issue recommendations for reform[16]. When these were published in 2014, they were based on two pillars:

— Reforming LIBOR (and equivalents) to ensure they were as reflective of underlying market conditions and anchored in transactions as far as possible; and

— Developing alternative near risk-free-rates (RFRs) for use where neither term nor bank credit properties were required. An alternative RFR – an overnight rate with no term structure – was recommended for each LIBOR currency.

2.3 Taking leave of LIBOR

With the countdown underway, there have been regular reminders of LIBOR's impending demise. "The discontinuation of LIBOR should not be considered a remote probability 'black swan' event," said Bailey in July 2018[17], one year after he first announced that the FCA would no longer encourage or compel banks to make LIBOR submissions after 2021.

"Firms should treat it is as something that will happen and which they must be prepared for. Ensuring that the transition from LIBOR to alternative interest rate benchmarks is orderly will contribute to financial stability. Misplaced confidence in LIBOR's survival will do the opposite."

Bailey went on to outline four basic reasons why LIBOR had "become a problem" and would be discontinued:

— Financial markets had changed and LIBOR had been unable to keep up with the change. With the international interbank market dwindling substantially, bank funding had switched away from it;

— The Eurocurrency markets no longer existed as a distinct entity from domestic financial markets, the latter being marked by risk-free rates. LIBOR – although not a RFR – had come to be used to price much of the interest rate derivatives market, even as the market expanded far beyond hedges for the Euromarkets to make a risk-free rate more appropriate;

— Banks had largely given up lending to one another on an unsecured basis and the market was not coming back, meaning LIBOR was no longer relevant in "the now regulated world of benchmarks"; and

— Although cases of rigging had been exposed and miscreants punished, the system for quoting rates and thus constructing LIBOR remained fragile, and more vulnerable to misconduct.

Bailey added that working groups in the UK, the US and Japan had chosen alternative RFRs for GBP, USD and JPY, which together with EUR and CHF constituted the five currencies in which LIBOR was calculated. SONIA had been chosen for GBP, SOFR for USD and the Tokyo Overnight Average Rate (TONAR) for JPY.

Switzerland's National Working Group recommended Swiss Average Rate Overnight (SARON) as the alternative rate to CHF LIBOR; the first SARON transactions took place in April 2017, while the following autumn saw clearing house groups LCH and Eurex start to offer clearing of SARON-referencing swaps.

Figure 7 outlines the main features of each IBOR and its replacement RFR.

Figure 7: Key attributes of IBORs and RFRs

<table>
<tr><th></th><th colspan="2">Current benchmarks</th><th colspan="7">Alternative Risk-Free Rates</th></tr>
<tr><th>Juridiction</th><th>Benchmark IR</th><th>Administrator</th><th>Alternative RFR</th><th>Alternative RFR administrator</th><th>Transaction based?</th><th>Overnight rate?</th><th>Secured/ unsecured</th><th>Underlying transactions</th><th>Rates published</th></tr>
<tr><td rowspan="3">Japan</td><td>JBA TIBOR</td><td rowspan="2">JBA TIBOR Adminstration</td><td rowspan="2">Reformed TIBOR</td><td rowspan="2">JBA TIBOR Administration</td><td rowspan="2">Partly</td><td rowspan="2">No</td><td rowspan="3">Unsecured</td><td rowspan="3">Money markets</td><td rowspan="2">24 July 2017 (reform)</td></tr>
<tr><td>EUROYEN TIBOR</td></tr>
<tr><td>JPY LIBOR</td><td>ICE Benchmark Adminstration (IBA)</td><td>TONA</td><td>Bank of Japan</td><td>Yes</td><td>Yes</td><td>July 1985</td></tr>
<tr><td rowspan="3">EU</td><td>EONIA</td><td rowspan="2">European Money Markets Institute (EMMI)</td><td>€STR (Euro Short-Term Rate)</td><td rowspan="3">European Central Bank (ECB)</td><td>Yes</td><td rowspan="3">Yes (€STR)</td><td rowspan="3">Unsecured</td><td rowspan="3">Money markets</td><td rowspan="3">02 October 2019 (€STR)</td></tr>
<tr><td>EURIBOR</td><td rowspan="2">Reformed Euribor</td><td rowspan="2">Partly</td></tr>
<tr><td>EUR LIBOR</td><td>ICE Benchmark Adminstration (IBA)</td></tr>
<tr><td>UK</td><td>GBP LIBOR</td><td>ICE Benchmark Adminstration (IBA)</td><td>SONIA (reformed Sterling Overnight Index Average)</td><td>ICE Benchmark Adminstration (IBA)</td><td>Yes</td><td>Yes</td><td>Unsecured</td><td>Money markets</td><td>23 April 2018</td></tr>
<tr><td>US</td><td>USD LIBOR</td><td>ICE Benchmark Adminstration (IBA)</td><td>SOFR (Secured Overnight Financing Rate)</td><td>Federal Reserve Bank of New York (FRBNY)</td><td>Yes</td><td>Yes</td><td>Secured</td><td>Repo transactions</td><td>3 April 2018</td></tr>
<tr><td>Switzerland</td><td>CHF LIBOR</td><td>ICE Benchmark Adminstration (IBA)</td><td>SARON (Swiss Average Rate Overnight)</td><td>Swiss National Bank (SNB) and SIX Swiss Exchange</td><td>Yes</td><td>Yes</td><td>Secured</td><td>Repo transactions</td><td>25 August 2009</td></tr>
</table>

*Transition from IBOR to RFR could bring additional benchmark rates in scope which are indirectly linked to IBOR or use IBOR in the methodology. For example, MIFOR, SOR, etc

Source: gfma https://www.gfma.org/wp-content/uploads/2019/05/gfma_ibors_to_rfrs_v9-1.pdf

2.4 Euro: EONIA and €STR

In Europe, the European Central Bank (ECB) and other European authorities had driven reform of both EURIBOR and the Euro OverNight Index Average, otherwise known as EONIA, the one-day interbank interest rate for the eurozone and one of the most used rates in its interbank market. In early 2018 these institutions set up a working group to develop recommendable alternative rates to EURIBOR and EONIA. The new benchmark devised is the Euro short-term rate (€str), calculated as the weighted average of daily individual transactions in the European monetary market, administered by the ECB and based on reports to it by 50 credit institutions. The €str was published for the first time on 2 October 2019, although relatively few derivatives referenced it over the initial 12 months following its launch.

However, EURIBOR has been amended to be based on an underlying set of transactions, so will continue to exist beyond the discontinuation date for LIBOR although it is unlikely to endure indefinitely, especially given the recent launch of a public consultation on future fallbacks to EURIBOR. Regulators are supportive of the reformed EURIBOR which will continue beyond the end of 2021.

While EURIBOR has no announced end date, the publishing of EONIA has an end date of 3 January 2022[18]. Since October 2019 when its replacement, €str, began publishing EONIA has been calculated daily as €str plus a fixed spread of 8.5 basis points (bps). EONIA will continue as a fixed spread to €str until it ceases publication in January 2022.

Some RFRs are secured and some are unsecured, whereas all LIBOR rates are unsecured. Secured RFRs are based on underlying financial transactions where the securities are collateralised by an asset. Unsecured transactions are not secured by an asset and thus generally represent a higher risk.

Choices between selecting unsecured and secured overnight RFRs have been made largely on the basis of the liquidity and structural features of underlying money markets. Each administrator has chosen secured or unsecured rates most suitable for the market they represent.

However, under its current construct, EONIA has been deemed non-compliant with EU BMR and with no plans to change the underlying methodology, its use will not be permitted beyond the end of 2021 (an extension from 1 January 2020 as it is classed as a critical benchmark).

2.5 USD: SOFR

In December 2014, the Alternative Reference Rates Committee (ARRC) held its first meeting in the US. The ARRC comprised a group of market participants initially convened by the Board of Governors of the Federal Reserve System (Federal Reserve Board) and the New York Fed in cooperation with the US Department of the Treasury (Treasury), the US Commodity Futures Trading Commission (CFTC), and the US Office of Financial Research (OFR) to identify an alternative reference rate for use primarily in derivatives contracts.

The ARRC's remit was to find an alternative rate to USD LIBOR more firmly based on transactions from a robust underlying market and complying with a number of standards, including the International Organization of Securities Commissions' (IOSCO) Principles for Financial Benchmarks. The ARRC was also tasked with preparing a plan to facilitate the acceptance and use of the selected alternative reference rate on a voluntary basis and also considering best practices related to robust contract design to ensure that contracts were resilient to the possible cessation or material alteration of existing or new benchmarks.

Following more than two years of research and consultation, in 2017 the ARRC selected the Secured Overnight Financing Rate (SOFR)[19] as the rate representing best practice for use in certain new USD derivatives and other financial contracts, and its preferred alternative to USD LIBOR.

"SOFR is a broad measure of the cost of borrowing cash overnight collateralised by U.S. Treasury securities in the repurchase agreement (repo) market. This rate is robust, is not at risk of cessation, and it meets international standards," the ARRC announced. "SOFR is a much more resilient rate than LIBOR because of how it is produced and the depth and liquidity of the markets that underlie it. As an overnight secured rate, SOFR better reflects the way financial institutions fund themselves today."

The Federal Reserve Bank of New York began publishing SOFR in April 2018. Futures contracts were offered by CME Group the following month, and in October 2020 LCH launched clearing of overnight index swaps (OIS) and basis swaps based on SOFR.

Against SOFR's various strengths, it should be added that its critics regard it as too volatile for use in financial contracts. There is some justification for their view: SOFR has been volatile at times when the underlying U.S. Treasury repurchase agreement market that it is designed to capture has also been volatile, and SOFR accurately measures this underlying market.

While it is clear that SOFR and other overnight repo rates sometimes exhibit daily volatility, it should also be noted that contracts referencing term SOFR – or other RFRs – have been based on averages of these daily rates.

SOFR futures and Overnight Index Swaps (OIS)[20], and the many SOFR floating rate notes that have been issued, all use an average of SOFR over a fixed period of time as the floating rate paid under the terms of the contract, and not a single day's realisation of SOFR.

These averages of SOFR have been fairly smooth; a point acknowledged by the ARRC, which found that a three-month average of overnight Treasury repo rates has historically been less volatile than three-month U.S. dollar LIBOR over a wide range of market conditions.

2.6 GBP: SONIA

As noted earlier in this report, what was deemed as "the death knell" for LIBOR came in a speech on 27 July 2017 by FCA Chief Executive Andrew Bailey[21], who said that market participants should not rely on LIBOR being available after 2021. The FCA was concerned that "it is not only potentially unsustainable, but also undesirable, for market participants to rely indefinitely on reference rates that do not have active underlying markets to support them" and would no longer either compel or persuade panel banks to submit quotes for LIBOR.

The watchdog encouraged work to begin in earnest on planning for a smooth transition away from LIBOR to alternative reference rates firmly rooted in data obtained from transactions.

Three months earlier in April 2017 the BoE's Working Group on Sterling Risk-Free Reference Rates (RFR WG, established 2015) had confirmed the Sterling Overnight Index Average, or SONIA as the chosen successor to LIBOR, in preference to two other candidates: FTSE Russell's newly launched Sterling Secured Overnight Transactions (£SONET) and the Sterling Repo Index Rate (£RIR).

SONIA is a backward-looking overnight reference rate that measures the average of rates paid on overnight unsecured wholesale funds denominated in sterling. Established in 1997, SONIA's strengths include well-established liquidity, compliance with international best practice for financial benchmarks and having the BoE as administrator, making it a preferred benchmark for the transition from LIBOR to a sterling RFR.

Further background to SONIA can be found in the *flow* article, *Hello SONIA*, published in May 2020.[22]

2.7 CHF: SARON

For Switzerland, where around 80% of CHF loans derived their price from CHF LIBOR[23], the Swiss National Working Group proposed the Swiss Average Rate Overnight (SARON) as the replacement standard.

SARON is a rate which reflects the conditions of overnight transactions in the secured CHF money market and it is administrated by SIX Swiss Exchange. The overnight segment of CHF repo market is the most liquid segment of the CHF money market.

SARON is calculated as a volume-weight average of transactions and binding quotes (quotes that are legally contracted and hard to adjust once put into effect) in the order book of SIX's electronic trading platform. It is continually calculated in real-time and published at 10 minute intervals with a fixing conducted three times a day at 12pm, 4pm and 6pm. The latter, produced once the market closes, serves as a reference rate for derivative financial products and the valuation of financial assets.

2.8 JPY: TONAR

The Bank of Japan has identified its LIBOR replacement as the Tokyo Overnight Average Rate (TONAR) for the JPY overnight index swap market. Published and administered by the BoJ, TONAR is based on unsecured money market rates.

However, Japan is implementing a multi-rate approach[24] and while TONAR is being promoted, the Japanese Bankers' Association TIBOR Administration (JBATA) implemented TIBOR reforms should mean that TIBOR can continue to be used. JBATA is considering integrating JPY TIBOR and Euroyen TIBOR, with the possibility of Euroyen TIBOR being discontinued.

> "We could not – and cannot – countenance the market disruption that would be caused by an unexpected and unplanned disappearance of LIBOR"
>
> *Andrew Bailey (then) FCA chief executive, in July 2017 announcing its end in 2021*

2.9 Elsewhere in Asia

Outside of Japan, Thailand has developed the Thai Overnight Repurchase (THOR) rate to replace Thai Baht Interest Rate Fixing (THBFIX), which was previously used in the Thai financial market[25]. THOR was finalised in April 2020 and is calculated from overnight interbank transactions in the private repurchase market. On 31 August 2020, Kasikornbank (aka KBank) and CIMB Thai Bank completed the first overnight indexed swaps derivative transaction referencing THOR.

In Hong Kong, the Treasury Markets Association (TMA) has selected the Hong Kong dollar overnight index average (HONIA) as the alternative reference rate for Hong Kong interbank offered rate (HIBOR) although there are currently no plans to stop referencing HIBOR. HONIA is defined as an overnight interbank funding rate based solely on transaction data.

In Singapore, the Association of Banks in Singapore (ABS) and the Foreign Exchange Market Committee (SFEMC) have confirmed the Singapore Overnight Rate Average (SORA) as the alternative interest rate benchmark for the Singapore swap offer rate (SOR) and have issued a roadmap for the transition, which has the approval of the Monetary Authority of Singapore (MAS).

2.10 Impact of the change

The transition initiated from LIBOR to ARRs has had – and continues to have – a significant impact. While the notional size of the derivatives markets accounts for 95% of the outstanding gross notional value of all financial products referencing USD LIBOR, it is also referenced in several trillion dollars of corporate loans, floating-rate mortgages, floating rate notes, and securitised products.

The widespread use until now of USD LIBOR as a reference rate means that all financial market participants – including retail customers, corporations, issuers, investors, asset managers and service providers of financial products – and major financial institutions are impacted by the risks associated with USD LIBOR.

In summary these benchmark rates have been the cornerstone of the financial services industry, used extensively across a range of business processes including accounting, valuation, cash flow hedging, risk management and financial modelling for many industries. The transition away from them will impact on the products, businesses, systems and processes used by banks, their customers and their counterparties. The impact extends beyond financial products and legal contracts to reach many businesses that have exposure to IBORs embedded in their business processes, while legacy contracts need to be amended where they reference IBORs.

3 Transition arrangements

3.1 The journey so far

Since its demise was confirmed, global regulators have played an active role in communicating the urgency for a faster transition away from LIBOR and other IBORs to alternative overnight RFRs. In recent years, via meetings and speeches around the world, they have urged institutions to limit new business referencing LIBOR and to develop plans to mitigate and to reduce dependencies on LIBOR commensurate with a firm's exposures and risks.

Although this transition journey is more than half completed, the first quarter of 2021 represents a critical period for further action as LIBOR's 16 or so contributing banks will no longer be compelled to submit rates around the end of 2021. The timetable and deadlines have not been extended in response to the Covid-19 pandemic; instead the crisis has served as a reminder of how LIBOR can impact the real economy.

As illustrated by Figure 8 – where the statistics show increasing RFR liquidity in cash markets – the most significant progress has been made in the bond market, where the transition to using RFRs as the default reference rate in new issuance is well advanced, if not largely complete.

The SONIA based derivatives market is already liquid and traded in significant volume, and SOFR markets are also steadily increasing, with the recent switch by LCH and CME to use SOFR in discounting and price alignment interest a key milestone in promoting further market depth.

Figure 8: IBOR vs RFR bond issuance

SOFR issuance is slowly catching up on US$ Libor issuance in 2019 and 2020

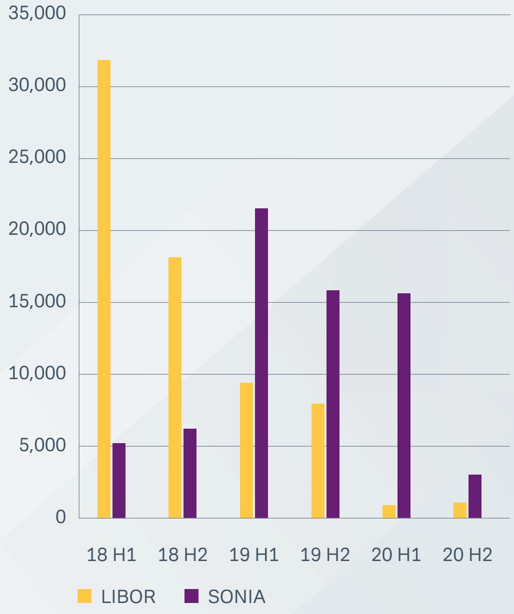
€STR issuance so far is marginal with only 4 trades done in 2019 as the index was launched in Oct. 2019

2019 H2: 3 €STR issuances (€2.2bn)
2020 H1: 3 €STR issuances (€1.6bn)

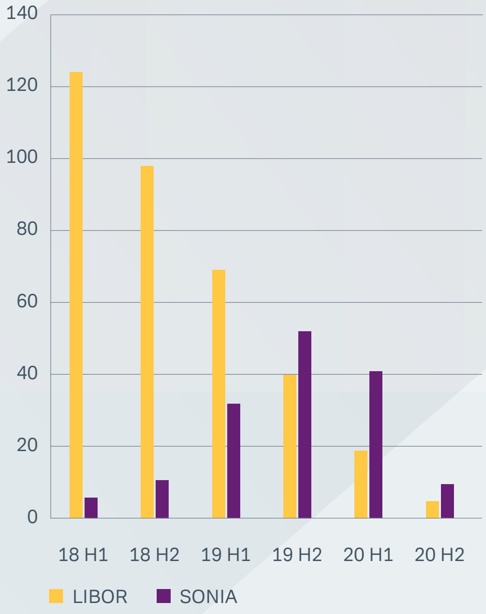
In 2019 SONIA issuance volumes overtook GBP Libor volumes for the first time

SONIA is predominant for issuances beyond 2021

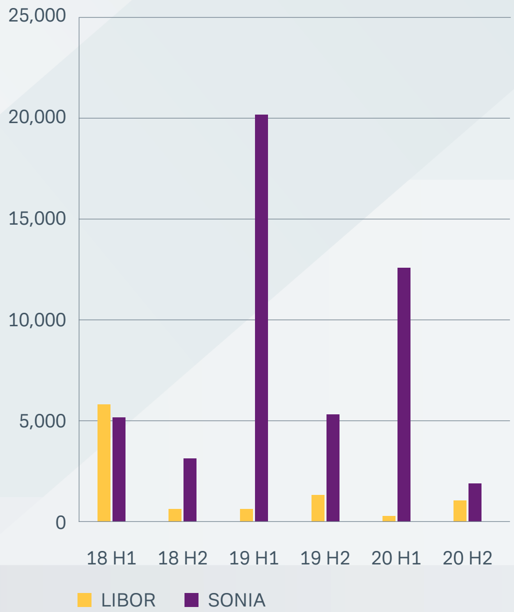
Issuance volumes (GBPm), all maturities



Number of issuances, all maturities



Issuance volumes (GBPm), maturity>2021



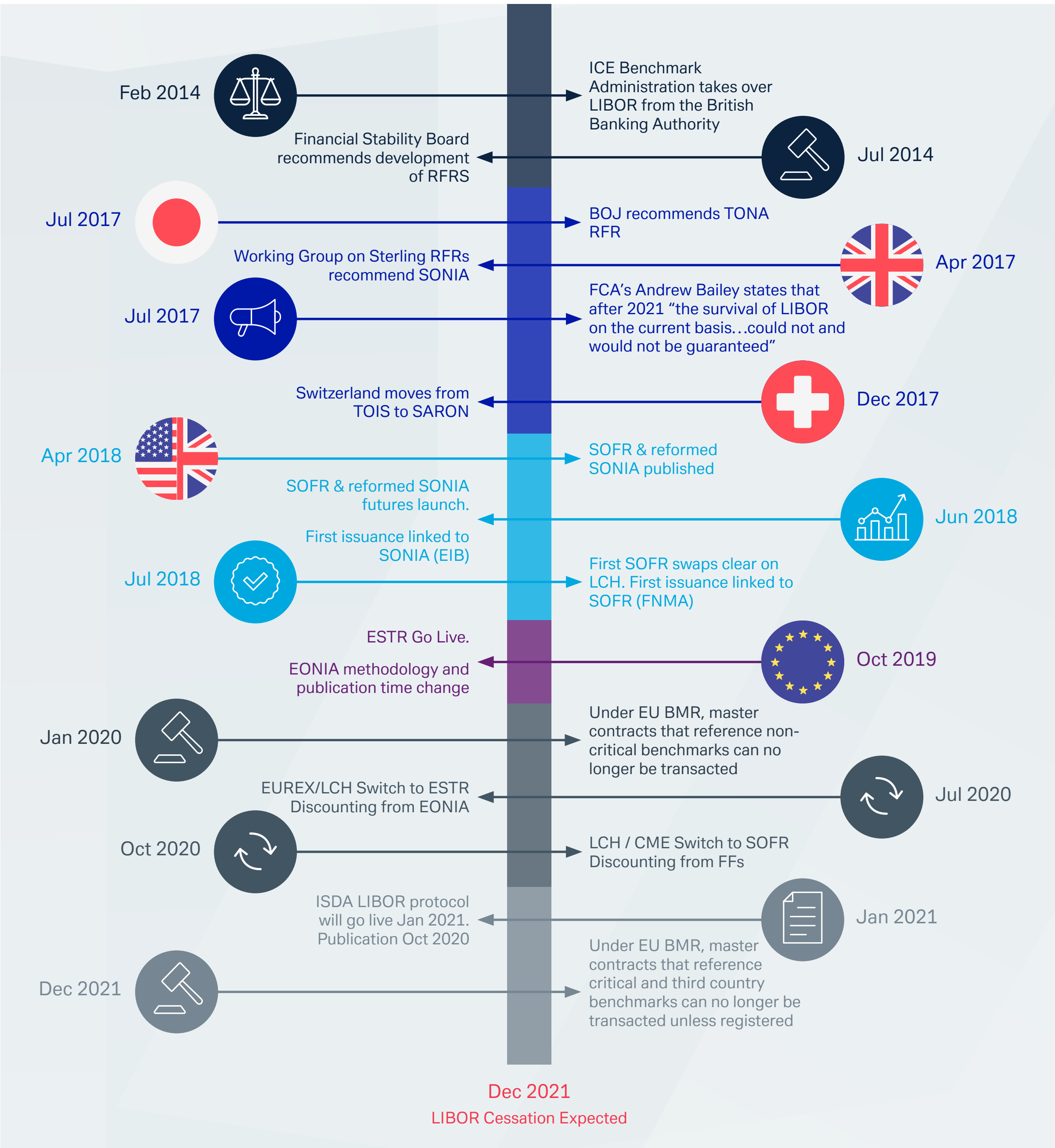
Number of issuances, maturity>2021

There is still much more work to be done in the cash marketplace and although recent evidence suggests the transition work for loan markets has now begun in earnest they remain some distance behind their derivative cousins.

3.1.1 Reform progress

From February 2014, when the ICE Benchmark Administration took over LIBOR from the British Banking Authority the road to reform across the core IBORs has been very well signposted involving widespread market participant consultation. This is summarised in Figure 9.

Figure 9: Reform timeline Feb 2014 to 1 Jan 2022



Source: Deutsche Bank

3.1.2 Developments during 2020

Despite the disruption caused from March 2020 onwards by the Covid-19 pandemic, progress towards the goal of a smooth transition from LIBOR continued over the year with the following key developments:

— Feb 20: ISDA publishes consultation results for benchmark fallback adjustments for derivatives referencing EURIBOR and euro LIBOR, in line with the results for other IBORs published in Nov 19.

— Apr 20: ARRC announces recommended spread adjustment for cash products referencing USD LIBOR.

— Apr 20: ISDA announces results of a consultation on pre-cessation fallback: a significant majority of respondents are in favour of including both pre-cessation and permanent cessation fallbacks as standard language in the amended 2006 ISDA Definitions for LIBOR and in a single protocol for including the updated definitions in legacy trades.

— Apr 20: FCA pushes deadline for ending use of LIBOR in new loans to Q1 2021 but won't extend use of LIBOR past the original terminal deadlines.

— May 20: Tough Legacy – Proposed NY state legislative solution unlikely to pass this year given focus on Covid-19. BoE Taskforce proposes that the UK Government considers legislation to address 'tough legacy' exposures. Proposed EU BMR changes to provide additional powers to FCA for synthetic LIBOR introduction**.

— May 20: ARRC publish product specific recommendations with target dates to promote SOFR and end USD LIBOR usage covering FRNs, Loans, Securitisations, and Derivatives.

— Q2 20: Term SONIA Reference Rate (TSRR) – Three benchmark administrators release beta versions of TSRR.

— Jun 20: HM Treasury brings forward legislation to amend Benchmarks Regulation (BMR) to provide the Financial Conduct Authority (FCA) with enhanced powers to manage transition of tough legacy contracts.

— Jun 20: Talks from FCA reported in *Risk*: "announcements about the discontinuation from the end of 2021 of LIBOR settings could come as early as November/December 2020", triggering the calculation of fallback spreads for derivatives.

— Jul 20: EU Commission published draft regulation to amend BMR, including power to designate replacement benchmark (eg. Synthetic LIBOR) for LIBOR discontinuation.

— Jul 20: Bloomberg Index Services Limited (BISL) begins calculating and publishing ISDA fallbacks.

— Jul 20: LCH and Eurex switch from EONIA to ESTR discounting for interest rate swap products.

— Aug 20: ISDA proposes adherence in escrow for IBOR Fallback Protocol.

— Oct 20: FSB publishes its LIBOR Transition Roadmap.

— Oct 20: ISDA launch the IBOR Fallbacks Supplement to the 2006 ISDA Definitions and the ISDA 2020IBOR Fallbacks protocol on 23 October. The effective date of the supplement and the amendments made by the protocol for legacy and new business will be 25 January 2021.

— **Oct 20:** Discounting switch at USCCPs from EFFR to SOFR.

— **Oct 20:** Go-live of SONIA first initiative with Inter Dealer Brokers from 27 October.

— **Nov 20:** IBA announces consultation on planned cessation of publication for four LIBOR currencies (GBP, EUR, JPY and CHF) on 31 December 2021.

— **Nov 20:** FCA sets out how it will use new powers to ensure an orderly winding down of LIBOR; including ability to order continued publication of an amended form of LIBOR post-December 2021 in certain circumstances.

— **Dec 20:** ICE Benchmark Administration (IBA) which compiles and oversees LIBOR, announced a consultation on its intention to cease publishing USD LIBOR, (a) in the case of 1-week and 2-month LIBOR, on December 31, 2021; and (b) in the case of overnight, 1-, 3-, 6- and 12-month LIBOR, in June 2023. The announcement follows IBA's consultation launched in Nov-20 on its intention to cease EUR, GBP, CHF and JPY LIBOR at the end of 2021.

**Synthetic LIBOR refers to draft legislation which has been laid before the UK Parliament which would facilitate for an orderly wind-down. This could be facilitated by handing powers to the FCA to direct a change in methodology to the current LIBOR. Note that if enacted, legislation will not lessen the need to actively transition, neither does it guarantee that the powers will be used.

Contracts that have a pre-cessation trigger will fall back to the corresponding RFR (and this will happen before the creation of a synthetic LIBOR), and therefore the use of synthetic LIBOR is only envisaged in the narrowest of 'tough legacy' scenarios

3.2 Transition challenges

As commentators have remarked, transitioning away from LIBOR poses several major tasks for corporate treasurers, with the migration process likely to be a lengthy one for both corporates and their banks[26]. While flagging key LIBOR-related issues where debt is concerned should be relatively easy, finding the applicable clauses in commercial contracts could prove more complicated. This places an onus on corporates to conduct a business-wide risk assessment to identify all issues that need to be addressed.

Our message to treasurers is not to be complacent, but to be prepared. The path away from LIBOR is a complex one, so they should become familiar with the differences between LIBOR and alternative rates and identify the products they use that reference LIBOR.

The transition also created a variety of challenges for the financial services industry as outlined in Figure 10:

Figure 10: IBOR transition challenges for the industry

Source: Deutsche Bank

As we know, LIBOR are term rates, and that throws up some transition issues about how you move from forward looking term rates to overnight rates. When and how do you calculate interest? At the beginning of the interest period, or at the end?

These questions have led to the development of RFR-based term structure methodologies falling into two categories:

1. Forward-looking term structures, which would be based on the derivatives markets referencing RFRs and reflect market expectations of the evolution of the underlying benchmark during the upcoming interest rate period. Interest would be known at the start of the interest rate period.

2. Backward-looking term structures are based on simple mathematical calculations of the value of past realised daily fixings of the overnight RFR over a given period of time.

3.3 Bank and insurer transition preparations

Following Andrew Bailey's speeches in June 2017 and June 2018, respectively announcing and confirming the end of LIBOR, in September 2018 the FCA and the Prudential Regulation Authority (PRA) wrote to the CEOs of major banks and insurers supervised in the UK requesting details of the preparations and actions they were taking to manage the transition from LIBOR to alternative benchmarks. Although the letter was issued to the largest banks and insurers, the two regulators urged all firms reliant on LIBOR to undertake a similar review.

In June 2019 the Bank of England (BoE), its RFRWG and the FCA jointly held a conference titled *'Last Orders: Calling Time on LIBOR'*[27] on the work underway to transition from LIBOR to alternative RFRs. In January 2020 the three entities issued a set of documents outlining priorities and milestones for the year ahead on LIBOR transition[28]. Describing 2020 as "a critical year for LIBOR transition" it called on firms to accelerate efforts to be prepared for LIBOR cessation by end-2021 and the following 'to do' list for market participants:

— Ceasing issuance of cash products linked to sterling LIBOR by end-Q3 2020;

— During 2020, taking steps to demonstrate that compounded SONIA is easily accessible and usable;

— Taking steps to enable a further shift of volumes from LIBOR to SONIA in derivative markets;

— Establishing a framework for the transition of legacy LIBOR products, in order to significantly reduce the stock of LIBOR referencing contracts by Q1 2021; and

— Considering how best to address issues from "tough legacy" contracts.

Additionally, the BoE and FCA issued a joint letter to UK-supervised major banks and insurers setting out the expectations of the FCA and PRA of firms' transition progress during 2020, as well as a statement encouraging market makers to switch the convention for sterling interest rate swaps from LIBOR to SONIA on 2 March 2020 "to help progress transition in the derivatives market". This effort was delayed due to the onset of the COVID pandemic, but was successfully delivered on 27th October 2020.

The SONIA derivatives market is already liquid and already trades over GBP LIBOR by notional, making the Sterling market the most advanced in the transition across major currencies, although we note that liquidity is still developing in longer tenors.

While volumes of USD SOFR derivatives are increasing, they remain well below USD LIBOR at <1% of total USD derivatives market. (There has however, been a recent improvement in liquidity after the aforementioned discounting switches). Only a few derivatives are referencing €STR since its launch in October 2019 and volumes of SARON derivatives remain marginal and although TONAR volumes are ahead of TIBOR, liquidity remains low.

3.4 Legacy contracts

The discontinuation of LIBOR and the consequential transition to RFRs is being led by market participants under the guidance provided by regulatory authorities, meaning that parties to legacy contracts will need to amend them.

Practically speaking this means one of two things for market participants:

— Interest provisions in agreements may be amended directly; or

— Existing "fallback provisions", which contemplate a method for calculating interest if LIBOR is temporarily unavailable, may be amended to provide for the transition to RFRs on (or before) LIBOR's permanent cessation.

3.5 Fallback provisions

As discussed in section 1.3 and 3.4 above, financial instrument documents typically include provisions that guide the setting of interest rates in the event that LIBOR becomes unavailable. Before the decision to discontinue LIBOR these provisions envisaged only temporary unavailability due to a contingency event such as an IT failure, but not a permanent cessation.

So "fallback language" has become an issue for the industry, prompting both the International Swaps and Derivatives Association (ISDA) and Loan Market Association (LMA) to reviewing their respective fallback provisions.

The results of market-wide consultations found that the market had a preference for a fallback to a RFR "calculated in arrears" applying a spread adjustment to legacy contracts. After further consultations, a spread adjustment methodology based on a historical median over a five-year lookback period calculating the difference between IBOR and corresponding RFR, was chosen as the basis for the fallback spread calculation. As LIBOR incorporates a measure of both term risk and bank credit risk in its calculation, unlike RFRs, a spread adjustment is required to preserve an equivalent economic position as far as is practicable.

As a result the LMA[29] and Loan Syndications and Trading Association (LTSA) have published revisions to their syndicated and bilateral pro-forma documentation to reflect this.

The international Financial Stability Board's (FSB) Official Sector Steering Group (OSSG) has recommended that market participants both understand their contractual fallback arrangements and ensure that they are sufficiently robust to prevent potentially serious market disruptions from a LIBOR cessation event.

3.6 ISDA IBOR fallback

Having received a green light for its plans from the US Justice Department[30] in early October 2020, on 23 October ISDA launched the IBOR Fallbacks Supplement to the 2006 ISDA Definitions and the ISDA 2020 IBOR Fallbacks Protocol.

The supplement and the amendments made by the protocol take effect on 25 January 2021; from this date all new derivatives contracts that incorporate the 2006 ISDA Definitions and reference one of the covered IBORs will contain the new fallbacks. Derivatives contracts existing as of 25 January 2021 will incorporate the new fallbacks if both counterparties have adhered to the protocol or otherwise bilaterally agreed to include the new fallbacks in their contracts. The protocol will remain open for adherence after 25 January 2021.

3.7 RFRWG recommendations

In April 2020 the RFRWG issued a statement on Covid 19's impact on the timeline for firms' LIBOR transition plans. Known as the Documentary Recommendation, it suggested that: "after the end of Q3 2020 lenders, working with their borrowers, should include clear contractual arrangements, in all new and re-financed LIBOR-referencing loan products to facilitate conversion ahead of end-2021, through pre-agreed conversion terms or an agreed process for renegotiation, to SONIA or other alternatives."

In July 2020, the RFRWG published further guidance outlining two alternatives to satisfy the Documentary Recommendation which delineate the two ends of a spectrum:

— The adoption of pre-agreed conversion terms; and

— The adoption of an agreed process for renegotiation

It confirmed that within this spectrum "the greatest certainty for borrowers and lenders will be achieved by setting out in advance the terms for conversion at a future date or, if that is not achievable, by aiming to come as close to this as possible to minimise the risk of protracted or unsuccessful negotiations at a later date."

Two key priorities for the BoE's RFRWG in loan markets are:

1. A target to cease issuance of sterling LIBOR-based cash products maturing beyond 2021 by the end of Q1 2021; and

2. Since end Q3 2020, lenders have been required to include contractual arrangements in new and re-financed LIBOR-referencing loan products to facilitate conversion to SONIA or other alternatives

3.8 ARRC recommendations:

The ARRC also published recommendations for more robust fallback language for new loan originations.

The ARRC called for market participants in the LIBOR-based syndicated loan market to start using hardwired fallback language by 30 September 2020. Hardwired fallback language offers certainty as to what the successor rate and adjustment will be and, in many cases, obviates the need for seeking consent for an amendment. Market participants who adopt these fallback provisions can know that they will pay or receive a version of SOFR plus a spread adjustment upon a trigger event.

An "early opt-in" feature allows parties to trigger a fallback from LIBOR, even if LIBOR is still published and none of the other enumerated triggers have occurred.

Both ARRC and ISDA plan to, or are already publishing their spread adjustments on an indicative daily basis before any LIBOR cessation or pre-cessation occurs, so that market participants can be more familiar with the comparative behaviour of the recommended adjustment to SOFR.

3.9 FSB LIBOR Transition Roadmap

On 16 October 2020, the FSB published a global transition roadmap for LIBOR[31] that sets out a timetable of actions for financial and non-financial sector firms to take towards a smooth LIBOR transition by end-2021, with three deadlines for action:

1. By the end of 2020, as a minimum:

Lenders should be in a position to offer non-LIBOR linked loan products to their customers; either in terms of giving borrowers a choice in terms of the reference rate underlying their loans, or through working with borrowers to include language for conversion by end-2021 for any new, or refinanced, LIBOR referencing loans, for example if systems are not currently ready.

2. By mid-2021, firms should:

- On the basis of a full assessment of their stock of legacy contracts, have determined which can be amended in advance of end-2021 and establish formalised plans to do so in cases where counterparties agree;
- Where LIBOR linked exposure extends beyond end-2021, make contact with the other parties to discuss how existing contracts may be affected and what steps firms may need to take to prepare for use of alternative rates;
- Have implemented the necessary system and process changes to enable transition to robust alternative rates;
- Aim to use robust alternative reference rates to LIBOR in new contracts wherever possible;
- Take steps to execute formalised plans, where realistic, to convert legacy LIBOR-linked contracts to alternative reference rates in advance of end-2021.

3. By end-2021, firms should be prepared for LIBOR to cease:

- All new business should either be conducted in alternative rates or be capable of switching at limited notice;
- For any legacy contracts for which it has not been possible to make these amendments, the implications of cessation or lack of representativeness should have been considered and discussed between the parties, and steps taken to prepare for this outcome as needed. The scope and impact of any steps taken by authorities to support tough legacy contracts, if available, should have been clearly understood and taken into account;
- All business critical systems and processes should either be conducted without reliance on LIBOR, or be capable of being changed to run on this basis at limited notice.

The FSB roadmap does not constitute regulatory advice or affect any transition expectations set by individual regulators, who in some cases may require firms to move faster.

4

Recent market activity

4.1 CCP switch overs

As part of the transition to RFRs, most systemic Central Clearing Counterparties (CCPs) switched Price Aligned Interest (PAI) and discounting on all cleared EUR-denominated interest rate swap products in 2020 in two stages:

1. €str switch over: 25-26 July 2020:

A report issued in August 2019[32] by the ECB's working group on euro RFRs contained recommendations for smoothing the transition from EONIA to €str. One recommendation was that CCPs should align their discounting switch dates as and where possible to transition from an EONIA discounting regime to a €str.

In response, clearing houses LCH, Eurex and CME that clear EUR denominated products planned to switch the rate for discounting and PAI for EUR-denominated products cleared on their respective platforms from EONIA to €str over the weekend of 20-21 June 2020, to be effective from Monday 22 June for all legacy and newly cleared EUR denominated swaps. Due to the impact on the market of the coronavirus pandemic, the schedule was delayed by five weeks[33] to the weekend of 25-26 July 2020 for a revised effective date of Monday 27 July.

2. SOFR switch over: 17-18 October 2020

In the US, since April 2018 the Federal Reserve Bank of New York has published SOFR as part of the transition away from USD LIBOR. Under the ARRC's Paced Transition Plan, CCPs switched the rate for discounting all cleared USD-denominated discounted products from the Effective Fed Funds Rate (EFFR) to SOFR over the weekend of 17-18 October 2020 for an effective date of Monday 19 October 2020. Unlike EONIA/€str, both SOFR and Fed Funds are independent rates, so the CCP switch creates a change to market participants' discounting risk. As a result, all participants received basis swaps to compensate them for this new risk position. An intended consequence of this piece of transition plan is that risk hedging needs will increase market activity in SOFR derivatives.

4.2 ICE launches

In October 2020, following market feedback and consultation papers ICE launched a beta version of its GBP ICE Swap Rate for SONIA swaps through its IBA business[34]. Since then IBA has formally launched daily GBP SONIA ICE Swap Rate settings . The rate is determined by using the published ICE Swap Rate 'waterfall' methodology and is available for the same tenors and at the same time as the GBP Libor ICE Swap Rate. This is an important step forward in helping the non-linear derivatives market transition away from LIBOR.

4.3 Ongoing discussions and consultations

On 18 November 2020, IBA announced that it will consult on its plan to cease publishing four of the five LIBOR currencies (GBP, EUR, JPY and CHF) on 31 December 2021.

Discussions between the IBA, the FCA, other official sector bodies and the panel banks continue on the future of USD LIBOR, although there is no certainty or guarantee that IBA will be able to publish any USD LIBOR settings after 31 December 2021.

Separately, the FCA set out how it will use new powers to ensure an orderly wind down of LIBOR; they include ordering the continued publication of an amended form of LIBOR after 31 December 2021 in certain circumstances. The powers will not apply where LIBOR is little used; where contracts can be amended without regulatory intervention; or where consumer protection and market integrity are not at risk.

The FCA added that it does not expect to order continued publication of EUR or CHF LIBOR, but GBP LIBOR would likely meet its conditions. It was continuing to review whether it would use its powers to force continued publication of JPY LIBOR, and would consider USD LIBOR if IBA consults on ending its publication.

4.4 What's next for forward term rates?

How are RFR based forward term rates to be implemented?

For GBP three benchmark administrators are competing to provide forward looking term SONIA rates for the UK market; FTSE Russell, IBA and Refinitiv, each using fairly similar methodologies although London Stock Exchange Group's (now blessed) and expected US$27bn acquisition of Refinitiv could narrow the field once completed as LSEG already owns FTSE Russell and its SONIA term rate could be combined with Refinitiv's.

The IBA and Refinitiv rates went live in January 2021, and a winner is expected shortly thereafter, after the FCA details its plans for synthetic LIBOR.

For USD, potential benchmark providers have indicated that a SOFR forward-looking term rate could be available by end Q2 2021. Transition officials had previously warned that insufficient liquidity in the underlying swaps market could thwart plans to produce a term benchmark by mid-2021; however, on 10 September 2020 the ARRC released Request for Proposals for the Publication of Forward-Looking SOFR Term Rates[35]. Further developments are expected later in 2021.

There is no term rate expected in CHF and remains 'to-be-determined' in JPY markets.

There is a clear business requirement from many areas of the industry for forward looking rates, but still much work to do in order to implement and have them adopted.

5

Deutsche Bank market activity

"Our clients are actively looking to us for solutions to remove their LIBOR exposure as the industry transitions to new risk-free benchmark rates"

Panos Stergiou, Deutsche Bank's Head of ICG Debt EMEA & Global Head of ICG Macro Sales

Deutsche Bank has already completed several transactions linked to new benchmark RFRs.

5.1 Loan referencing SONIA: Deutsche Bank/Kennedy Wilson

In November 2019, Deutsche Bank's European Commercial Real Estate (CRE) Group partnered with Kennedy Wilson Europe Real Estate II SCSp to originate its first loan referencing SONIA, which refinanced the real estate group's €46.5m acquisition of Ditton Park, an office park located near Heathrow Airport and the M25.

The transaction marked one of the first loans to reference and average overnight SONIA in the market. The loan referenced a compound average of SONIA set in arrears with a five business day lag. Deutsche Bank joined NatWest and Lloyds as the only known banks currently planning to pilot loans referencing SONIA.

5.2 GlaxoSmithKline's US$5bn RCF refinancing

On 27 August 2020 GlaxoSmithKline plc (GSK) completed a c.US$5bn refinancing – comprising a US$2.5bn 364-day Revolving Credit Facility (RCF) and a £1.9bn (US$2.46bn) 3-year RCF – provided by its relationship banks.[36] Both facilities transitioned to RFRs immediately, referencing SOFR and SONIA/SOFR respectively, making these the first global large-scale credit facilities to be linked to RFRs from the commencement date.

A UK healthcare company headquartered in Middlesex, GSK engages in the discovery, development and manufacturing of innovative medicines, vaccines and other healthcare products and operates through three main segments: Pharmaceuticals, Vaccines and Consumer Healthcare. GSK reported 2019 total revenue of £33.8bn and net income of £4.6bn and has a workforce of 99,000 employees across 95 countries.

The GSK bilaterals marked a significant breakthrough in the transition to RFRs – setting a new market standard and paving the way for new issuers – as the first:

— Large-scale credit facilities executed globally to be linked from the start to both SONIA and to SOFR;

- Major loan financing to feature a lag approach instead of the observation shift method previously used on other RFR loans;

- Facility to generally follow the latest recommendations of the US ARRC regarding SOFR, and the UK Working Group regarding SONIA, and their uses in bilateral and syndicated facilities

RFR-specific features of this refinancing included:

- *Credit adjustment* – adjusts the pricing to try and eliminate any transfer of economic value from the lender to borrower as a result of the replacement of LIBOR by compounded risk-free rates - calculated based on the ISDA 5 year historical median approach

- *'Lag' approach* – a 5 Banking Day (BD) lookback period to help calculate interest - gives prior notification on the amount of interest to be paid on the loan ahead of the payment date; a particular challenge for backward-looking RFRs

- *Zero floor* – calculated using the daily adjustable credit adjustment spread approach

Figure 11 below shows details of the GSK refinance and earlier loans involving a transition from LIBOR to RFRs.

Figure 11: Precedents: Facilities with a shift to RFRs

Date	Borrower	Lender(s)	Term/ RCF	Sector	Amount	Tenor	RFR construction	Lookback period	Observation shift	Interest period	Credit adjustment spread method	Trigger for switch
Aug 20	GSK	Bilateral	RCF	Pharma	GBP and USD	Multi tranche	Compounded in arrear with a lookback	5 business days	No – Lag approach	1 month only	Fixed at outset for GBP and USD (5 yr historical median approach)	Immediate (no trigger)
12 Mar 20	British American Tobacco (BAT)	Syndicate of 21 banks	RCF	Tobacco	£6bn	£3bn 364-day facility	Compounded in arrear with a lookback	5 business days	Yes	1 month only	Fixed at outset: GBP 0.05%; USD 0.10% Calc. based on 5yr historical median approach	1st anniversary or date determined by BAT when bank market ready
27 May 20	Associated British Ports (ABP)	Club of 4 banks	Term	Transport	£150m	2 yr	Compounded in arrear with a lookback	5 business days	Yes	3 months only	Fixed at outset: 12bps. Calc. based on the ISDA 5 year historical median approach (and measuring the basis spread between SONIA and 3 month LIBOR)	Earlier of 1st anniversary or Libor cessation date
13 Dec 19	Royal Dutch Shell plc (Shell)	Syndicate of 25 banks	RCF	Energy	US$10bn	US$8bn – 5 yr; US$2bn – 1 yr	Compounded in arrear with a lookback	5 business days	Yes	1 month only	Fixed at outset	1st anniversary, as soon as banks ready
01 Jul 20	Coastline Housing	Lloyds	RCF	Social housing	£30m	5 yr	Compounded in arrear with a lookback	5 business days	No			
20 Nov 19	Kennedy Wilson Europe Real Estate II SCSp	Deutsche Bank	Term	Real estate			Compounded in arrear with a lookback	5 business days	No			
01 Jul 19	National Express Group Plc	NatWest	RCF	Transport			Compounded in arrear with a lookback	5 business days	No			
03 Apr 20	Riverside Group Limited	Lloyds	RCF	Housing	£100m	5 yr	Compounded in arrear with a lookback	5 business days	Yes			
02 Oct 19	South West Water	NatWest	RCF	Utilities			Compounded in arrear with a lookback	5 business days	No		The agreed margin includes the SONIA/ LIBOR spread using the linear interpolation to the final maturity date of the 3m LIBOR vs SONIA	

Emerging as a market standard (Compounded in arrears with 5BD lookback)

Typically 1m

Typically: fixed adj. spread based on 5yr historical median approach

5.3 Other Deutsche Bank activity

In addition to the deals amongst many outlined in sections 5.1 and 5.2, Deutsche Bank has completed several other recent transactions linked to SOFR, €str, SONIA and SORA, including the following:

5.3.1 SOFR

On 21 November 2019, Deutsche Bank announced the issuance of US$1.5bn fixed-to-floating senior non-preferred (SNP) transaction linked to SOFR, its inaugural callable SNP bond and US$500m fixed to SOFR subordinated note. The SOFR-based coupon in the final year was designed to help the market transition away from LIBOR toward new risk-free rates, in this case SOFR.[37]

Deutsche Bank acted as lead underwriter in the nascent SOFR Agency commercial mortgage-backed securities (CMBS) market, with a US$1.07bn Floating Rate Freddie Mac Multi-Family K-CMBs deal.

5.3.2 €str

In October 2019 Deutsche Bank played a lead structuring role when the European Investment Bank (EIB) printed the market's first €str benchmark with a €1bn three-year bond paying a quarterly coupon of €str+200bps

In November 2019, Deutsche Bank cleared its first €str swap trade on the Eurex Clearing exchange, described as "an important milestone in both the establishment of €str as the new benchmark RFR and in expanding Eurex's EUR-denominated product offering".

Deutsche Bank carried out a reverse repo on a structured covered bond (Alpspitze with fee payment linked to €str)

5.3.3 SONIA

In June 2019 Deutsche Trustee Company acted as Trustee and Principal Paying Agent to the switch of £65m of Associated British Ports (ABP) issued notes from GBP Libor to compounded daily SONIA plus a margin. The switch has provided a blueprint for subsequent deals.

In August 2020, Deutsche Bank acted as lead manager in the first floating rate note (FRN) linked to the BoE's just-launched SONIA compounded index, which was issued by the European Investment Bank (EIB) for a period of five years.

In October 2020, Deutsche Bank arranged the inaugural £220m Social Affordable Housing commercial mortgage-backed securities (CMBS) for Sage Housing Group. DB's first UK environmental, social and governance (ESG) CMBS transaction and Europe's first securitised social transaction with alignment to the Social Bond Principles 2020. AAA printed at SONIA+125bps.

5.3.4 SORA

On 21 November 2019, Deutsche Bank completed Singapore's second overnight index swap (OIS) for local bank DBS using the new benchmark rate, the Singapore Overnight Rate Average (SORA). An OIS is a type of interest rate swap, with its name derived from the fact that the floating rate references a daily overnight rate.[38]

5.4 ISDA Master Agreements: Engagement with clients on adherence to protocols

For ISDA master agreements governing OTC derivative transactions the Benchmarks Supplement Protocol has been available since December 2018 while the more specific LIBOR Fallback Protocol was published on 23 October 2020. Deutsche Bank has adhered to both protocols, for new and legacy transactions.

Following the publication of the Protocol, from 26 October 2020 Deutsche Bank has started communicating with all impacted clients, encouraging them to adhere to both protocols and, in the case of the Benchmarks Supplement Protocol, apply it to both new and legacy transactions.

Glossary

£RIR	Sterling Repo Index Rate
£SONET	Sterling Secured Overnight Transactions
ARRC	Alternative Reference Rates Committee (U.S.)
BBA	British Bankers' Association *(now part of UK Finance)*
BMR	*See EU-BMR*
BoE	Bank of England
CCP	Central Clearing Counterparty
CFTC	Commodity Futures Trading Commission (U.S.)
DoJ	Department of Justice (U.S.)
ECB	European Central Bank
EIB	European Investment Bank
EFFR	Effective Fed Funds Rate
EMMI	European Money Markets Institute
EONIA	Euro OverNight Index Average
EU-BMR	European Benchmarks Regulation
EURIBOR	Euro Interbank Offered Rate
€STR	Euro short-term rate
FCA	UK Financial Conduct Authority
FRN	Floating Rate Note
FSA	UK Financial Services Authority
FSB	Financial Stability Board
HIBOR	Hong Kong Interbank Offered Rate
HONIA	Hong Kong Dollar Overnight Index Average
IBA	ICE Benchmark Administration
IBOR	Interbank lending rate
ICE	Intercontinental Exchange
ISDA	International Swaps and Derivatives Association
IOSCO	International Organization of Securities Commissions
ISDA	International Swaps and Derivatives Association
JBA	Japanese Bankers Association
JBATA	Japanese Bankers Association TIBOR Administration
LMA	Loan Market Association
LSTA	Loan Syndications and Trading Association
OFR	Office of Financial Research (OFR)
OIS	Overnight Index Swap
OSSG	Official Sector Steering Group of the Financial Stability Board (FSB)
PAI	Price Aligned Interest
RCF	Revolving credit facility
RFR	Risk-Free Rate
RFRWG	(Bank of England's) Working Group on Sterling Risk Free Reference Rates
SARON	Swiss Average Rate Overnight
SFEMC	Singapore Foreign Exchange Market Committee
SOFR	Secured Overnight Financing Rate
SONIA	Sterling Overnight Index Average
SOR	Singapore Swap Offer Rate
SORA	Singapore Overnight Rate Average
THBFIX	Thai Baht Interest Rate Fixing
THOR	Thai Overnight Repurchase Rate
TONAR	Tokyo Overnight Average Rate

References

1. https://www.fca.org.uk/news/press-releases/next-steps-libor-transition-2020-time-act-now
2. https://www.fca.org.uk/news/speeches/the-future-of-libor
3. https://www.newyorkfed.org/arrc https://www.bankofengland.co.uk/markets/transition-to-sterling-risk-free-rates-from-libor/working-group-on-sterling-risk-free-reference-rates
4. http://www.jbatibor.or.jp/english/about/
5. https://www.isda.org/2020/07/29/isda-board-statement-on-adherence-to-the-ibor-fallback-protocol/
6. https://www.isda.org/2020/10/23/isda-launches-ibor-fallbacks-supplement-and-protocol/
7. https://www.gov.uk/government/publications/the-wheatley-review
8. https://www.fsb.org/work-of-the-fsb/policy-development/additional-policy-areas/financial-benchmarks/
9. https://www.realclearmarkets.com/articles/2020/03/26/fire_all_the_central_bankers_while_theres_something_to_salvage_487635.html
10. https://cib.db.com/insights-and-initiatives/flow/cash-management/leaving-libor.htm
11. https://www.gov.uk/government/publications/the-wheatley-review
12. https://www.bba.org.uk/news/press-releases/bba-to-hand-over-administration of-libor-to-intercontinental-exchange-benchmarkadministration-ltd/#.X4W3rohKjIU
13. http://www.bbatrent.com/news/announcement-of-libor-changes
14. https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/staying-connected-speech-by-mark-carney.pdf
15. https://publications.parliament.uk/pa/cm200809/cmselect/cmtreasy/144/144i.pdf
16. https://www.fsb.org/2014/07/pr_140722/
17. https://www.fca.org.uk/news/speeches/interest-rate-benchmark-reform-transition-world-without-libor
18. https://home.barclays/content/dam/home-barclays/documents/who-we-are/our-strategy/LIBOR-Transition-CCP-FAQs.pdf
19. https://www.newyorkfed.org/arrc/sofr-transition#pacedtransition
20. https://www.risk.net/investing/derivatives/7445616/sofr-discounting-analysing-the-market-impact
21. https://www.fca.org.uk/news/speeches/the-future-of-libor
22. https://cib.db.com/insights-and-initiatives/flow/cash-management/hello-sonia.htm
23. https://zandersadvisory.com/latest-insights/ibor-reform-in-switzerland/
24. https://www.gbm.hsbc.com/financial-regulation/market-structure/ibor
25. 'Navigating the challenges in Libor transition', The Asset, September 2020
26. 'LIBOR reform, what's next?', Treasury Today, October 2020
27. https://www.bankofengland.co.uk/events/2019/june/last-orders-calling-time-on-libor
28. https://www.bankofengland.co.uk/news/2020/january/next-steps-for-libor-transition-in-2020-the-time-to-act-is-now
29. https://www.lma.eu.com/application/files/7316/0286/2370/List_of_RFR_referencing_bilateral_and_syndicated_loans_October_2020.pdf
30. https://www.isda.org/2020/10/09/isda-board-statement-on-the-ibor-fallbacks-supplement-and-protocol/
31. https://www.fsb.org/2020/10/fsb-publishes-global-transition-roadmap-for-libor/
32. https://www.ecb.europa.eu/pub/pdf/other/ecb.wgeurorfr_impacttransitioneoniaeurostrcashderivativesproducts~d917dffb84.en.pdf
33. https://www.ecb.europa.eu/paym/pdf/cons/euro_risk-free_rates/ecb.202005.swaptionsfeedbacksummary.en.pdf
34. https://www.thetradenews.com/ice-rolls-out-beta-version-of-gbp-swap-rate-for-sonia-swaps/
35. https://www.newyorkfed.org/arrc/publications
36. A video discussing the deal is available from the LMA at https://www.lma.eu.com/lmaplayer?t=123#item-123
37. https://www.db.com/newsroom_news/2019/deutsche-bank-completes-trades-in-new-benchmarks-en-11645.htm
38. https://www.db.com/newsroom_news/2019/deutsche-bank-completes-trades-in-new-benchmarks-en-11645.htm

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