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Libor transition and implementation

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Calling time on Libor
Half empty or half full?

A critical halfway stage has been reached on the Libor transition journey – at least in terms of timing. It's just over two years since the UK's top financial regulator called notice on the discredited benchmark. It's also just over two years until the rate could cease to exist. When it comes to action, however, it's not clear whether this halfway point is even in sight given a to-do list that never seems to stop growing.

Much has happened since mid-2017, when the UK's Financial Conduct Authority (FCA) chair, Andrew Bailey, made life without Libor a reality by freeing panel banks from the shackles of Libor quote submission after 2021. Most crucially, perception has gradually shifted. Denial has been replaced by widespread acceptance that Libor's days are numbered, accelerating efforts to embed regulator-preferred successor rates throughout the system.

There's a long way to go, but in some markets, alternative risk-free rates (RFRs) have become the norm when entering new trades.

New sterling floating rate bond issues are a prime example. Here, the Libor habit has been kicked altogether as every new issue in 2019 has been pegged to the sterling overnight index average (Sonia) – Libor's successor in UK markets. In the US, the secured overnight financing rate (SOFR) now underpins $236 billion of floating rate notes (FRNs).

In swap markets, half of new sterling swap notional cleared at LCH is now linked to Sonia.

That's the easy part of the journey. When it comes to transitioning the $350 trillion stock of legacy instruments linked to interbank offered rates (Ibors) on to next-in-line rates, hardly a dent has been made.

That's not to say there aren't bright spots. In June, UK port operator Associated British Ports (ABP) became a poster child for Libor transition, the first corporate to re-reference legacy public debt from Libor to Sonia. The firm also switched more than £500 million of interest rate and cross currency swaps to the overnight rate.

In practice, ABP's success is tough to replicate. Altering terms on public bond issues requires consent from a vast majority – sometimes 100% – of bondholders, which are widely dispersed and difficult to locate on notes that may change hands multiple times in secondary markets.

Derivatives have a shortcut. Governed by standard documentation, swap contract changes can be made en masse via a protocol. The International Swaps and Derivatives Association is now finessing final methodology for standard fallbacks, but the devil is in the detail, and that is still being thrashed out.

When it comes to more exotic instruments, the route to the finish line is paved with little more than guesswork. For example, a market for Sonia swaptions is beginning to emerge, but will struggle to zoom ahead with no standardised settlement benchmark. Swaptions traders use Ice swap rate – a measure of vanilla interest rate swap prices – to value and settle contracts. Currently the rate is calculated only for Ibor-linked swaps, but this could change. The rate's administrator, Ice Benchmark Administration, is consulting on a version linked to Sonia swaps. There's a snag, however. The Ice swap rate methodology uses only firm prices from electronic central limit order books. Sonia swaps still only trade via request-for-quote protocols – an issue recently picked up by the FCA, which is spearheading efforts to push the instruments on to lit venues.

Buy-side preparations are patchy, at best. BMO Global Asset Management is leading the pack, having switched £10 billion of pension liability swap hedges to Sonia, but others are still in the dark. Insurers are forced under Solvency II to discount their liabilities to a Libor-linked curve approved by the European Insurance and Occupational Pensions Authority (Eiopa). There's little clarity from Eiopa over how and when this curve will be adapted to RFRs, putting instruments linked to the alternative rates out of reach for many insurers.

There's no magic fix, but some turbo-charged remedies look promising. For example, machine learning and natural language processing have already proved their worth in sifting through financial contracts and picking out those that may require the most immediate attention.

It might take more than advances in artificial intelligence to smooth the transition from Libor. The derivatives and cash markets have work ahead before they can confidently dispose of the ubiquitous Libor benchmark.

Participants may need a fortifying drink – even if their glass is only half full.

Helen Bartholomew
Editor-at-large, *Risk.net*

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Looking forward to backward-looking rates

Interbank offered rates are critical in the world of contracts and derivatives, acting as reference rates in millions of financial contracts and with a total market exposure in the hundreds of trillions of dollars. Bloomberg explores why offering effective and efficient solutions is pivotal for a successful transition away from Libor

Investors can see the expiration of Libor in 2021 rapidly approaching. The pillars of new risk-free rates (RFRs) are being raised and practical architecture built around them. An industry practitioner and academic focused on rates and markets, Fabio Mercurio, global head of quantitative analytics at Bloomberg and adjunct professor at New York University, shared his thoughts on Libor replacement at a recent Bloomberg Quant seminar. Mercurio has written extensively on topics in quantitative finance and risk, including in his recent paper, co-authored with Andrei Lyashenko.[1]

Interbank offered rates (Ibors) play a significant role in the world of contracts and derivatives, serving as reference rates in millions of financial contracts, with a total market exposure exceeding hundreds of trillions of dollars. Thus, effective and efficient solutions are essential for migration to the post-Libor environment.

As regulators, industry organisations and market participants have been developing an alternative framework for new benchmarks, a number of solutions have emerged: the US is working with the secured overnight financing rate (SOFR), the UK with a reformed sterling overnight index average (Sonia), Switzerland has selected the Swiss average overnight rate (Saron), the Tokyo overnight average rate (Tonar) in Japan and the eurozone has adopted the euro short-term rate (€STR), which it plans to start publishing in October 2019.

Seeking substitutes for Ibors

All of these RFRs are overnight rates and must be converted into term rates before they can serve as substitutes for Ibors in any kind of contract, new or old. To ensure a smoother transition, the International Swaps and Derivatives Association and regulators are looking at two main approaches:

- A compounded, backward-looking, setting-in-arrears rate, which will be known at the end of the corresponding application period
- A market-implied prediction of this rate, which is then forward-looking and known at the beginning of the application period.

In the current environment, the backward-looking rate was chosen as the RFR term rate in the definition of the Libor fallback for derivatives and is seen in new RFR futures and vanilla swaps, for example. The forward-looking rate seems to be preferred in defining fallbacks for cash instruments. But some may ask: "Is there a way to unify these two worlds?" Mercurio and Lyashenko have developed a modelling framework where the backward- and forward-looking rates can be modelled jointly. As they have shown, it does not matter if some contracts use the first rate and others use the second, as it is possible to have a framework that accommodates both.

Their work in this area focuses, in part, on defining and modelling forward RFRs, based on the new interest-rate benchmarks that will be replacing Ibors globally. By modelling the dynamics of term rates directly, it is possible to simulate the forward-looking Ibor-like rates and the backward-looking setting-in-arrears rates using a single stochastic process for both varieties. This leads to what is known as a generalised forward-market model (FMM), which is an extension of the classic single-curve Libor market model (LMM), with the benefit of the FMM providing additional information about the rate dynamics between fixing and payment times.

The FMM formulation is based on the concept of extended zero-coupon bonds – useful when handling backward-looking setting-in-arrears rates. With such an approach, bonds, forwards and swap rates – along with their associated forward measures – can all be defined at all times, even beyond their natural expiries.

As the market continues to develop alternatives to Libor, the FMM is a noteworthy development that offers several advantages over the classic LMM and can be further enhanced by adding Libor-like rates in a process described in one of Mercurio's earlier papers.[2] In this way, a multicurve model can be constructed through modelling RFR term rates jointly with forward Libors or Libor proxies. The FMM is not an alternative to the LMM, but rather an extension of it – compatible with the new RFR term rates chosen as Libor replacements. While the sun is setting on Libor, it will rise again with insightful market innovation. ■

[1] *A Lyashenko and F Mercurio (February 2019),* Looking forward to backward-looking rates – A modeling framework for term rates replacing Libor, *https://bit.ly/2m98p92*
[2] *F Mercurio (March 2010),* Libor market models with stochastic basis, *https://bit.ly/2kcU2Qr*

To learn more

To explore how Bloomberg is helping clients prepare for the transition to risk-free rates, visit *www.bloomberg.com/libor*

How seven firms are tackling the transition

As preparations for the discontinuance of Libor appear to be stalling despite the rapidly approaching deadline, *Risk.net* explores the approaches of leading firms including BMO, Prudential, Associated British Ports, LCH to move away from the troubled benchmark

Richard Osley/NB Illustration

At the law firm Fieldfisher's offices near London Bridge in June, around 75 people gathered in a meeting room for a seminar on Libor transition.

During the event, the audience of buy- and sell-side executives answered poll questions on their smartphones. The answers were not encouraging.

Asked: "How prepared are you for Libor discontinuance?", two-thirds said they were just "starting to think about it". None had begun moving Libor positions to new risk-free rates.

Only one-quarter expected to transition all of their exposures away from Libor by the end of 2021, and nearly half predicted they would only be able to get 50–80% of the work done in time.

This was a small sample size, and the results should be taken with a pinch of salt. But polls at other industry gatherings also give the impression that, despite clear warnings, Libor may disappear soon after 2021 – at which point the UK Financial Conduct Authority will no longer compel banks to submit quotes to the various benchmark panels – market participants have done little about it, at least so far.

There are exceptions. *Risk.net* spoke with a number of forward-thinking firms in a range of sectors – corporates, asset managers, insurers, regional banks, clearing houses and supranational issuers – about the progress they have made in transitioning away from Libor, and the findings have been aggregated into a series of seven profiles published in this report.

UK-based firms appear to have made the most headway, and the series kicks off with LCH, which has a key role, especially with secured overnight financing rate (SOFR) swaps. The clearing house found a way to safely accept the contracts for clearing without waiting for bilateral liquidity to build, as it does with most products. Next year will see the discounting rate for US dollar Libor swaps changed to SOFR, a move that is expected to boost demand for SOFR swaps.

BMO Global Asset Management is a liability-driven investment manager based in London, which, as of June, has moved nearly 95% of its £10 billion ($13 billion) sterling Libor swaps portfolio onto the sterling overnight interbank average rate (Sonia). The firm targets pockets of liquidity from asset swaps and unwinds, and all of its new sterling swap trades are linked to Sonia.

Associated British Ports is proof that corporates don't need to be laggards in the transition. The company moved more than £500 million of sterling Libor swaps onto Sonia late last year, and on June 11 met holders of its listed floating rate notes to convince them to switch the benchmark to Sonia.

The European Investment Bank (EIB) issued a Sonia-linked floating rate note last year – an oversubscribed £1 billion bond – and, in the process, worked out the kinks of using the compounded-in-arrears methodology to calculate coupon payments. It is now trying to take the formula to the US, and beyond.

Toronto Dominion Securities was bookrunner on the EIB's first Sonia issue, as well as on some early US SOFR deals. It helped create the standard structure in the UK, where coupons are calculated by compounding the overnight rate in arrears, but has found that a lack of consistency in SOFR deals has held back progress in the US.

For other markets, progress has been a little slower. US insurer Prudential Financial is still testing the pipes with some SOFR swap trades, and getting accustomed to some of the technical differences inherent in the new products.

Hartford, Connecticut-based Webster Bank, meanwhile, is preparing to repaper legacy loan and swap contracts, and implementing the client education process that goes along with that effort.

Included in the series is an interview with Cornelia Holthausen, deputy director-general in the directorate general market operations division of the European Central Bank, who speaks to *Risk.net* about transitioning from the euro overnight index average (Eonia) to the euro short-term rate (€STR), and how long Euribor can really hang around. ■

Previously published on Risk.net

>> Further reading

Read the full profiles of all seven firms at *www.risk.net/6723651*

ABP crafts blueprint for corporate Libor switch

The UK port operator has embraced Sonia for swaps, bonds and loans. By Lukas Becker

In discussions around Libor transition, corporates are generally portrayed as slow moving and out-of-touch with developments.

But last year, London-based Associated British Ports (ABP) showed what corporates are capable of when they tackled the issue head on. The company shifted more than £500 million ($633 million) of interest rate and cross-currency swap exposure from sterling Libor to the sterling overnight interbank average rate (Sonia) and is actively looking to switch outstanding bonds and loans in the same vein.

Shaun Kennedy, treasurer at ABP, says the firm started looking seriously at the topic following the July 2017 speech by UK Financial Conduct Authority (FCA) chief executive Andrew Bailey. News the FCA would not compel banks to submit quotes to Libor panels from the end of 2021 prompted a radical shift in thinking.

"That was the first time we sat up and took notice. We responded to the Bank of England consultation that came out around that time, which is something we have not done before or even thought about. And things sort of spiralled a bit after that," says Kennedy.

After Bailey's speech, Kennedy started looking into ABP's own exposures and realised Libor exposure existed across many different instruments: swaps, US private placement notes, listed bonds and private debt. As an infrastructure business, these were all long dated, maturing well beyond Libor's guaranteed lifespan. Kennedy wanted to move these instead to reference Sonia.

It's no simple cut-and-paste. Sonia is a so-called backward-looking rate – when compounded over a period, usually three or six months, the coupon is only known at the end of the period. Libor, on the other hand, is forward-ooking – a user knows at the start of the period how much its coupon payment will be at the end.

Received wisdom is that corporates will balk at using an interest rate where the coupon is known only at the end of a period and prefer a forward-looking rate based on futures or overnight indexed swaps linked to the overnight rate. But Kennedy says ABP is happy with a compounded, backward-looking rate.

"I'm not bothered about term rates. I'm quite comfortable using Sonia compounded. For me, I look at what's out there in terms of what sort of instrument would I want to use. I want the thing that's the most liquid, the most stable and most transparent in terms of pricing."

Sonia has many benefits, he says, such as low volatility from its compounded methodology and an absence of bank credit risk.

"If I'm doing a 15-year loan with a pension fund, bank credit risk is irrelevant to us. It's got nothing to do with that lending. So linking it to Sonia makes a lot more sense," he says.

Slow off the mark

After responding to a Libor reform consultation from the sterling working group on risk-free rates (RFRs), ABP was invited to join the group. Kennedy and a colleague have attended meetings since January 2018 as one of a handful of corporate representatives.

ABP was already a step ahead of many financial institutions in its efforts. In the 12 months after the Bailey speech, Kennedy says only one bank flagged Libor transition as a potential issue for the firm. "There certainly wasn't a lot going on in that first 12 months after the speech. Very little happened – it was quite frustrating from my point of view," he says.

The first priority was ABP's syndicated revolving credit facility, which was up for renewal in mid-2018. From February that year, Kennedy tried to begin conversations with relationship banks to use Sonia as the basis for the floating interest rate payments. He hit a brick wall.

"I asked everyone for Sonia and they just laughed at me," he says. "It just wasn't on the cards at all." ABP eventually had to renew the facility by remaining on a sterling Libor basis.

It was "a bit disheartening", but not to be put off, Kennedy next targeted ABP's swap book, some of which had mandatory breaks coming up in 2018. These allow banks to cut the capital, credit and funding costs of the trade by only pricing up to the point of the break. They also give banks a way out of a trade if it becomes too painful and are often used by banks as leverage to renegotiate terms.

ABP eyed these breaks as an opportunity to shift contracts from six-month sterling Libor to six-month compounded Sonia. Conversations with banks' derivatives teams were completely different to those attempted with loans teams straight off the bat.

"So, this is the interesting thing: you sit around in meetings with various banks and they say 'we're definitely up for Sonia'," Kennedy says. "Talk to the derivatives guy and, certainly for a UK clearer, they're all for Sonia. Talking to the loan syndicate desk, they said 'surely we're going to wait for some sort of term rate structure', or 'we're not really looking at it'."

Switching swaps

ABP has £1.31 billion notional of Libor-linked interest rate swaps expiring between 2036 and 2046. The trades were struck before 2006 when the company was taken private. Of these, eight swaps worth £288 million notional had mandatory breaks in 2018, which were spread over six bank counterparties.

The company had also issued US dollar privately placed fixed rate debt, which is hedged with £285 million of cross-currency swaps. These derivatives saw ABP pay sterling Libor and receive a fixed rate in US dollars. The six swaps, struck with one dealer, also had mandatory breaks in 2018.

One obvious way to convert the long-dated interest rate swaps from Libor to Sonia is to unwind and restrike. For ABP this wasn't an option as the mark-to-market was heavily against the firm due to falls in interest rates after the 2008 financial crisis. Unwinding would require the company to pay the current mark-to-market, which was just over £1 billion.

An alternative route was to trade a series of Libor-Sonia basis swaps with each swap counterparty. This involves entering a large number of basis swaps

"Although there are Sonia bonds being done, they're in this sort of five-years-or-less bucket, and tend to be issued by financial institutions"

Shaun Kennedy, Associated British Ports

in both directions, increasing the overall cost of execution. ABP does not collateralise its exposures, so adding new line items increases capital costs for banks.

The company decided to bring in a single hedging bank, with which it executed a £288 million pay-Libor receive-Sonia basis swap to switch the interest rate swap. An additional £285 million basis swap in the other direction covered the cross-currency swap. Pricing was based on the net position between ABP and the hedging bank, which was £3 million net receive-Sonia from ABP's perspective.

The hedging bank then entered into new Libor-Sonia swaps at LCH with ABP's interest rate and cross-currency swap counterparties, effectively transferring the basis risk to them.

The basis swaps were then immediately collapsed against the interest rate and cross-currency swaps. ABP issued a new confirmation that the swaps were now both only referencing Sonia.

As a final step, ABP amended the Sonia leg of its basis swap so that the coupon was paid on a five-day lag. This meant the coupon period would begin and end five days later than the actual six-month Sonia reference period, creating a window at the end where the final coupon can be calculated and payment arranged.

The maturity profiles of the swaps meant this netting position won't last. The cross-currency swaps expire in 2024, meaning the company will receive more and more Sonia cashflows over time from the longer-dated interest rate swaps. But given these Sonia cashflows already include the bond-style five-day lag, Kennedy says the company can use these positions to hedge any new Sonia-linked floating rate note issuance.

ABP had to update its systems to be able to handle Sonia ahead of the restructure, says Kennedy, but so did a number of banks.

"Some of them have done Sonia in the past and were quite comfortable with it. Others, it was like the first time they were doing a Sonia trade. So there was a lot of working with banks, making sure if that was a new thing for them, that they were getting their systems ready and getting themselves ready to do Sonia," he says.

"We were pushing them a lot, saying 'you're either able to do Sonia or you're not going to be involved'," he adds.

> "I'm not bothered about term rates. I'm quite comfortable using Sonia compounded. For me, I look at what's out there in terms of what sort of instrument would I want to use. I want the thing that's the most liquid, the most stable and most transparent in terms of pricing"
>
> Shaun Kennedy, Associated British Ports

In all, discussions started with the banks in February 2018, with the restructuring finalised in November of that year. Kennedy says he was very happy with how the execution went.

One downside was timing. The deal was completed three days after the International Swaps and Derivatives Association released near-final methodology for the fallbacks – a mechanism for contracts to move off Libor and onto Sonia should the former cease, for example. These will be inserted into legacy contracts.

The basis had already been on a downward trend for the previous nine months, having moved from 29.15 basis points on March 28 down to 22.5bp on November 26. Publication of the fallbacks consultation on November 27 was followed by a 14% fall in the 30-year three-month Libor-Sonia basis over just three days.

At restructuring, ABP's Libor cashflows turned into Sonia plus the basis at the relevant maturity. As a net Sonia receiver, this meant the company received less than it might have earlier in the year – a situation Kennedy says was "less good".

ABP will look to convert more swaps to Sonia in the coming years, Kennedy says, as further mandatory breaks in swap contracts bring dealers back to the negotiating table.

Obtaining consent

The next step was to tackle ABP's floating rate sterling debt. This comprises four private placements totalling £460 million, linked to six-month Libor, and two publicly listed issuances totalling £135 million, linked to three-month Libor.

There is less ABP can do with these instruments, as any change requires the permission of noteholders. Privately placed debtholders are known and Kennedy says it's a case of waiting until investors are ready to move.

"We've told them we're interested in transitioning and that when they're ready just to let us know. We ask the question if we see them or every few months or so," he says.

"For a lot of them though, it was something they weren't really even thinking about. And I think that's what's starting to change. So those conversations continue and they're all in various different stages."

The listed bonds are more complicated. Instruments are broadly held and it's not clear who the holders are after a deal is issued. To change the interest rate to Sonia, there are two options – buy the notes back and reissue at Sonia, or run a consent solicitation process to get permission to change the terms. At least 75% of holders would need to agree.

ABP opted for the latter. On June 11, it obtained consent from the noteholders to amend a £65 million floating rate note due in December 2022 so that subsequent coupons are linked to compounded Sonia instead of sterling Libor. The threshold was 75%, with a quorum of 75% of holders of the principal amount of the notes.

The coupon will be amended to reference Sonia plus 2.5%, plus a Sonia-Libor basis derived from an interpolated formula. This formula takes the three-year Sonia-Libor basis and, as the note has slightly more than three years of remaining maturity, adds a spread derived from interpolating between the three- and four-year basis points.

The calculation will be done on a five-day-lag basis, where the interest period starts five days before the relevant interest period and ends five days before the interest payment date, giving the issuer time to calculate the coupon. The first coupon derived from the new rate was paid based on an interest period covering June 21 to September 21.

Choosing fallbacks

Kennedy aims to steadily transition all of ABP's sterling and US dollar Libor exposure onto the new RFRs by the FCA's end-2021 deadline. "I don't like the idea of getting to the end of 2021 with all of my instruments still in Libor, hoping that something's going to happen and that someone is going to do it all for me. In terms of minimising our risks, it's better that we try and transition products as and when we can, when other people are ready," he says.

But he admits there may be some overhang. This means some swaps may have to rely on fallback language being developed by the industry, which would be inserted into the existing bilateral contracts and force them off Libor if the rate was to cease, for example.

Being bilateral, similar language can also be inserted into the loans and private placements when it's available, contingent on counterparties' permission. Inserting fallbacks into listed bonds also requires consent solicitation. If you are going to run that process, Kennedy says, "you might as well just change it to Sonia".

Even with private placements, finding the right fallback language to insert is difficult. The Alternative Reference Rates Committee – the US working group for RFRs – has finalised the fallback methodology to use for floating rate notes, but the sterling group has yet to come up with a similar template.

New floating rate note issuances include fallback language as standard, but some buy-side investors have refused to invest if the wording is considered weak. Kennedy says it's hard to build language that's completely robust, but "it's better to say something than nothing".

He views fallbacks as the "emergency" option rather than something to be relied on. One problem is a mismatch between asset classes. For example, triggers to move off Libor might be different for bonds compared to swaps. Also, bonds look set to fall back onto a forward-looking rate in line with the US consultation, while swaps will fall onto a backward-looking rate.

Waiting game

Looking forward, Kennedy says ABP plans to use compounded Sonia for any new swaps. He wants to do the same for loans and despite early brick walls, says momentum is slowly building. He puts this down to the influence of the letters sent by the FCA and the UK's Prudential Regulation Authority to major bank chief executives in September 2018 asking for details of their Libor transition plans.

"I'm not sure many people are actually ready to do it yet. But I think that does seem to be coming this year, from the conversations we've had, so that's really good," he says.

Eventually he wants to issue new Sonia bonds as well. While there have been a number of financial institution issuers of Sonia-linked debt so far, corporates are yet to debut.

"That's the thing we found quite frustrating, that away from the derivatives market those products for corporates in the Sonia space just aren't available. So although there are Sonia bonds being done, they're in this sort of five-years-or-less bucket, and tend to be issued by financial institutions."

Again, he says, it's just a case of waiting for the UK asset managers who tend to buy these bonds to get comfortable enough with long-dated Sonia-linked notes before they can go out to the market. ■

Previously published on Risk.net

ECB's Holthausen on Euribor, fallbacks and Eonia's end

Quantitative easing wind-down could boost the progress of Euribor reform, and may be used under certain benchmark rules in the coming months, but panel bank expansion is unlikely, writes Lukas Becker

In a hotel conference room in Brussels in April, Jean-Paul Servais, the head of the Belgian securities regulator, had something to get off his chest. On a panel that was supposed to be about non-European Union benchmarks, he instead gave a lengthy statement about his delight with the progress of Euribor's reform and how he was likely to give it the green light for use under the region's benchmark rules in the coming months.

It underlined the progress the eurozone and its working group on euro risk-free rates (RFRs) has made in the past year, though its direction of travel differs from other major currencies.

"I was happy to hear this stated publicly, because I know that for many banks, it's really important to have the support from the public sector being explicitly made," says Cornelia Holthausen, deputy director-general in the Directorate-General Market Operations division of the European Central Bank (ECB).

"The working group has really made a kickstart and I'm quite pleased with what they are doing, and with the level of engagement within the group."

The region has moved from the back of the pack to a leader in benchmark reform, one market participant recently remarked. That's quite the turnaround from a year ago, when any discussion about the progress of benchmark reform in the eurozone would be accompanied by an eye roll, a shrug and a bemused laugh.

Progress had lagged other major currency groups because of the eurozone's differing stance on how the issue should be tackled. While the UK Financial Conduct Authority (FCA) has taken a hard line, deciding to withdraw its power to compel banks to submit quotes from the end of 2021, which many believe will eventually lead to the death of the benchmarks, the Europeans wanted to reform and retain Euribor and the euro overnight index average (Eonia).

Euribor reform is now being phased in and despite earlier fears, it looks highly likely at this point to succeed. But scepticism over attempts to retain the rate remains. Some point to the fact that three-month Euribor's post-reform average daily volume is around €2.24 billion ($2.53 billion) for the one-week, three-month and 12-month tenors, according to its administrator, the European Money Market Institute (Emmi), in its second consultation on the topic.

A recent release by Ice Benchmark Administration said that so-called same-day funding transactions – understood to be the transactions that make up average daily US dollar Libor – stood at around $3.69 billion in total. So while the FCA is turning the screws on Libor rates, including US dollar, for having too few underlying transactions, Euribor rates are continuing despite recording similar figures.

Holthausen says she expects the number of underlying transactions to improve once the ECB's quantitative easing policy eventually ends, which would force cash-seeking banks into the interbank lending market once again.

"Right now, we have a very special situation with all the excess liquidity that's out in the market thanks to the ECB's asset purchase programme. So, I would think that once that liquidity goes down it will trigger a revival of different market segments," she says.

Another concern is that reformed Euribor contains a waterfall approach that includes so-called expert judgement if transactions are not available. According to the same Emmi consultation, for three-month Euribor, 69% of inputs were based on expert judgement; for six-month Euribor, it was 82%. Unlike the old system, though, expert judgement under the reformed approach does need to be linked in some way to a relevant transaction.

Holthausen admits the proportion of expert judgement is "quite high" but says the reforms result in an improved system.

"I think it's fine, because you still have the 20% or 40% transactions. And these transactions also give a level for the rate, so you could also observe if something was really off," she says.

"Ideally, we should have more transactions, but given the circumstances it was the best that they [Emmi] could come up with. So, I'm hopeful that this reform will work out and delivers a good rate."

Mortgage dilemma

She stresses that it is not the ECB's job to decide whether Euribor should live or die – ultimately, that's for others, such as Belgium's Financial Services and Markets Authority (FSMA). But the thing to remember, she says, is that Euribor is the reference rate for a host of retail mortgages, making it an extremely tricky benchmark to dislodge without a messy and drawn-out process.

"When taking a decision on whether a certain benchmark should discontinue and be replaced by another rate, one should consider the cost and benefits of each approach. So, the regulators who think about this might consider that it would be very risky to discontinue Euribor because of the mortgage contracts, and it's not clear how they could transition to something else," she says.

Holthausen says some market participants have suggested using legislation to legally move retail mortgages off Euribor, but she says this is not on the cards: "As far as I understand, the legislators are not looking at this," she says.

So, with mortgage contracts running decades into the future, how long could Euribor conceivably last? Legislation that extended the EU Benchmark Regulation deadline to the end of 2021 also extended the period that regulators could force banks to contribute to critical benchmarks, from two to five years. This means Euribor will be around for at least another five years.

Beyond that, she says, it will depend on a range of factors, such as how long banks want to keep contributing to the panel. Unlike the Libor panels, banks haven't committed to remaining until at least the end of 2021. Monte dei Paschi departed the Euribor panel in January and the National Bank of Greece left at the end of May, bringing the number of participants down to 18.

The minutes of the February 2019 meeting of the euro RFR working group show that it and the European Commission hope more banks will join the panel over time, though it's not necessarily critical for Euribor's survival. Some say banks lack motivation to join, given the legal and operational risks involved, and Holthausen can understand the reasons.

"I would see it as difficult to convince individual banks to join the panel. Maybe if there was some concerted effort of some type, that would then make

> "It would be very risky to discontinue Euribor because of the mortgage contracts, and it's not clear how they could transition to something else"
> Cornelia Holthausen, ECB

several join in some way. That may be conceivable. But overall… it's probably very difficult and unlikely that this could work."

She says that activity in other markets is also a factor affecting Euribor's survival. If other markets move away from interbank offered rates (Ibor) and onto overnight benchmarks, the euro market might naturally follow over time.

In the meantime, she says, European regulators will not be pushing market participants to transition their existing legacy trades off Euribor. "If we keep Euribor, they can stick with it forever," she says.

Focus on fallbacks

The working group's focus will be on embedding so-called fallback language into Euribor-linked contracts, so that if the benchmark did cease, they would have a way to move onto the euro short-term rate (€STR). "What's important now is that fallbacks are embedded into the contracts. As far as Euribor goes, that's the most important thing to worry about," she says.

The European approach to fallbacks took a controversial turn in February, when a consultation found that more than half of 73 respondents thought a forward-looking term rate was "essential" or "desirable" as a fallback for all Euribor-linked products.

If applied, this would mean that should Euribor cease, the fallback language would see a contract move onto a term version of €STR, constructed from overnight indexed swap quotes, plus a spread making up the difference between the two rates.

While forward rates are being adopted as the fallback for cash products in the US, the International Swaps and Derivatives Association (Isda) consultations on derivatives fallbacks so far have all focused on backward-looking rates, with compounded-in-arrears methodologies winning favour in the sterling, yen, Swiss franc and Australian dollar markets.

The November 2018 release of the near-final fallbacks for those currencies also said preliminary feedback on euro contracts pointed toward a market preference for backward-looking fallbacks.

In addition, the Financial Stability Board (FSB) has warned against using forward-looking rates as fallbacks for derivatives contracts, noting that this approach will not address the core weakness of existing Ibors – the lack of deep and liquid underlying markets. The regulatory body said narrow use of forward term rate fallbacks could be acceptable in some segments of the cash markets, but reiterated its opposition to use in derivatives.

Holthausen acknowledges that the forward-looking route would deviate from the direction of travel in derivatives markets so far.

"In a way, it would go against what other jurisdictions are doing and what the FSB is recommending, I agree. But on the other hand, each jurisdiction is very different. So, in the end you have to find the solution that best fits your market, and it may be that various jurisdictions end up with different solutions," she says.

The decision is far from final, and Holthausen says the working group is also analysing backward-looking fallbacks for various asset classes including derivatives. She acknowledges that the consultation was "probably a bit confusing", and may have given the impression that the group was only considering forward-looking approaches.

"It's not inconceivable that you have a mix of both forward- and backward-looking rates… depending on the type of asset that you're looking at," she says.

Trigger-happy?

For a fallback to work, it needs a trigger to activate it, and one of the more controversial topics currently under discussion is whether this should be reliant on a regulator's view of the robustness of an Ibor rate. The FCA is pushing for all contracts, including derivatives, to include pre-cessation triggers, which would allow fallbacks to be activated if an Ibor is still alive but only being propped up by a handful of dealers, for instance.

The FCA wants one of the pre-cessation triggers to be based on the regulator's view of whether a rate is still representative of the underlying market. If a bank leaves an Ibor panel, the EU Benchmark Regulation requires the overseeing regulator to assess whether the rate is still representative of the underlying market. If the regulator says that is not the case, the FCA wants this declaration to be the trigger to activate fallback contracts across all products.

Bond, loan and securitisation products in the US have adopted this trigger in their new fallback language. Isda is consulting the non-cleared swap market on whether to include such triggers in fallback language, which will be inserted into willing counteparties' legacy swap contracts en masse via a protocol once it is finalised. But some market participants suggest the non-cleared swap market is less keen than others to adopt these particular fallback triggers.

A trigger based on representativeness could make sense, according to Holthausen, but the decision ultimately sits with the FSMA. It is crucial, though, that such triggers do not make it into contracts until eurozone rates have been fully reformed, she warns.

"The current Eonia is not considered representative, for instance. So, if we had such a trigger in place, then we may have had a reaction that we would not have liked."

€STR transition

The focus for the next few months is firmly on the transition from Eonia to €STR. Once it became known that Eonia was beyond saving, thoughts at the RFR working group turned to how the market can transition off the rate in a sensible way.

On October 2, Emmi will change the methodology of Eonia to become €STR plus a spread. The spread will be an average of the basis between Eonia and the pre-€STR rates published intermittently by the ECB over the previous 12 months. The basis has remained steady at around 8–9 basis points.

This is viewed as an elegant solution that allows the market to move onto an €STR-linked rate without having to immediately repaper existing contracts. But it does mean a change to the timing of the rate's publication. Currently Eonia is published at the end of the trading day, but €STR will not be available until the following day. This means market participants will have to update their systems to be able to handle the change to market convention – for instance, banks will have to start doing their portfolio calculation runs during the day instead of overnight.

The UK market saw a similar change when the sterling overnight interbank average rate (Sonia) was reformed in April last year, so it should be manageable – but only if the market is fully aware. Holthausen worries that not everyone will get the message.

"Here, I fear that at this point in time many market players are not yet aware of what they have to change and what applies for them," she says. A subcommittee of the euro working group is conducting outreach to help get the word out, she adds. ■

Previously published on Risk.net

BMO – Setting the pace in Libor transition

As an early mover, BMO Global Asset Management switched more than £10 billion of pension liability swap hedges to Sonia.
By Lukas Becker

Liability-driven investment (LDI) funds are known as some of the biggest and most sophisticated counterparties in the sterling swap market.

Even so, senior bankers raise their eyebrows in surprise when told that one fund has already managed to move nearly all of its swap exposure off sterling Libor and onto its replacement, the sterling overnight interbank average rate (Sonia).

The firm, BMO Global Asset Management, has £50 billion ($64 billion) of pension fund liabilities under management, of which more than £10 billion were hedged with Libor swaps. The firm began the transition in April 2018. By August 2018, it had managed to move the vast majority of its clients' back books to cleared Sonia positions.

"One hundred per cent of those that have a transition plan are done or in the midst of implementing it. In terms of what's been actually completed, it's approaching 95%," says Simon Bentley, a client portfolio manager at BMO Global Asset Management in London.

For new interest rate swaps, the firm aims to trade only contracts linked to the overnight rate.

The success is no accident – BMO started speaking informally with dealers on the Bank of England-convened working group on sterling risk-free rates (RFRs) as far back as 2016.

BMO historically has achieved good outcomes for clients by staying on top of the myriad changes in the swap market and by being an early mover, says Bentley. This is important as portfolios are never static – clients often want to rebalance when they obtain new liability data or enter a new insurance portfolio buyout – so the firm has to constantly gauge the effect of these changes on dealing costs and act accordingly.

"We're always looking at what's going on in the background, whether it's cash collateral or central clearing, and more recently Libor and Sonia. So we've been engaged with it largely since day one, but obviously looking for a sensible time to start taking action," he says.

"One hundred per cent of those that have a transition plan are done or in the midst of implementing it. In terms of what's actually been completed, it's approaching 95%"
Simon Bentley, BMO Global Asset Management

After a white paper issued by the sterling working group in June 2017 found broad support for adoption of Sonia as the RFR, and once LCH began clearing Sonia swaps out to 50 years at the end of the year, it was time to put the plan into action.

The transition itself was a relatively simple procedure – the firm is generally a fixed-rate receiver, so it would need to enter an equal and offsetting Libor swap and then a new receive-fixed Sonia swap.

BMO has been an enthusiastic adopter of central clearing, which made the process easier as the firm could to go to any of the bank liquidity providers to close out the individual positions and the trades would be netted down and eventually compressed.

If the portfolio was non-cleared, BMO would have either been reliant on the original dealers to trade the offsetting Libor swap, or would have to go to another bank – creating extra line items and increasing costs.

It would also increase the risk that, should Libor cease, contracts behave differently, says Nabil Owadally, an LDI portfolio manager at the asset management firm. This could occur if not all banks signed the upcoming protocol that would amend swap contracts en masse to insert so-called fallback language. This will dictate the rate that will replace Libor should the benchmark cease.

"If you have no take-up of the fallback on one [swap] versus the other, you're actually starting to build basis risk into your Libor book," says Owadally.

Ahead of any movement, BMO ensured it had the right permissions in place to avoid transition being dragged out by having to wait for responses from clients.

First, the firm divided clients into three categories. The first included clients such as pooled funds where BMO had full discretion to move without having to go back for permissions. The second category included segregated clients where BMO had discretion, but there needed to be an element of engagement with the client.

The third category needed some sort of paperwork change, generally to amend the rate used as the primary or secondary performance benchmark.

"For clients whose primary benchmark was a swaps benchmark, or the only benchmark was a swaps benchmark, that set of cashflows was designed assuming that we were going to hold Libor swaps. It needed restating to suit a portfolio that used Sonia swaps," says Bentley.

> "You can see where the demand to come out of Libor and into Sonia comes from naturally because, structurally, pension funds are that way around"
> Nabil Owadally, BMO Global Asset Management

If a change needed to be made, BMO explained this to the client. After a discussion with their consultant, the client would sign a side letter to update the benchmark to Sonia, at which point BMO could get on with the transition. In a handful of cases, Bentley says, the client chose to use a gilt-based benchmark instead.

Building liquidity

Switching activity started at the end of the first quarter of 2018. BMO couldn't simply go out and do the transition all at once, as there wasn't enough liquidity in the Sonia market. It needed a supply of firms willing to take the opposite position – that is, to pay a fixed rate on a Sonia swap.

Generally, corporates are a key source of pay-fixed swaps in the sterling market, but these were expected to transition at a slower pace.

"You can see where the demand to come out of Libor and into Sonia comes from naturally because, structurally, pension funds are that way around. It's less clear, given the fragmentation of the paid side on Libor, where the supply was going to come from," says Owadally.

The firm had to wait for pockets of Sonia risk to become available. One key source was asset swaps done off the back of fixed rate bond syndications. Asset swaps are packages that see a fund buy a fixed-rate bond and simultaneously enter a pay-fixed interest rate swap. This enables them to pay away the coupon in exchange for a floating rate.

Some market participants had already been accepting Sonia as the floating leg in asset swaps. This created the opposite, pay-fixed positions BMO needed to strike new, receive-fixed Sonia swaps.

Restructuring of clients' legacy in-the-money Libor swaps also provided some Sonia flows. If an asset manager receiving fixed, for example, wanted to take profit on a position, it would close out the position and restrike at the current market level.

This would require the bank to adjust its discount hedge. Sonia is the rate used to calculate the present value of future cash flows for cash collateralised sterling Libor swaps. This means the value of a Libor swap is sensitive to movements in the Sonia-Libor basis.

Using the earlier example, from the bank's out-of-the-money, fixed payer perspective, if Libor stayed flat but Sonia fell, the value would move further against the dealer. Banks hedge this risk using so-called widener Sonia-Libor basis swaps, which see them essentially receive Libor and pay Sonia.

So when the sterling Libor swaps are unwound, the basis swaps are also removed by entering the opposite trade. This creates pay-fixed Sonia flows, and gave BMO the opportunity to take the other side.

Supply is also said to have come from hedge funds that entered Libor-Sonia basis-widener trades to profit from an expected rise in the basis after July 2017, when UK Financial Conduct Authority chief executive Andrew Bailey said the regulator would not compel banks to submit quotes to Libor panels from the end of 2021.

As the funds took profits, they entered the opposite trade to close the position out, providing further opportunities for BMO.

"From their perspective, they're not necessarily looking to clip out of their trade, they'd be happy just to target a specific level and then come out of the trade entirely. Given the flexibility that we had from our side, we had the ability to take on that liquidity in one go," says Owadally.

Given the sporadic nature of the Sonia swap supply, BMO didn't target any particular Sonia-Libor basis level, he says, but instead prioritised stability of pricing by keeping a keen eye on liquidity pockets and avoiding trades that would move the market.

BMO also reduced its sensitivity to basis moves by employing a systematic, relative-value framework to allocate between gilts and swaps. The wider the Sonia-Libor basis, the more attractive gilt yields appeared relative to Sonia swaps, all else being equal. This created an inherent adjustment mechanism in the switching process, which allowed BMO to adjust its allocation between gilts and Sonia swaps as the basis moved.

In all, close to 95% of the sterling Libor swap book by DV01 – the sensitivity to a 1 basis point move in underlying rates – has been transitioned to Sonia. Plans are in place to transition the remaining proportion, though clients are holding off for a variety of reasons. Some have yet to sign the final paperwork, for instance, while others may be overhauling performance benchmarks in preparation for the shift.

Some of the swaps also expire before the end of 2021, meaning they will roll off before Libor is likely to end.

All new sterling swaps are now linked only to Sonia.

Trickier shift to the euro short-term rate (€STR)

The euro swaps book is another matter. BMO is a relatively large user of Euribor-linked interest rate swaps, with a number of clients in the eurozone. But unlike Libor, Euribor has no end date, and the nominated replacement, €STR, doesn't exist yet. Bentley says the firm is on a "watching brief" at the moment.

Even when €STR is available, transition faces complications. For example, Dutch pension funds prescribe the discount rate for pension liabilities, which is set to six-month Euribor, so moving these accounts pre-emptively is difficult.

Liquidity may take a long time to build in a new rate. With pension funds being inherently conservative investors, it may be some time before there is enough liquidity in so far non-existent instruments for these clients to be comfortable doing trades in €STR.

"So, for all of those reasons, what we've tended to concentrate on is just the education process. The good news is that close to 90% of our euro clients are already in clearing. So the infrastructure is there, it's more about having the readiness to be able to deal with €STR swaps and the education process," says Owadally. ■

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Covering all bases

Debate around risk-free rates (RFR) and whether they are suitable for all products clients may wish to transact in is taken up by a panel of experts, who explain the areas in which RFRs are most and least suitable, the challenges for market participants in the transition to RFRs from Libor and the most valuable features expected to influence the uptake of the fallback rates

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Justin Keane
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How suitable are alternative risk-free rates (RFRs) for clients' needs?
Justin Keane, PwC: Clients represent a diverse group of market participants, including issuers, investors, borrowers and lenders. Generally, clients make three key points on the suitability of alternative RFRs:

1. All clients have emphasised that price visibility and liquidity on products that reference alternative RFRs is critical to the development of a transparent, liquid market. Much of this is mechanics, but the economics and liquidity have to be there. Clients are beginning to appreciate the 'push-pull' dynamic. Arguably, issuers and lenders must have product to push, but investors and borrowers can accelerate supply by demanding the product.
2. Some clients may be comfortable with arrears setting rates, and some clients may have a preference for a forward-looking term rate. Select clients may be economically indifferent if simply swapping back to fixed at the right price, but many believe the transition will be operationally easier if an in-advance setting rate is available, a point that might grow in importance given the current capabilities of vendor and other platforms.
3. While borrowers may like removing bank credit risk, lenders and investors may not – perspective is important. Some borrowers may be happy that they are no longer implicitly paying for the bank funding costs embedded in Libor, although ultimately some of those risks need to be covered. Other investors may prefer the higher yield embedded alongside bank funding risk.

Ultimately, suitability evaluation is also dependent on understanding the RFRs and how they are being used operationally in financial instruments, and understanding how the risks to each of the parties to a transaction are being evaluated and addressed.

Jason Manske, MetLife Investment Management: I think we must first ask: "What is the long-term suitability of polled rates such as Libor, which increasingly do not reflect actual underlying transactions?" RFRs – such as the secured overnight financing rate (SOFR) in the US – are based on hundreds of billions of actual daily transactions and are thus suitable as benchmark interest rates.

The most common complaint I have heard is that lenders would like a rate more correlated to their borrowing costs and reflective of the broader credit environment. It is true that RFRs are unlikely to respond in the same manner as Libor did during a recession, but it is important to note that lenders borrow far less in the wholesale unsecured markets that Libor is meant to represent, and that they could use the derivatives markets to partially hedge any remaining risk.

Axel van Nederveen, European Bank for Reconstruction and Development: The beauty of the current construct of the RFRs is that they are the best reflection of the base rate for money in a particular currency. As such, they are the transparent benchmark for the current base level of interest rates. An added benefit is that the methodology is transportable to less developed markets. As in most systems, overnight maturity tends to be the most actively traded and – in some jurisdictions – the only maturity traded.

But the debate is whether RFRs are suitable for all products that clients have or might want to transact in. The big difference between current RFRs and term Libor is that Libor encompasses two other major elements – the cost of term liquidity for the banks and interest rate change expectations. I am ignoring the bank credit component people often talk about, as only in times of systemic crisis will this premium become significant.

The reason many customer products are linked to term rates is that cash products require banks to supply cash to their clients and the cost of cash is dependent on the maturity of the loan or product being offered. This can be solved by effectively charging a margin for the product that reflects not just the client's credit risk but also the estimated cost of liquidity for the bank for the term of the loan.

This leaves one overriding question – whether clients prefer or need to know their projected cashflows well enough in advance to deal with the 'in arrears' methodology, which only allows for a short period between knowing the exact amount of the payment and the actual payment date.

Chris Dias, KPMG: Working groups and regulators worldwide have endorsed replacement benchmark rates for their respective jurisdictions. These rates do not perfectly replicate the Libor rates they are intended to replace and, in some cases, are quite different. These differences pose a number of challenges and will complicate adoption of the new rates. However, the new RFRs can be made workable for all clients with some level of effort and, more importantly, if market participants are willing to embrace the differences. Market participants will need to get comfortable with the challenge of overnight rates, the absence of term rates, compounding- or averaging-in-arrears, basis differences, volatility differences, and a number of other conceptual and structural differences.

Harry Lipman, Bloomberg: RFRs are suitable for many market participants, but still present significant challenges for certain firms that use swaps to hedge a credit component of a trade or have a need to know the exact coupon payment well in advance of the payment date.

RFRs are commonly used by sell-side banks and major buy-side institutions in over-the-counter (OTC) markets for use in products such as overnight index swaps (OIS). Given the overnight nature of RFRs, they currently have no established forward-looking term fixing, the lack of which means there will be operational challenges for some firms, as they will need to use a backward-looking compound-in-arrears fixing rather than a forward-looking term Libor tenor. This could present a headache for end-users such as smaller buy-side institutions that might lack the necessary infrastructure to handle the uncertainty of an arrears-style coupon payment, especially as it pertains to retail cash products.

Another key issue is that RFRs lack the credit and liquidity component captured within Libor. This is primarily challenging for institutions wanting to continue to hedge their credit or liquidity risk with a swap. In times of financial instability, investors migrate towards risk-free securities and, as a result, one could actually see an RFR move lower while credit spreads and borrowing costs move higher. This could create a mismatch between the credit product and the RFR used as a hedge.

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Do we need forward-looking term rates? What challenges does their development represent?

Harry Lipman: The US Federal Reserve Alternative Reference Rates Committee (ARRC), the UK Financial Conduct Authority's (FCA's) Official Sector Steering Group and other regulatory bodies have stated that the Libor transition should not wait for forward-looking term-rate fixings to be developed, but instead use the compound-in-arrears methods. This is reflected in the International Swaps and Derivatives Association's (Isda's) choice of RFR methodology for Libor fallback (for OTC derivatives). The ARRC consultation on cash, loans and other products has also suggested similar guidance on fallback of these products.

While many clients have expressed a desire for forward-looking term rates to help ease the adoption of RFRs for loans and other products, there is a natural evolution the market must follow before it gets there. Given the need to meet International Organization of Securities Commission (Iosco) standards, and the current lack of volume/liquidity in the trading of short-dated maturity instruments on the US dollar SOFR (and on other currency RFRs), it is challenging to produce a trusted and accepted forward-looking term-rate fixing, and is expected to remain challenging for the next few years.

Jason Manske: Some market participants feel we need forward-looking term rates to ease the burden of transition for smaller and less sophisticated market participants. The most viable term rates are likely to be derived from derivatives markets, including SOFR futures and SOFR swaps in the US. Liquidity in the SOFR futures and/or swaps market will need to continue to grow in order for SOFR term rates to be Iosco compliant.

Chris Dias: Forward-looking term rates are extremely important from the perspective of market adoption and client acceptance of the new RFRs. A published term structure of interest rates across multiple tenors allows firms to better plan and anticipate cashflow. Many firms also rely on forward-looking interest rates as a critical input into decisions concerning hedging. The primary challenge to developing a robust term structure for benchmarks is rooted in the principles set out by Iosco that are related to acceptable benchmarks. A critical precept for regulators is that rates be underpinned by market transactions, which in turn are highly dependent on sufficient liquidity being developed in futures and swaps across the various tenors. While some new RFRs are well on the way to developing a term structure, growth in liquidity is still nascent for other RFRs – SOFR, for example – with continued demand for Libor-based products posing the greatest impediment to growth.

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Frank Serravalli
Partner, PwC US
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Frank Serravalli, PwC: Need or want? The market is accustomed to forward-looking rates for operational ease. In the near term it may be easier for the systems and processes, many of which are aged, to onboard forward-looking versions of the term RFRs.

However, the market has also demonstrated that overnight rates can be successfully used in cash instruments. For example, SOFR debt issuances have involved coupons paying less frequently – for example, quarterly based on a compounded or averaged SOFR – so the instrument more closely mimics the coupon conventions of prior instruments. Developing a common market convention for the calculation by product type is as important to increasing market adoption as trust in the rate and visibility into the spread related to term.

With respect to the creation of term fixings, one view is that forward-looking term representations of the RFRs may be created from the derivatives markets. Proponents of this view argue it will have a number of advantages:

1. RFRs will be built on transactional data – for example, notional amounts already in the hundreds of billions in CME futures alone, compared with around $500 million of transactions backing US dollar three-month Libor.
2. Direct linkage to the derivatives markets for hedging and risk management, reducing basis risk in the system.
3. Advance setting rates can be much more readily embedded in existing – and, in many cases, archaic – loan systems.

There are, however, alternative views in the market. For example, a term rate for cash instruments could be achieved by issuing cash instruments at different tenors. This incremental component approach could drive and support demand from the buy side and enhance market depth. The routine and continued issuance of cash products at different tenors in the marketplace could naturally create a forward curve.

Markets must determine which solutions are adopted, but participants should consider the interaction between cash and derivative instruments. Consistent approaches across asset classes will facilitate risk management and accelerate liquidity.

Axel van Nederveen: Part of the problem with Libor was that the stack of transactions linked to it is dominated by interest rate derivatives, which represent up to 80% of the total notional. In the first quarter of 2019, 90% of interest rate derivatives were centrally cleared. It is already accepted that these will not need a term fixing.

On top of that, a large proportion of the notional amount of interest rate derivatives consists of forward rate agreements (FRAs). Roughly 40% of all interest rate derivatives were FRAs, mainly used by banks to manage their Libor-fixing risk. All three elements point to a large reduction of notional outstanding linked to any term rate. This means the potential incentive to manipulate them decreases markedly even before you consider how you can eliminate this risk further through their construction.

As long ago as 2014, the Market Participants Group on Reforming Interest Rate Benchmarks indicated that the OIS market provides a good basis for a forward-looking term rate.

But one of the missing elements is that OIS is still an OTC market. If you can force it onto a transparent marketplace, an index can be constructed with a benchmark administrator providing governance over the process and the methodological refinements that can be used to minimise the risk of manipulation.

The benchmark cannot be transaction-based, as an average price for the day, but will have to be constructed with a point-in-time measure. To do this, you need access to continuously streamed prices from a sufficient number of providers. This is likely to happen as the FCA has approached the major dealers to do just this. Then it is up to the benchmark administrators to decide how they construct the benchmark according to Iosco principles. There are a number of ways of minimising manipulation risk, including using relatively long, potential measurement windows with small time slices.

But the main deterrent will be in the transparency of activity through the electronic market.

I haven't mentioned the liquidity or fear of lack of liquidity in the underlying market – for a reason. Once Libor is gone, all short-term interest rate risk management will have to be done through the OIS market. Liquidity does not need to equate to a large volume of trades. It is more the ability to trade large volumes without moving the pricing of the asset you buy or sell. This, by definition, is the case in the short-term interest rate markets.

If clients want to use a forward-looking term rate, manipulation risk can be managed.

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What mechanisms can transfer legacy Libor swaps to RFRs?

Nassim Daneshzadeh, PwC: Firms are currently looking closely at their legacy interbank offered rate (Ibor) swap books to decide on the most appropriate transition strategy.

For the swap book, there are multiple means by which firms can look to transition legacy swaps into RFRs. These include proactive steps to transition the book prior to the Libor rates ceasing at the end of 2021 through the use of compression, unwinds or simply repricing the derivatives from Libor into alternative rates. However, for operational ease, the more firms can do in bulk the better.

Many firms will also look to rely on the Isda protocol to provide a fallback in their current contracts, providing a safety net if they are unable to transition into the new rates prior to Libor cessation. However, firms will need to ensure they are not overly reliant on the fallbacks as their primary means of transition, as that may cause significant operational risk, given the impact on valuation, risk, payment and accounting systems that would happen simultaneously at cessation.

Firms will need to assess how well the fallback methodology in the protocol will work, not only for the linear book, but also for their non-linear swaps.

The majority of these transition methods come with some transfer value, and therefore 'winners' and 'losers'. While firms will look to minimise this, avoiding it altogether is unlikely.

KPMG

Chris Dias
Principal
kpmg.com/evolvinglibor

Chris Dias: Transferring legacy swaps to the new RFRs is not a simple exercise. Robust fallback language should help with the process, but broad-based market adoption is critical to success. While firms may recognise the need to adopt new RFRs, their willingness to take the plunge will be tempered by numerous factors, including contractual considerations, systems, models and infrastructure challenges, client or counterparty willingness, appropriate basis adjustments, economic impact and timing. Leveraging the work of industry bodies – such as Isda protocols and statements by central counterparties (CCPs) – third-party vendors and advocacy groups will solve some of the issues, but the onus to move forward is borne by each institution.

Axel van Nederveen: A key component in the transition process will be the spread calculation methodology chosen by the market. The first Isda consultation showed a clear preference for setting in arrears, with the spread calculated as a historical mean or median. What is still open for consultation in 2019 is the length of the historical lookback period. If the lookback period is long enough – more than five years – it can be perfectly rational to convert en masse at the time of Libor's demise. It is clean and simple and adheres to the Isda protocol of being operationally easy to achieve while you are converting at a perfectly rational level. You could convert early but would probably only do so if transactions could be closed at levels better than the projected conversion spread. The closer you get to the date the more precise you can estimate this level.

One potential incentive for converting early – once the methodology is set – is that having the converted contracts will give you an RFR plus a spread. The presence of a fixed spread implies you will now have interest rate risk for the remaining life of the contract. This can be averted by effectively 're-couponing' the trade to a flat RFR transaction.

pwc

Karyn Daud
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Is there sufficient liquidity in RFR products? How can it be improved?

Karyn Daud, PwC: The short answer is not yet – but liquidity is growing.

While progress has been made in increasing liquidity in the RFRs, this liquidity is still uneven across currencies and products. In the UK, the sterling overnight interbank average rate (Sonia) is an existing rate and is therefore used in significant volumes of derivatives and bond transactions. However, volumes of SOFR swaps and futures are still playing catch-up – as is the corporate loan market as a whole, where there has been minimal activity to date. PwC expects activity in the latter to pick up over the last quarter of 2019 and accelerate through 2020.

Actions that will drive success and can increase liquidity in RFRs in the marketplace include:

- Aligning clearing-house timelines and methodologies
- Providing regulatory, accounting and tax relief
- Developing term rates
- Developing new products by banks to test new structures, identify and remove operational bottlenecks
- Banks educating clients – especially regarding cash products
- Increasing investment in new RFR products by the buy side
- Developing operational implementation capabilities by firms and vendors.

Chris Dias: Liquidity is slowly growing as market participants begin to see the new RFRs as viable alternatives. A growing number of firms have pulled the trigger to support the new RFRs – new RFR debt issuance has gradually increased, transaction volumes in swaps and futures have seen steady growth, and month-on-month volume continues to rise. Nonetheless, this growth pales in comparison to the issuances and transaction volume referenced by Libor. Liquidity in RFR products will improve substantially when the availability of Libor products declines, and market developments – such as price alignment interest and collateral discounting based on RFRs – are fully instituted.

Axel van Nederveen: In derivatives it will come; I'm not that worried about the eventual depth of that market.

Jason Manske: The US markets could benefit from more liquidity in SOFR-linked instruments – especially in instruments with tenors longer than two years. However, it is important to note that SOFR was first published in April 2018 and liquidity in SOFR futures, SOFR OTC derivatives and SOFR-linked cash products has been increasing steadily since its introduction.

Liquidity in the risk-free benchmark markets can be improved through wider adoption by investors, lenders, hedgers and speculators. The rate of adoption is driven by several factors, including technological and operational considerations, removal of regulatory uncertainty around issues such as the treatment of legacy Libor derivative positions in a transition, as well as the tax and accounting treatment of new benchmark rates.

Additionally, wider-spread use of SOFR derivatives should occur once the clearing houses – LCH and CME – shift to SOFR discounting. This will likely cause derivatives dealers to increase their use of SOFR-based hedges, further improving market liquidity.

What challenges do participants face when trading instruments, such as those for cross-currency interest rate swaps across secured and unsecured benchmarks?

Jason Manske: Cross-currency swaps represent one of the biggest challenges to the derivatives market in the transition to new benchmark rates; however, the secured versus unsecured benchmark issue is not a significant consideration.

The potential for different fallback mechanisms, spread adjustments, interest calculation and payment conventions across currencies creates the possibility for additional operational and valuation issues. Potential issues with beneficial instruments such as cross-currency swaps highlight the need to transition to new reference rates in a globally co-ordinated manner.

Chris Dias: Individual Libor swaps have had the benefit of sharing common constructs – a single regulator and administrator, being published at the same time, and all being unsecured benchmarks. This commonality was key to the success of the cross-currency market. The new RFR paradigm presents some new challenges to the cross-currency market in that there are multiple regulators and administrators, publishing times vary and some new benchmarks are secured while others are not. Global working groups have provided recommendations for addressing some of these issues; however, firms must still contend with the challenge of entering swaps where one leg is secured and the other is not. Secured and unsecured rates act (trade) differently in times of stress, resulting in increased basis volatility. Market participants will need to contend with this extra consideration when entering into cross-currency swaps referencing the new RFRs.

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Does more need to be done to co-ordinate post-Libor transition across swap classes?

Axel van Nederveen: At the moment, co-ordination is at the overall RFR working group level in the UK. It allows the different asset classes to work on their own issues surrounding the changeover. Even so, once there are conflicting interests it is still hard to bring these to a conclusion as, by construct, they almost always need consensus.

What factors are likely to influence the choice and uptake of the fallback rates?

Harry Lipman: For OTC derivatives, Isda has been successful by building consensus surrounding its choice of Libor fallback calculation, which entails a compounded-in-arrears RFR coupled with a Libor/RFR spread adjustment by working with market participants, regulators and vendors such as Bloomberg. With one additional consultation scheduled for later this year to fine-tune the relevant methodology parameters, the adoption outcome is expected to be relatively positive. In addition, Isda recently identified Bloomberg as the fallback adjustment vendor to calculate and publish adjustments related to Libor fallbacks, based on the exact methodology and parameters being determined based on industry consultations.

For cash products, consensus is more challenging as many products and securities exist in the retail world and can comprise more than two parties, unlike interest rate swaps. For example, a typical mortgage product involves the mortgagee, mortgagor, custodian, issuer and investor. Given the nature of each security having its own unique legal documentation, assessing the fallback language for every security in a portfolio can be formidable task. Bloomberg currently provides fallback language for cash securities, enabling asset managers and other institutional investors to assess fallback ramifications.

In addition to calculating and distributing this fallback data (for derivatives) and fallback language (for cash products) to the industry, the calculations will be integrated within the Bloomberg analytics and portfolio solutions to support Libor transition globally.

Chris Dias: The choice and uptake of fallback rates will be largely influenced by the availability of an acceptable replacement rate and its associated term structure – or methods to derive a term structure – market consensus on conversion mechanics, ease of implementation and an observable trigger. Each of these factors presents unique issues and questions. While industry consultations have taken place and recommendations exist or are forthcoming, the shortcomings of proposed fallbacks make widespread adoption challenging.

Axel van Nederveen: One problem is the so-called 'third fallback trigger' – the pre-cessation trigger. The Isda consultation on this trigger clearly showed a complete lack of consensus in the industry. We have the main derivatives dealers who fear that the uptake of the Isda fallback protocol could be selective and don't want this ambiguity, while the buy-side clearly has a preference for their clients not being exposed to a benchmark that has been deemed 'non-representative'.

I understand the reticence of the industry about the trigger. The continued presence of a published Libor rate while fallbacks are triggered, if the pre-cessation trigger is part of the fallback language, might mean more clients will choose not to use the protocol. They have the option to wait and see what is in their best interest at the point at which the fallbacks are triggered.

The other issue – which I'm confident will be resolved – is that the accounting standard boards need to give certainty that the conversion itself will not lead to a change in the hedge accounting designation of instruments and their associated hedges.

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What operational challenges does the transition present for different market participants and what principles should guide their strategy?

Jason Manske: Most market participants have similar operational challenges – although the scope of those challenges will vary by size of the institutions, the nature of their businesses and the extent to which they utilise derivatives. However, all participants must go through the same processes of Ibor exposure identification, remediation/transition, and adoption of new benchmark reference rates. Entities with extensive retail products tied to Ibors will likely have the most challenges as they must perform significant outreach, communication and education to their retail client base. Smaller institutions that face resource constraints will need to outsource more of their transition efforts to vendors.

Some common principles include:

- Start early – you should have started already
- Prioritise the exposure identification process as it will be very difficult to identify 100% of your firm's exposure
- Plan systems enhancements and discuss the transition with providers of systems/tools
- Reduce or stop adding new Ibor exposure
- Utilise industry-developed fallback language for new Libor transactions
- Begin transacting in products linked to the new benchmarks.

Karyn Daud: Four of the largest execution challenges that plague Libor transition teams – especially at large, globally diverse organisations – include consistent client outreach and communication; remediation of thousands of client contracts; the scale of concurrent technology upgrades; and adapting, tracking and monitoring changes to the balance sheet, risk and capital. Scarcity of time and budget, and the large number of internal and external stakeholders involved exacerbate these challenges.

Consequently, managing the operational execution risks associated with Libor transition is one of the most significant board-level Ibor transition issues for market participants – on par with legal, conduct and economic risk.

So, what can market participants do to manage these challenges and risks? PwC advises clients to start planning early, use scenarios to prepare for eventualities and connect the operational change activities – front to back – to your transition strategy. Even amid the risks, Libor transition represents an opportunity to improve service to customers, clients and counterparties. Design your programme with this mindset, ensuring the business is engaged and leading the charge with your clients.

Harry Lipman: To best mitigate potential challenges, participants should check existing portfolios for Libor dependence and determine whether there is any Libor fallback language for their OTC derivatives and cash instruments.

Participants should understand any regulator-driven or market structure initiatives that could affect their instruments across all currencies and need to be able to assess their ability to trade out of existing positions, and try to limit any additional Libor exposure from new trades.

At a minimum, even if participants have no existing Libor-dependent portfolios, they will need to have RFR OIS-type infrastructure in place, especially as it pertains to supporting a compounding-in-arrears-style convention. This includes appropriate data feeds and market risk/value-at-risk models. Additionally, any preparedness for transformation from existing Libor instruments to RFR OIS instruments should include Isda Libor fallback infrastructure.

For OTC derivatives portfolios, there are several aspects for clients to consider when transitioning their derivatives from Libor to RFR. For bilateral uncleared portfolios, clients can repaper or negotiate revisions to existing Isda agreements and credit support annex portfolio netting sets. For cleared trades, the CCP may conduct multilateral auctions and other protocols to move existing legacy Libor swaps/legs to RFRs. For either bilateral or cleared trades, a closeout of existing Libor trades coupled with a new trade that references the RFR index may be initiated or, alternatively, a basis trade where the Libor legs offset may be initiated.

It is important to begin testing portfolios and analysing risk to help ensure the transition goes smoothly well ahead of the potential Libor sunset in 2021. The process can include impact analysis on changes to Isda agreements, preparing for price alignment changes at the CCPs, and running what-if analysis on risk and valuation changes associated with migration of derivatives over to RFRs. Bloomberg's derivatives analytics platform, coupled with leading execution and order management platforms, enables users to assess valuation and risk ramifications, as well as seamless execution for Libor transition portfolio changes.

Chris Dias: All market participants will face operational challenges as a result of the Libor transition – and they will be more acute for some than others. Impacted firms will need to identify and change systems, models, calculators, platforms and business processes affected by the transition. Understanding change dependencies and the timing of each change will be critical to achieving a cost-effective transition. ■

>> The respondents to *Risk.net*'s questionnaire were speaking in a personal capacity. The views expressed by the panel do not necessarily reflect or represent the views of their respective institutions.

Libor takes a back seat as insurers await clarity

The European Insurance and Occupational Pensions Authority's silence on its plans to change the discount curve to reference the sterling overnight interbank average rate and other Libor replacements after its cessation has presented a stick-or-twist conundrum for UK insurers, writes Ben St Clair

The looming, not-quite-certain death of Libor exposes investors to multiple risks, but UK insurers face a unique challenge.

European regulators require insurers to value their liabilities using discount curves derived from Libor-linked swaps. At the same time, UK regulators are pushing financial services firms to start using new risk-free rates (RFRs) such as the sterling overnight interbank average rate (Sonia) – the anointed successor to the old, scandal-struck benchmark. Insurers that adopt Sonia swaps as a liability hedge before the official discount curves are changed will create a mismatch between the two, inviting capital add-ons.

On the other hand, waiting too long may just be delaying the inevitable, leaving the insurer with Libor-linked assets and hedges – particularly in sterling – that belong to a doomed, shrinking market.

Need to know

- The European Insurance and Occupational Pensions Authority (Eiopa) sets the discount curves insurers use to value their liabilities.
- These are based on Libor-linked swaps, but the benchmark is expected to stop being published at some point after the end of 2021.
- In the sterling swap markets, the sterling overnight interbank average rate (Sonia) is fast becoming as liquid as the outgoing benchmark.
- Eiopa is silent on whether it plans to change the discount curve to reference Sonia and other Libor replacements.
- This leaves UK insurers in a bind – move their liability hedge to Sonia early and create basis risk, or remain in a market that will become less liquid over time.
- Despite pressure from UK regulators, many firms are waiting for word from Eiopa.
- But not all. Andrew Kenyon at NatWest Markets says some insurers are choosing basis risk over liquidity risk.

The industry is now waiting for the European Insurance and Occupational Pensions Authority (Eiopa) to say whether, and when, it will change discount curves to reference Sonia and other RFRs.

With broadly similar liquidity in the Libor and Sonia markets and the volatility of the basis between the two rates subsiding in recent months, firms are looking more closely at their transition plans, says Andrew Kenyon, a director in insurance and pensions within the financing and risk solutions division at NatWest Markets. Some now see an early move as the lesser of two evils.

"Many of the insurers we speak to have gradually become more comfortable with the regulatory risk – Eiopa discount curves and the potential for Libor-Sonia basis risk capital requirements – relative to the risk of transitioning large and increasingly illiquid Libor positions at the same time as peers," says Kenyon.

An insurer's Libor exposures may come from its asset portfolio, which could contain floating rate notes (FRNs), loans and other securities referencing the benchmark. Exposure can also come from Libor-referencing swaps, swaptions or other instruments that hedge, among other things, changes in the value of liabilities, which are driven by the discount curve.

These are big portfolios. According to Eiopa's report of aggregated balance sheet numbers, there were €59.2 billion of derivatives assets across 106 UK entities in the first quarter of 2019, and €100.7 billion of loans and mortgages. The figures do not disaggregate interest rate or Libor-linked derivatives.

In a speech on May 14, David Rule, executive director of insurance supervision at the UK Prudential Regulation Authority (PRA), acknowledged the situation UK insurers are in.

"We understand the challenges this poses to insurers, and we are working constructively with Eiopa and others to address these issues," said Rule. "We encourage insurers to continue to focus on the actions within your control, such as identifying where Libor exposure is on your balance sheets, engaging with counterparties, and preparing for operational changes."

The same sentiments appeared in the thematic summary of responses to so-called 'Dear CEO' letters sent by the UK Financial Conduct Authority (FCA) to the heads of major banks and insurers in September last year. The letters asked firms for details of their Libor transition plans.

But while this is a growing concern for UK insurers and UK arms of international insurers, many were unwilling to publicly discuss their plans for this article.

While some firms such as Direct Line and Chubb have started looking at the issue, consultants say most do not see it as a priority, and the lack of clarity around Eiopa's policy on the discounting curve has put the brakes on transition plans.

Curve rules

The problem begins with Solvency II, which states that liabilities must be discounted using specific curves set out by Eiopa.

The regulator publishes curves in a variety of currencies at the start of every month, derived from the most liquid interest rate swaps. Currently these are linked to interbank offered rates (Ibors) such as sterling Libor and Euribor.

But Ibor swaps in many currencies are in the process of being phased out. Following the Libor rigging scandals and growing concerns that panel banks could flee the rate, in July 2017 the FCA announced banks had voluntarily agreed to support the benchmark until the end of 2021 – postponing an abrupt, calamitous death. The FCA oversees the administrator of the sterling, Swiss franc, US dollar, euro and yen Libor benchmarks.

As a result, regulators are warning market participants not to expect these benchmarks to survive long beyond 2021, and instead to start using products linked to RFRs.

The UK market had a ready-made RFR in Sonia, which is the floating leg on the country's overnight indexed swap (OIS) market, so has been the country most advanced in the transition from Libor. Market participants say liquidity in the Sonia swap market is now almost the equal of sterling Libor, especially in shorter maturities.

Liquidity is also said to be growing in longer-dated trades.

Article 77a of Solvency II requires Eiopa to use a RFR term structure "based on relevant financial instruments traded in deep, liquid and transparent markets" to build its discount curve. But despite pressure from market participants, most recently via a letter from the head of the Bank of England-convened working group on sterling RFRs on July 9, Eiopa has not yet decided to ditch its sterling Libor curve for Sonia.

At the time, an Eiopa spokesperson said the authority would respond "as soon as possible".

Other currencies are even further away. The euro discount curve is set with reference to Euribor-linked swaps, which are not due to be phased out any time soon. Liquidity is expected to shift eventually to a brand-new benchmark, the euro short-term rate (€STR). Swaps linked to €STR are set to begin clearing at LCH from October 21.

Documents from an August 29 meeting of the euro RFR working group say a decision by Eiopa to move to new RFRs is "not expected to happen in the near future". The topic is not mentioned at all in Eiopa's 2019 work programme.

A decision to move would require a change of regulation to avoid insurance liabilities ballooning.

Solvency II specifies that discount rates be adjusted downwards to back out the effect of credit risk embedded in the Ibor benchmarks. The final discount rate equals the Ibor-referencing interest rate swap rate reduced by half the average difference of the swap's floating leg and the rate on an equivalent OIS over a one-year period. The primary text of the regulation specifies that the adjustment has to be between 10 and 35 basis points.

So, if Eiopa switched to an RFR curve linked to Sonia swaps, which represent the overnight rate, there would be a double hit. First, as Sonia is lower than Libor, insurers that had stuck with Libor assets and hedges would suddenly have to discount their liabilities by a smaller number, leading to higher valuations.

The kicker is that even though the floating leg on the swap would also be the overnight rate, the adjustment calculation would still need to incorporate the minimum 10bp downwards shift baked into the regulations, increasing liability values even further.

Market participants say the rules need to change, but are under no illusions about how easy or quick this would be.

Basis risks

With no change from Eiopa on the horizon, UK insurers are in a tough spot.

If insurers move their assets and liability hedges to Sonia before Eiopa changes the discount curve, their liabilities would continue to be discounted at Libor, creating basis risks. For firms using their own internal models approved by regulators, this may create the need to hold additional capital.

Lotfi Baccouche, partner at consultancy Parker Fitzgerald, says some people haven't quite grasped the impact of the change.

"From a Solvency II perspective, some actuaries may take the simplistic view it's just swapping one rates table for another and adjusting the models accordingly. It is not as simple as that," says Baccouche.

Even if Eiopa changes the discount rate, it will still take time for insurers to go through the necessary approval processes to change solvency models internally to accommodate a new rate.

Firms using the standard formula may not face a capital hit, however.

"Under the standard formula, there's no real explicit basis risk stress between Sonia and Libor, for example," says Simon Richards, head of insurance solutions at Insight Investment. "So if you did have Sonia swaps, and you had a Libor discount rate, standard formula firms wouldn't pick up any extra capital requirements in their Pillar I valuation, although some firms might stress this as part of their own risk and solvency assessment."

If liability discounting moved to Sonia, the idea would also be to move assets to the same rate to ensure both sides of the balance sheet match. These products are few and far between currently, however, with FRNs the only cash asset that has really made the jump to Sonia for new issuance.

On the other hand, if insurers stick with Libor swaps and assets, they will eventually have to transition them off Libor before the rate ceases. Transitioning swaps contracts from Libor to RFRs will result in some form of valuation transfer, and may become more and more difficult towards the 2021 deadline as other firms try to do the same thing simultaneously.

Cash assets are arguably more difficult, as they cannot be repapered en masse like swaps and need permission from bondholders. To date, only one bond – issued by Associated British Ports in June – has been changed from sterling Libor to Sonia.

As NatWest's Kenyon says, some insurers are getting increasingly comfortable with running this basis risk on the liability hedging side, compared with the pain of having to change their Libor portfolios over at a later date.

Liquidity issues

Any move to transition assets and derivatives hedges into the equivalent RFR alternative is also a bet on timing and where market risk lies.

Move too soon, and insurers could be entering a less liquid market in some products, particularly on the swap side. Insurers need long-dated hedges to match their lengthy liabilities, but liquidity on the longer end of the curve has traditionally been a problem for RFRs, including Sonia.

For example, liquidity is especially important for unit-linked guarantee writers that tend to take a more "dynamic hedging approach to replicate long-dated guarantees", says Neil Dissanayake, director of European trading at actuarial consultancy Milliman.

"For dynamic hedging, liquidity is particularly important, because the nature of the strategy relies on you being able to be trade fairly frequently. Switching to OIS, which is a less liquid market for longer tenors, may present more challenges to insurance companies relying on dynamic hedging, compared to other companies that tend to have fairly static hedge portfolios," Dissanayake adds.

Other market participants, however, note that longer-end liquidity has steadily improved in the Sonia market and is not wildly dissimilar to Libor.

But waiting too long to transition could mean transitioning at the same time as the rest of the market, potentially resulting in higher costs and a worse rate.

Notably absent in the approved RFR space are swaptions, which investors use to manage interest rate volatility. Although some banks have begun to offer and print Sonia-based swaptions, the nascent market will take time become liquid, and insurers will be forced to use Libor-based alternatives.

Until exact swaption specifications become clear, asset managers are unable to build out the necessary infrastructure to accommodate those trades and manage the risk, says Robert de Roeck, head of structured solutions at Aberdeen Standard Investments.

Having to use dissimilar rates for accounting and Solvency II calculations means the two derived balance sheets will behave differently as market conditions change, further increasing complexity until the regulatory discount rate becomes clear.

Planning ahead

But while it's a growing concern, Libor transition isn't necessarily at the top of the industry's inboxes.

Insight's Richards says insurers have indeed been analysing Libor exposures throughout their businesses over the past six to 12 months.

> "Many of the insurers we speak to have gradually become more comfortable with the regulatory risk relative to the risk of transitioning large and increasingly illiquid Libor positions at the same time as peers"
> Andrew Kenyon, NatWest Markets

The fact that each currency group is transitioning off Ibor rates at different speeds adds additional complexity to the situation, even if UK insurers' predominately sterling liabilities help insulate them from some of this.

"The ability for any investor to make a transition away from their Libor exposure is a function of the local market and the availability of replacement instruments," says de Roeck. "Different markets will move at different paces, but it will be the arrival of appropriate replacement instruments that will ultimately dictate transition timescales."

Another complicating factor is Brexit. When the UK leaves the European Union, the PRA will take over the setting of discount curves for UK insurers. Given the PRA's keenness to support Libor transition, it's likely the regulator would move faster than Eiopa to adopt Sonia as the discount curve. But with the UK's Brexit timetable unclear, so is the timing of any such changeover.

All this comes as firms prepare for the new accounting regime for insurance contracts, International Financial Reporting Standard (IFRS) 17, which is currently set to become effective from the start of 2021. This requires insurers to build their own discount curves for accounting valuations, which means firms will have to choose whether to stick with Libor curves and be more aligned with their current regulatory approach, or move to RFRs such as Sonia.

"The key challenge is, how are they going to come up with the discount rates, reprice their products and restructure their hedges? If I'm implementing IFRS 17 now, and it's a two-year project, I'd know immediately it's going to be a serious conundrum," says Parker Fitzgerald's Baccouche.

"They're much more aware of the risk now, and they've got plans to address them. But for many firms it's more a case about having plans about what they will do, rather than having made significant changes at the moment. I think the biggest hold-up is this liability discount rate issue," he says.

With new accounting standards coming into force in 2022, the UK's impending exit from the EU, and the challenges of daily business, Libor transitioning falls among a variety of concerns and deadlines.

"They're aware of it. It's going to have some impact on them, clearly," says William Gibbons, a director at PwC in London. "But in the context of all the other things they're doing and what else is going on with their businesses, is it necessarily number one? I'm not sure it is."

Some firms have nevertheless started the process. Jim Hardie, director of investment management and treasury at Direct Line Group, says the company has identified the primary areas where Libor discontinuation could have an impact on in-house activities and has been monitoring developments around the identification and development of replacement RFRs.

"Separately, analysis has been undertaken to understand the impact of any basis risk between different RFRs on the valuation of liabilities," he says.

Chubb has also taken steps to reduce Libor exposures in its debt liabilities, buying back $1 billion of its US dollar Libor-linked FRNs in April 2018, according to its latest annual report. But on the investment side, the report said only that it was "monitoring industry efforts via our external investment managers to establish alternatives and transition away from Libor by the end of 2021". ■

Previously published on Risk.net

Patchy grasp of Libor reform worries Asia lenders

A lack of awareness about benchmark reform and its impact on corporates and non-bank financial firms is a source of concern for banks in Asia, which are facing widespread adjustment of lending terms. By Blake Evans-Pritchard

Lenders in Asia are calling on industry associations and authorities to step up efforts to inform market participants about the consequences of the likely demise of Libor for financial products, particularly loans.

"What I'm really worried about is what the Loan Market Association is doing with all my corporate loans that are tied to Libor – or any of the interbank offered rates [Ibors] for that matter," said Frederick Shen, head of global treasury business management at OCBC Bank. "Every corporate counterparty is going to be in a bilateral negotiation with respect to the issue of spending."

Shen added he had been receiving enquiries from non-financial counterparties about what the end of Libor meant for them, "but these are still few and far between".

Shen was speaking at the Asia Risk Congress, held on September 10 in Singapore. Fellow speaker Andrew Ng, head of treasury and markets at DBS, complained that the grasp of Libor reform among buy-side firms in the region was even more shaky.

"I've talked to asset managers who were supposed to be a little more sophisticated than the corporates, and those guys don't know some of the basic technicalities. They have absolutely no clue what is going on," said Ng.

Countries including Singapore have been drawing up plans to adjust to alternative reference rates once the regulatory imperative for Libor ceases at the end of 2021. Libor is important in Singapore because the local fixing, the Singapore dollar swap offer rate (SOR), is calculated with reference to US dollar Libor. SOR reflects the cost of borrowing in US dollars and swapping back to Singapore dollars at the same maturity.

With regulators keen to see reliance on Libor end, Singapore has had to develop an alternative. Last month, two industry groups backed the unsecured Singapore overnight average rate (SORA) to replace SOR.

Alex Bon, senior manager for technology vendor Murex, said awareness of benchmark reform is growing in Asia but still remains patchy.

"I think awareness is building but it is spread unevenly across the region, and you have different levels of awareness depending on what type of issues relating to the transition we are talking about," he said.

For example, Australia is one of the more advanced jurisdictions in the region looking at this topic, with a greater awareness among institutions, while companies from other markets still have some way to go, said Bon.

He added that this isn't helped by a "misconception" that the Libor changeover will be delayed.

"We need to make it clear that this is happening and, while Libor might continue post-2021, there will be no incentive for banks to stay on the benchmark for very long after the transition. So don't expect a solution from the regulators at the last minute," he said.

Libor is calculated from input data submitted by a panel of between 11 and 16 contributor banks for each of its five currencies. Once these contributing banks are ready to transition away from the benchmark, they will have no further incentive to continue submitting quotes.

Jurisdictions such as Singapore must inform counterparties about rate changes

This is what will cause the death of Libor, and why, unlike initial margining or Basel III mandates, regulators will not be able to give any relief, says Bon.

Ng believes there is more awareness in Europe and the US about the imminent demise of Libor, since swaps linked to the overnight financing rate in these jurisdictions have started to trade, which is not currently the case in Asia.

But this may change as swaps linked to SORA start to be traded, which is predicted to happen in the near future.

While this will help raise awareness among a broader selection of counterparties about benchmark transition, Ng said trade associations and regulators must increase their efforts to inform the industry.

Shen agrees that the financial markets in the region would benefit from improved outreach. "Education sessions need to be run on a holistic basis to make sure everybody is on the same page and delivering the same message," he said.

However, not everyone is clear what the message should be. Many of the elements of benchmark reform have yet to be mapped out, leaving bankers struggling to explain the transition to their clients.

"The issue we have is that there are more questions than answers we can provide. There are still many transition items that are not sorted out," Shen said. "So when I talk to non-bank financial institutions about the Ibor transition and how it impacts them, for a lot of those things we don't have the answer."

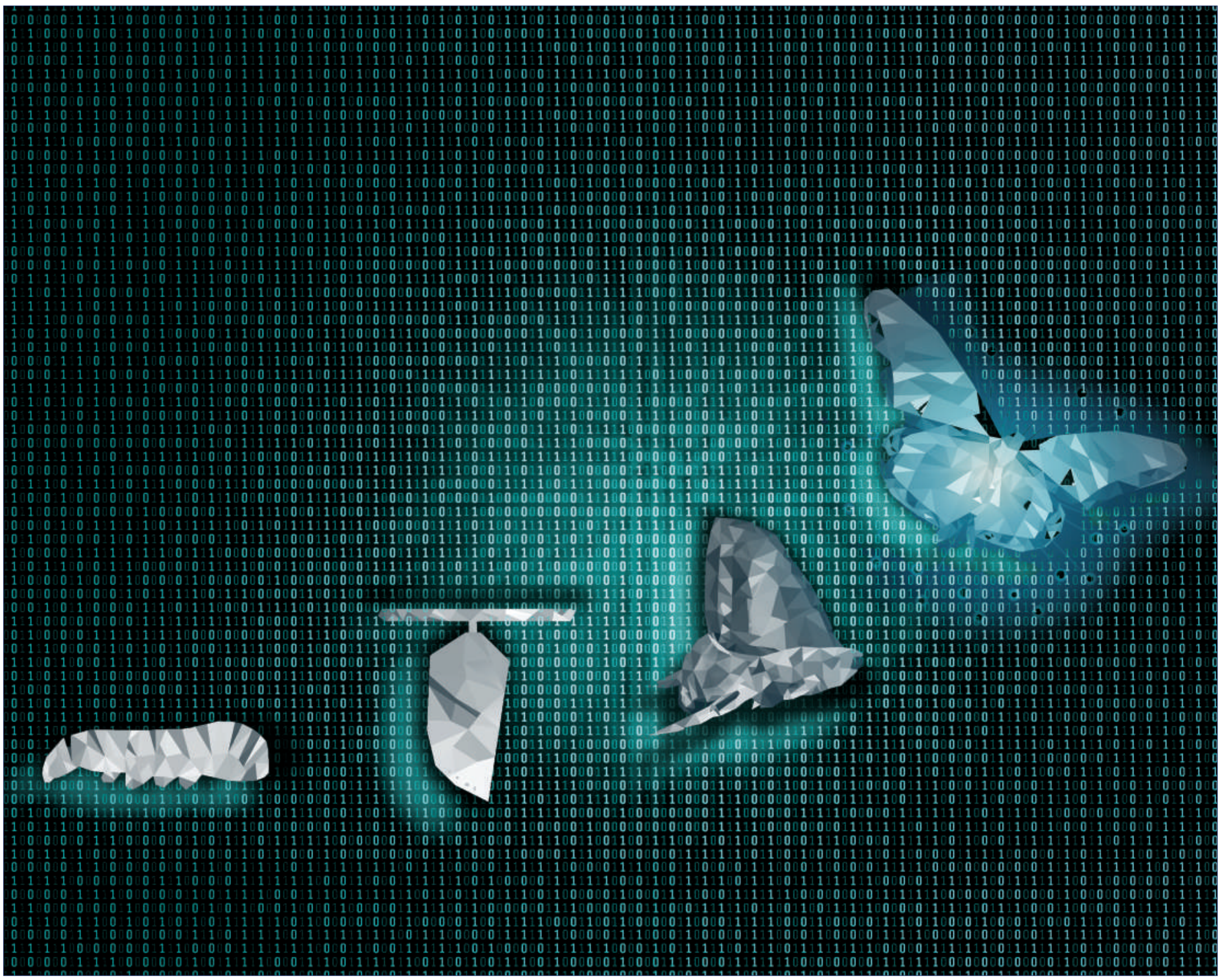
Ng offered a stark warning over the consequences of failing to prepare for Libor's demise. "If the industry doesn't have a good transition plan to let everyone know what it intends to do, I think there will be confusion and chaos," he said. "A lot of things need to be done in the next one-and-a-half years."

A new 15-strong steering committee, which was set up on August 30 by the Monetary Authority of Singapore to oversee the transition from SOR to SORA, could help provide some answers. There are three buy-side representatives: the Association of Corporate Treasurers in Singapore, the Life Insurance Association Singapore and the Investment Management Association of Singapore. ■

Previously published on Risk.net

Harnessing AI to achieve Libor transition

Chris Dias, principal at KPMG, explains how the vast increase in accuracy that artificial intelligence (AI) offers when dealing with large volumes of complex agreements is crucial to exploring the market opportunities and mitigating the risks of the transition away from Libor. Implementing a robust AI capability is an important starting point



Understanding exposure to Libor and the risk associated with it is a critical first step. Firms will need this information to better understand potential outcomes, allowing them to more comprehensively determine action steps for their businesses, operations and clients. Many firms will use existing systems containing structured data to capture a notional value or risk value of exposure. Such an assessment can provide an initial estimate of the challenge ahead, but not a full understanding of the range of possible outcomes.

Refining exposure and risk must go beyond straightforward system value to include consideration of contractual and legal risk, and economic exposure. These elements are best evaluated when combining structured data (from systems) with unstructured data (from contracts and other documents). Information such as consent, termination rights and cessation language are some of the details needed to truly develop an accretive action plan. The immediate challenge for most firms will be to gather, organise, analyse and manage this additional unstructured data.

Organising, analysing and managing data from structured sources, while complex, is a well-understood task that can be accomplished via data engineering tools and approaches. In contrast, organising information from unstructured sources poses new challenges.

The new challenges are manifold and can almost seem insurmountable. Unstructured data can exist anywhere – in risk and accounting systems, spreadsheets and filing cabinets. The quality of the data can vary considerably – from digitally pristine to indecipherably handwritten. Data for financial contracts may not be located in a single system or even one location and, in some cases, deals may have been largely disaggregated into component pieces, making recombination quite aggravating. And any changes to contracts in the form of amendments may not be linked in ways that create a transparent association.

Managing disparate and unstructured data

When working with unstructured data, careful planning is required to determine what information is needed from contracts and documents. In contrast to structured data, where variables and fields are already established, documents contain many potential pieces of information but no fixed structure or patterns of language. Best practice is for each institution to focus on desired final business outcomes by thinking carefully about how it intends to treat groups of related contracts under the Libor transition. This pertains to both common contract types as well as bespoke contract types. After establishing preliminary transition plans and organising documents into working repositories, the analysis begins.

The starting point is to link system data (structured data) to the data found in the contracts themselves (unstructured data). Unfortunately there are two major issues associated with this effort:

1. Contracts can be in a digitised, digital scan or physical paper document format and, if on paper, could be located anywhere
2. The effort required to review all Libor-related data is so great that it may not be possible to accomplish by the time Libor ceases to exist in December 2021.

Fortunately, operations research and statistical analysis have recently experienced a resurgence in the form of data analytics. This data science renaissance provides firms with the capability to more easily digitise documents through optical character recognition, making them machine readable. In this form, artificial intelligence (AI) capabilities such as natural language processing and machine learning can be brought to bear, and any document analysis can be undertaken in seconds by a well-trained computer.

AI produces value in several ways. At its most basic, it can perform information retrieval – extracting specific facts and items from documents. This can include names, dates, defined terms and blocks of text describing fallback mechanisms. Of greater value, a well-trained AI capability can apply reason to the information in the document to interpret and summarise. This interpretation can yield information about consent requirements, consistency of language with Alternative Reference Rates Committee guidance, and interdependency of defined terms and related documents; it can group together agreements with similar expected Libor transition handling strategies regardless of variance in language. Finally, AI can perform natural language generation to create draft amendments, summary reports, notices, communications and, potentially, chatbots for internal resources or external clients to interact with.

Chris Dias

Timothy Cerino

Conclusion

Given the wide variations in language and subtle details of most agreement types, this analysis can be very expensive when performed manually. AI is a highly scalable and cost-effective tool for facilitating transition. Vertical scalability is the ability to apply trained AI-based reasoning to large numbers of agreements. Horizontal scaling is the ability to extend an AI capability's training to accommodate new agreement types. A trained AI capability can process and interpret agreements in a matter of seconds and can be deployed to efficiently address large populations at a fraction of human cost. Finally, the accuracy of AI consistently and significantly exceeds human accuracy when dealing with large volumes of complex agreements. Whether you want to explore market opportunities or mitigate risk resulting from the transition, having a robust AI capability is an important first step. ■

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Dealers dip their toes into the Sonia swaptions market

In preparation for the transition away from Libor, NatWest and HSBC are understood to have executed sterling overnight interbank average rate (Sonia) swaptions trades, while Barclays has Sonia swaptions to clients, representing an initial step in the sterling market's transition from Libor in non-linear products. By Ben St Clair

In another milestone for the sterling market's Libor transition, at least two banks have traded swaptions linked to the sterling overnight interbank average rate (Sonia) and a third is actively showing prices for the instruments.

NatWest Markets is understood to have executed a trade in July to hedge a balance-guaranteed swap – a transaction in which the swap notional reduces at a rate linked to the amortisation of a reference security.

The trade was physically settled, meaning users are left with a Sonia swap if the option is exercised at expiry. The bank is also understood to be offering Sonia caps and floors.

HSBC is also believed to have executed a Sonia swaption but the timing and method of settlement is unclear. The UK bank is understood to be showing Sonia swaptions prices to clients. Both banks declined to comment.

Barclays has not yet printed a trade, but says it is actively offering Sonia swaptions to clients. The bank began offering physically settled Sonia swaptions in July, but says it will price cash-settled products on request. It is also sending price runs for the instruments to clients to help them calibrate their internal models.

The developments represent an initial step in the sterling market's transition from Libor in non-linear products. Insurers, liability-driven investors and mortgage bondholders are among market participants that use swaptions to manage interest rate volatility.

Sonia swap liquidity has increased in recent months, with the share of swaps referencing Sonia "broadly equivalent" to their Libor counterparts, according to a May statement from the Bank of England-convened working group on sterling risk-free rates.

However, traders say liquidity is still concentrated at the shorter end of the curve, and the lack of observable swap levels makes pricing the swaptions difficult.

"The main issue is that until it is a totally observable market, there is some uncertainty on how volatilities should be on these instruments compared to Libor swaptions," says Sabri el Jailani, global head of rates options trading at Barclays. "Clearly, banks will make different assumptions."

The limited liquidity means transaction costs will likely be higher than Libor swaptions, as they were when the Sonia swaps market developed.

"As the product becomes more standard and eventually the market default, we would expect bid-offer to gradually tighten to similar or better levels to Libor swaptions," says el Jailani.

Robert de Roeck, head of structured solutions at Aberdeen Standard Investments, says that for them, entering into a Sonia swaption trade requires "understanding the [banks'] pricing models and the inputs to those pricing models, which necessarily requires observable transparent markets… I think we're a fair way off that."

"[But] from a Libor discontinuation point of view, it's a good sign that the banks are doing something in this space that in effect is a nascent Sonia swaption market," he adds.

Another obstacle to a fully fledged Sonia swaptions market remains the lack of an alternative to the Ice swap rate, the mid-price for the fixed leg of an interbank offered rate-referencing interest rate swap. The rate is used to calculate the exercise value of cash-settled swaptions and derives from executable prices from electronic venues. Swaps referencing alternative reference rates such as Sonia trade on a request-for-quote basis, rendering them unavailable for the current Ice swap rate methodology. More than half of the sterling swaptions market is believed to be cash settled.

The Ice swap rate's administrator, Ice Benchmark Administration, has asked for feedback on whether it should expand the data sources it uses to calculate the rate and if it should also publish a rate with Sonia as the floating leg, given the growing volumes in Sonia swaps. IBA is asking for feedback by mid-October.

Nevertheless, shifting market liquidity means that, over time, traders will want exposure to Sonia volatility.

"If the underlying liquidity moves from Libor to Sonia in swaps, it follows that liquidity will improve in the Sonia option market," says Stuart Giles, managing director for business development and strategy at Tradition.

Barclays' el Jailani expects the Sonia swaptions market to pick up in the coming months. The two-year expiry point is one of the more liquid in the swaptions market, and soon this will take new trades past the end of 2021, when UK regulators will give up their power to compel banks to submit quotes to Libor panels, and there is a risk that the benchmark will cease.

"We would expect that past the end of this year, as the two-year expiry point goes over this date, to see more and more client interest in Sonia swaptions," he says. ■

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IBA mulls RFQ data and Sonia spinoff to bolster swap rate

Ice Benchmark Administration has consulted with the market on plans to expand the Ice swap rate's inputs beyond firm central limit order book pricing to ensure the rates can be published during periods of high market volatility, reducing non-publication and preparing for the transition to risk-free rates. By Helen Bartholomew

A rate underpinning trillions of dollars' worth of swaptions, structured products and floating rate debt is set to be revamped with indicative price data to safeguard publication in rising market turbulence and secure its survival in a post-Libor world.

The Ice swap rate is a key measure of term interbank offered rate-referencing swap rates and is published daily in tenors from one to 30 years for sterling, euros and US dollars. A recent jump in volatility has seen the rate fail to publish across the entire US dollar curve on four separate occasions in the last three months. As a result its administrator, Ice Benchmark Administration (IBA), is seeking feedback on a proposal to expand the rate's inputs beyond firm central limit order book (Clob) pricing. This would include indicative levels on regulated request-for-quote (RFQ) venues.

"IBA has published over 98% of the intended swap rates, but we are asking the market for their views on how we could help ensure the rates can continue to be published in circumstances in which market volatility is high, which is when we see the greatest instances of no publication," says Tim Bowler, chief executive of IBA. "Market participants would rather have a benchmark number to use, so we are getting their views on how we could expand the data set to help ensure publication of the rates."

The administrator, which wrote to banks on August 9, is also canvassing participants on plans for a new version of the benchmark referencing the UK's sterling overnight interbank average rate (Sonia) – the successor for sterling Libor.

The latest incidence of non-publication across all 13 tenors of the US dollar benchmark came on August 5, when escalating US and China trade tensions caused dealers to pull quotes from firm pricing venues amid soaring US rates volatility. It's a right that dealers retain to protect their own economic interests, but which leaves the swap rate vulnerable to a vacuum of inputs. This happened only once in the whole of 2018 (see figure 1).

An IBA study of all individual swap rate tenors over the period April 2015 to August 5, 2019, shows more than 700 incidents of non-publication for the US dollar rate, equating to a 3.2% failure rate. In sterling and euros, there were 138 and 174 incidents of non-publication, respectively, corresponding to a failure rate below 1% for those markets.

IBA's preferred approach to guard against future non-publication is a waterfall methodology, which would fill the rate using indicative pricing from alternative venues in the event it could not be created from electronic Clob data. Additional sources could include RFQ platforms such as Tradeweb and Bloomberg, dealer prices streamed directly to customers, or other screen prices including voice broking data.

The addition of indicative pricing is also a crucial step in transitioning the benchmark to alternative risk-free rates (RFRs) ahead of Libor's likely demise after 2021. Swaps referencing Libor successor rates such as Sonia in the UK and the secured overnight financing rate (SOFR) in the US are not yet quoted on electronic Clobs, meaning there are currently no acceptable inputs for creating fresh versions of the swap rate to ensure its survival as Libor liquidity ebbs.

Second fix

The rate, formerly known as IsdaFix, is used to calculate the exercise value for the $40 trillion swaptions market and is a reference for bank capital securities as they reset from fixed to floating format. It is also a key input for constant maturity swaps, which underlie the majority of rates-based structured products, including range accruals.

An earlier makeover of the benchmark in 2014 saw so-called expert judgement via polling of contributor banks replaced with firm executable swap pricing from Clobs so that it would comply with the International Organization of Securities Commissions' (Iosco) principles for financial benchmarks. The full transition to the Ice swap rate was completed in April 2015.

But some believe the bar has been set too high, and a laudable attempt to restore credibility may have introduced new fragility. Despite a post-crisis regulatory attempt to push swaps into an exchange-like trading environment, the vast majority are still traded via RFQ.

"There are opportunities to trade on alternatives to electronic trading platforms in the swaps market today, and the Clob mechanism tends to be very much dealer-to-dealer focused," says Bowler.

IBA takes electronic Clob snapshots from three venues: BGC Partners' BGC Trader, Icap's i-Swap and Tradition's Trad-X. Liquidity can be thin and might disappear altogether in times of market disruption, leaving nothing to fill the rate.

Inclusion of non-Clob data could be achieved in two ways – either by integrating the waterfall directly into the rate's methodology, meaning any non-publication via Clob would automatically trigger the use of indicative price data, or by creating a separate non-Clob rate to be published in parallel and used as a fallback in the event of non-publication.

1. Recent incidences of no publication across all Ice swap rate US dollar tenors

February 8, 2018	High market volatility in the equities markets impacted the interest rates market
June 5, 2019	High market volatility because of changes in expectations in how the Federal Reserve will manage monetary policy
July 5, 2019	Thin markets on the day after US Independence Day
July 10, 2019	High market volatility following the Federal Reserve Board Chairman's testimony to the Senate on monetary policy
August 5, 2019	High market volatility signalled by tensions between the US and China

Source: Ice Benchmark Administration

The fallback scenario could create greater complexity but would give participants the opportunity to opt out of the non-Clob version and accept an alternative fallback – for example if they viewed it as a different economic instrument. Those choosing to accept the non-Clob version as a fallback would need to consider changes in International Swaps and Derivatives Association (Isda) definitions underlying those contracts to specify the non-Clob swap rate as the primary fallback. Current fallback language in Isda definitions for euro and US dollar contracts naming the Ice swap rate as the settlement rate says that a rate provided by "reference banks" should be used if a rate is unavailable. For sterling markets, the fallback rate would currently be determined by the calculation agent.

Some remain sceptical. The regulatory stance following the Libor fixing scandal was to peg key benchmarks to real transactions. Executable quotes on electronic order books are already one step away from that vision, and some believe indicative RFQ pricing is yet another stretch in terms of Iosco compliance.

"The concern with going out to RFQ is that there isn't that same degree of control," says one source familiar with the methodology. "It's just a screen-based price and if someone wants to transact, they get in touch to find out what the real price would be. It varies a lot across markets as to how robust those numbers are and what proportion would trade on screen versus what would not."

While having more data points can be helpful when liquidity is thin, it may not be a cure-all for the most extreme market turbulence, the source says: "In the most volatile periods the likelihood is that [indicative] RFQ prices would be changed anyway if someone wanted to trade, [so] it's a bit of a false comfort to have a number there."

Principle 8 of Iosco's benchmark guidelines allows for a hierarchy of data inputs and encourages administrators to retain flexibility to use appropriate inputs to ensure the quality and integrity of the benchmark. It notes that administrators may "rely upon expert judgment in an active albeit low liquidity market, when transactions may not be consistently available each day".

IBA's Bowler is confident the proposed waterfall approach would fulfil the hierarchy outlined in Iosco principles.

"RFQ or electronic dealer-to-client data can be Iosco compliant if there are the right governance and control structures around it. It is more conditional than using Clob data, but this data is not going to be the primary source. It's going to be the redundancy source and only if the primary source fails," says Bowler.

Others are supportive. RFQ venues remain the primary source of swaps liquidity and could be a vital input against a backdrop of Libor transition as liquidity in instruments currently underpinning the swap rate ebbs to RFR alternatives.

"The purist view is that even if not a lot of trades go through Clobs, the prices are irrefutable and the mid is a fair indication of market price. But a more practical view is that the streams you get on an RFQ platform like Tradeweb or Bloomberg provide tighter spreads, and generally people see them as good indicators of where the market is. A lot of trading activity goes through those platforms," says another source familiar with the methodology.

"RFQ or electronic dealer-to-client data can be Iosco compliant if there are the right governance and control structures around it"

Tim Bowler, Ice Benchmark Administration

Sonia test run

In its attempt to build a Sonia swap rate, IBA faces a new set of challenges. For a start, with no Clob pricing, the rate would need to be calculated from the RFQ-based methodology from day one. This means the new benchmark would initially be for indicative purposes only and run in parallel with its Libor-linked cousin for as long as necessary.

"There's a bit of a chicken and egg here in the Sonia market. We could start with non-Clob data first if necessary, because that's where the data is in the Sonia markets, and build from there as the market evolves a larger and more transparent electronic trading footprint," says Bowler. "We're looking to potentially publish both in parallel, get the markets used to it, make certain we're firm on the methodology and then go live thereafter and let people write contracts against it."

A Sonia swap rate would build on IBA's term Sonia fixings, which at the moment are published out to six months. Currently calculated from Sonia futures traded at Ice Futures Europe, the firm is planning to expand inputs to include overnight indexed swaps (OISs).

Combining OIS-based Ice term Sonia fixings with the proposed Sonia swap rate would together represent a full forward curve on the overnight rate, from one month out to 30 years.

With growing liquidity, Sonia swaps are expected make their Clob debut in the near future. Tradition recently told *Risk.net* it could create Sonia order books relatively quickly but relies on dealer members being prepared to make firm prices on Libor and RFR swaps at the same time – something which could expose them to more risk.

Still, Sonia liquidity remains patchy. While ample out to two years and at the very long end, there is little trading in the belly of the curve. Most activity is not spot starting, instead aligning with meetings of the Bank of England's monetary policy committee. To maximise data inputs, IBA is mulling use of Libor/Sonia basis swaps in addition to fixed/float Sonia swaps to construct the Sonia swap rate.

IBA is seeking views on its plans, including possible launch times and preferred publication time, until October 14. ■

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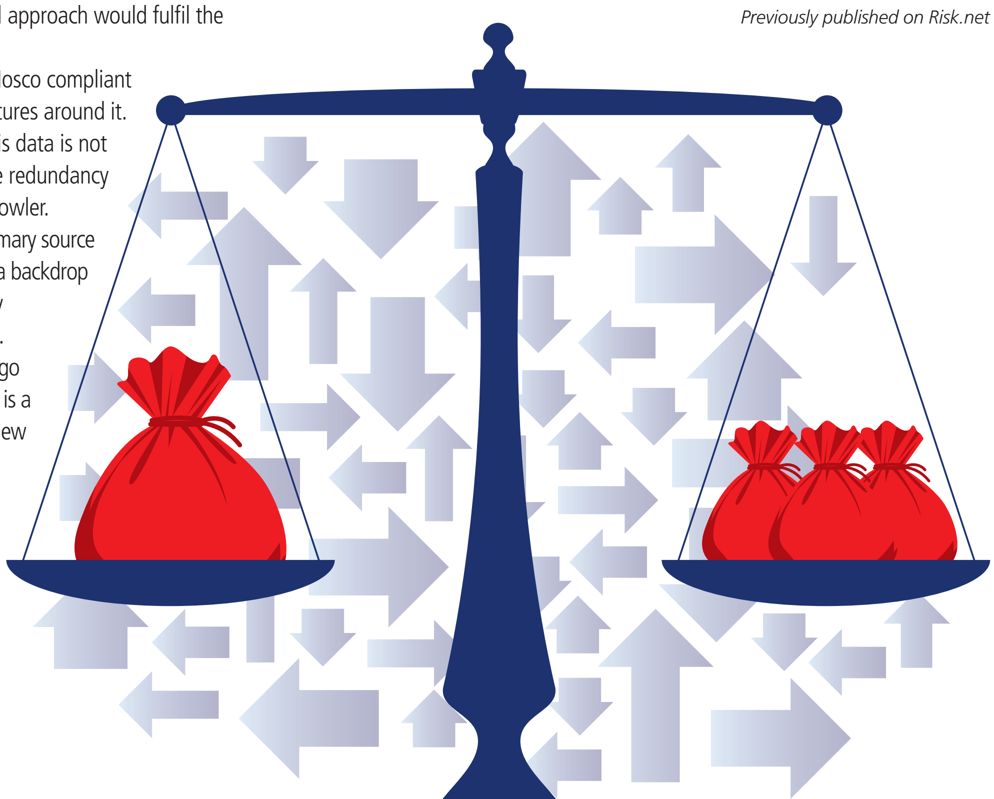

Realising opportunities while managing conduct risk

As efforts to transition from Libor to risk-free rates ramp up, Maria Blanco and Nassim Daneshzadeh, partners in PwC's US and UK financial services practices, discuss two critical and interconnected strategies that are front and centre for their clients

Client strategy – Making Libor transition an example of putting your customer first

One of the first questions PwC asks when speaking to Libor transition programme heads is: 'How does your programme address the needs of clients?'

At the heart of any Libor transition programme should be a thoughtful approach on how to best serve the client base, not only in migrating the back book to alternative reference rate solutions, but also by addressing emerging needs during this historic market event. This can be achieved by rotating the traditional programme structure onto its side and taking a strategic client view that:

- Creates customer profiles across positions, exposures and behaviours to support need- and risk-based segmentation.
- Drives prioritisation of client-related activities – client utility (contract and communication) set-up, marketing and educational planning, as well as new product development.
- Links client and product exposures to get a more insightful view of the balance sheet, and potential impacts from remediation efforts and market events.

Maria Teresa Blanco

Nassim Daneshzadeh

In doing so, firms can realise a number of benefits, such as:

- More efficient use of resources with greater impact as a result of more informed decisions. Knowing what type of exposures clients have across all of their activities allows you to design the client utility more efficiently, prioritise which relationships should be remediated as a relationship versus as individual products, and prepare the organisation for the new types of products that will be required in an alternative reference rate world.
- Better risk management. By having client exposures and behaviours quantified and tied to the balance sheet, scenario analysis and changes to the balance sheet caused by remediation can be tracked and managed more easily.
- Most importantly, the ability to provide distinctive service – always a commercially sound idea. A strategic view of your client base allows you to design transition plans tailored to the customer, manage communications in a seamless, co-ordinated manner and identify and create impactful client solutions.

Conduct risk – The elephant in the room of Libor transition

The follow-up question PwC asks when speaking to Libor transition programme heads is: 'How are you mitigating conduct risk?'

Libor transition is fraught with potential conduct risk, which, if mismanaged, can become an expensive and reputationally corrosive event. Five distinct features heighten conduct risk during Libor transition:

- Information asymmetries between industry working group participants and their clients – who are privy to less information – increase the possibility of actual and/or perceived unfair treatment of clients, mis-selling and collusion.
- Economic value transfer from moving to alternative risk-free rates (RFRs) can create 'winners and losers', and result in disputes.
- Uncertainty in the evolving RFR market structure – and the resulting open question of when interbank offered rates will actually cease to be published – makes it difficult for firms to know the 'right' thing to do and when to do it; for example, when to transition back-book clients.
- Conflicts of interest resulting from the multiple business and economic outcomes that can arise through the transition process.
- Regulatory scrutiny resulting from historical misconduct events – such as swaps mis-selling or payment protection insurance – has heightened the focus on conduct controls from global regulators.

To help firms proactively mitigate conduct risk, PwC created a Libor transition conduct risk framework. The three elements of the framework are:

1. Identifying types of conduct risks. Not all conduct risks are the same for every institution. Libor transition-specific conduct risks span from information asymmetries and economic value transfer to conflicts of interest and market disruption. Identifying them upfront is the foundation for managing them.
2. Defining programme-level conduct risk principles. Expectations for conduct risk mitigation have to be digestible for the entire organisation. Hence, PwC encourages the use of conduct risk principles to communicate how the firm approaches conduct risk, as well as its risk appetite.
3. Identifying conduct risk scenarios and creating mitigating actions for each risk. Guided by conduct risk principles, firms can design the necessary governance, controls and processes to mitigate firm-specific conduct risks across transition scenarios.

Conclusion

You cannot create an effective Libor transition client strategy without considering the closely intertwined conduct risk implications. Not every client and product has the same type or levels of conduct risk. Client strategy must not only be rooted in the opportunity to create new products and services, but should also weigh potential conduct risks embedded within each relationship and action. For example, serving a sophisticated hedge fund client that has set up a Libor-based opportunity fund will bring different types and levels of conduct risk than serving a public pension plan or a small commercial client. By pairing Libor-specific client strategies and conduct risk frameworks, firms can seize a unique opportunity to provide distinctive service while mitigating conduct risk during Libor transition. ■

Splits emerge over pre-cessation fallback triggers

As derivatives users consider the most effective way to include pre-cessation triggers in fallbacks for legacy Libor swaps, central counterparties say cleared swaps will move to new rates if Libor is no longer representative of markets, raising concerns of fragmentation in the market, write Robert Mackenzie Smith and Lukas Becker

Derivatives users are divided on whether and how to include pre-cessation triggers in fallbacks for legacy Libor swaps, raising the prospect of a bifurcated transition to alternative reference rates for cleared and non-cleared products.

On August 9, the International Swaps and Derivatives Association (Isda) released the preliminary results of its consultation on adding a fallback trigger that would be activated if regulators determine that Libor is no longer a representative benchmark.[1] As it stands, swaps will only switch to new rates if Libor ceases publication.

The consultation found no "clear majority" among the 89 respondents for either a hardwired or optional pre-cessation trigger, or any trigger at all.

While derivatives users are split, central counterparties (CCPs) insist they have the right to unilaterally shift cleared swaps to alternative reference rates if regulators pull the plug on Libor, regardless of whether the benchmark continues to be published.

If Isda is unable to find consensus, non-cleared swaps may only make that transition when Libor stops being published.

"This whole idea of a pre-cessation trigger creates an environment where there are potentially two different schedules," says the head of Libor transition at a large US bank. "We have clients who use both cleared and non-cleared products and they are concerned, while others that just use cleared trades aren't. Different people want different outcomes."

The Alternative Reference Rates Committee (ARRC) convened by the Federal Reserve Bank of New York has also recommended the inclusion of pre-cessation triggers in new cash products, such as floating rate notes and loans.[2]

Investors are starting to fret about the market fracturing. "It creates another bifurcation in the market," says the head of derivatives at an asset management company. "We think it's an issue and it is concerning. When we got together internally to respond to the Isda consultation, we identified that as one concern. There could be yet another bifurcated market if things aren't in sync."

Isda is developing a standard fallback methodology to switch swaps contracts to alternative reference rates if Libor ceases to be published. The fallbacks will automatically apply to new trades. Isda will also release a protocol for market participants to update legacy contracts en masse, should they choose to.

That methodology does not address concerns about a so-called zombie Libor scenario, where a hollowed-out version of the benchmark continues to be published with quotes from only a handful of banks. That could happen after 2021, when the 10-plus banks currently maintaining various interbank offered rates will be allowed to stop submitting quotes.

If a bank leaves the panel, the UK's Financial Conduct Authority (FCA), as the regulator of the rate, will be required under the European Union Benchmarks Regulation to determine whether Libor is still representative of the underlying market. If the verdict is negative, Libor will be unavailable for new transactions.

In March, Andrew Bailey and John Williams, respectively the heads of the FCA and the New York Fed, and co-chairs of the Financial Stability Board's Official Sector Steering Group, called on Isda to add a pre-cessation trigger that would give market participants with Libor-referencing contracts "the opportunity to move to new benchmarks rather than remain on a non-representative Libor rate".

The results of the consultation, which was launched after Bailey and Williams raised the issue in a letter to Isda, complicates those efforts.[3] Isda says it will now seek a solution that avoids "unnecessary complication and optionality, or anything that could jeopardise broad market adoption of the permanent cessation trigger".

Strong-arming Isda

CCPs have already staked out their position on cleared swaps.

"CME and LCH have each communicated to Isda and regulators that pre-cessation events may trigger or prompt them to use their discretion to use an alternative reference rate" even if pre-cessation triggers are not included in the fallback methodology, Isda said in its consultation paper.[4]

CME Rule 812 gives the company the power to "establish a final settlement price that reflects the true market value" of a product if the normal valuation procedures result in a price that is "clearly aberrant" or "inconsistent with market value".[5]

The exchange has said this rule could be invoked if the FCA determines that Libor is no longer representative.[6]

CME declined to comment.

LCH's rulebook also gives it wide discretion to take action if a benchmark is considered unrepresentative.

Eurex's over-the-counter rulebook does not address the issue directly. However, Section 313 of the German Civil Code gives CCPs the right to amend the reference rate of a contract if the benchmark has changed significantly since the trade's inception. *Risk.net* understands this provision would apply if a benchmark is subsequently deemed to be unrepresentative of the underlying market.

Eurex declined to comment.

> "It creates another bifurcation in the market. We think it's an issue and it is concerning"
>
> Head of derivatives at an asset management company

The Japan Securities Clearing Corporation (JSCC) also intends to adopt pre-cessation triggers. "Considering harmonisation among CCPs, we would like to incorporate a pre-cessation trigger regardless of the result of Isda consultation," says a spokesperson for Japan Exchange Group, which operates the JSCC.

A spokesperson for the Australian Securities Exchange says the company has not made a decision but is "watching developments with interest".

Some say CCPs are trying to pressure Isda into adopting a pre-cessation trigger. "I think it's a way to strong-arm Isda into coming up with pre-cessation triggers," says a member of the ARRC. "It's very well known that Isda has never had any pre-cessation triggers in their language before and I don't think they're fans of them, but obviously the Fed front-ran them and put them into their own language."

According to the latest data from the Bank for International Settlements, of the \$437 trillion of outstanding interest rate derivatives notional, nearly a quarter – \$104 trillion – is non-cleared.[7] Of the \$88.5 trillion of total outstanding notional that matures after 2024, when Libor may no longer exist, roughly \$27 trillion is not centrally cleared.

The non-cleared portion of the market includes products such as swaptions and cross-currency swaps, as well as vanilla interest rate swaps entered into before clearing mandates were enforced.

The situation with cash products is also more complicated than it appears. While new loans, floating rate notes and securitisations will have pre-cessation triggers, legacy cash products typically don't have them. Given the difficulty of making contractual changes to some cash products, it is unlikely that pre-cessation triggers will be in place by the end of 2021. As a result, legacy cash products and non-cleared swaps may continue to reference Libor after a pre-cessation event, while cleared swaps and newly issued cash products move to new rates.

This is one reason some firms are opposed to a hardwired pre-cessation trigger and may refuse to adopt Isda's wider fallback protocol if it includes triggers that create mismatches between legacy cash products and hedging swaps.

"We want products to marry up," says the head of derivatives at a second buy-side firm. "If I have issued a Libor bond that doesn't have any pre-cessation triggers then I want to have a Libor swap that continues to use Libor even if it's been deemed non-representative, because it hedges the rate I pay on my bond."

Isda declined to comment. ■

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NLP sniffs out contracts harbouring Eonia as fallback

A test undertaken by financial technology and consultant firm Synechron found that many of the 4,000 contracts underpinning euro-denominated transactions examined could fall back to the flagging Eonia rate. By Helen Bartholomew

The task of hefting an estimated $350 trillion in financial contracts off Libor could get a hand from natural language processing (NLP), which is being used to streak through thousands of documents for signs of the euro overnight index average (Eonia) – another rate headed for extinction.

Synechron, a New York financial technology – known as fintech – and consultant firm, recently completed a test for a top-tier investment bank using NLP techniques that sifted through 4,000 contracts underpinning euro-denominated transactions, including swaps and repos. The technology flagged those that fall back to Eonia, which will be phased out by 2021.

The study looked at three types of contracts: global master repurchase agreements, known as repo contracts; credit support annexes, which define the terms for collateral provision between swap counterparties; and global master securities lending agreements, known as securities lending.

Signs of Eonia cropped up over an extreme range. The test found only 5% of the repo contracts posed a material risk because Eonia was a back-up; but that rose to 20% for the swap annexes, and jumped to a full half of securities lending.

The test used optical character recognition (OCR) and NLP to read and analyse contracts, bucketing them into groups ranging from those whose fallback language posed no material risk – for example, because the contracts expire before anticipated transition date – to those posing the most.

"We've demonstrated how OCR and NLP can be used to pull out references to Libor and other benchmarks in a contract to allow a firm to more quickly understand where they might be impacted," says Daniel Percy-Hughes, head of regulatory change for Synechron's consulting division in London.

The Libor family of interbank rates will largely fade out after 2021, when the UK's Financial Conduct Authority no longer compels banks to contribute quotes for them. Euribor, however, looks set to limp on with regulatory support from the European Central Bank for at least another five years.

This means the more pressing concern for some euro-denominated instruments is the presence of Eonia as a fallback rate. Eonia is seen as too flaky to pass muster with the European Union's Benchmark Regulation, and is expected to be axed in 2022. Until then, it will be recalibrated as a fixed spread over the new euro short-term rate (€STR), which was due to begin publication on October 2.

According to Percy-Hughes, there may be uses for NLP in other aspects of the Libor changeover. NLP's ability to zip through documents could be expanded to asset classes where the contracts are more complex, for example, in syndicated loans where agreements can easily run to 200 pages with more than 100 mentions of Libor.

"We've been testing our model with derivatives because the terms are simple and well understood, but you can apply the same approach to a cash instrument such as loans contracts or mortgage contracts," says Percy-Hughes.

There may also be greater need for tools to speed up the laborious process of addressing contract risk in cash products. Standard fallback language being developed by the International Swaps and Derivatives Association is expected to be inserted into legacy swap contracts en masse in an industry-wide protocol. The association is close to finalising language for sterling contracts and has begun consulting with market participants on language for US dollar-denominated instruments. A similar project for euro contracts is yet to begin.

School for the machine

Weeding out problematic contracts is much more than a key-word search. For a start, many contracts are physical documents, existing only on paper. These must be scanned and turned into an electronic format such as a PDF. Then OCR tools come into play, turning the document into digital text, which can be read by the NLP algorithm and transformed into structured data for analysis.

According to Haonan Wu, head of data science at Synechron, the OCR operates with near 100% precision on tabulated information in a document. When it shifts to text, the accuracy rate drops to around 80% to 85% – a level continually being improved on by a machine learning algorithm.

"We wouldn't claim this is 100% accurate, but this is about allowing the analyst or risk manager or people managing transition programmes to make informed decisions, getting them quicker to the information they have and allowing them to compare that information en masse," says Wu.

The bank data set of 4,000 contracts in Synechron's test represents just a small sample for the institution, but according to Wu, it's more than enough to train a model to a high degree of reliability.

"Ideally, we have 500 documents and take 300 of them to determine patterns, then use the remaining 200 for testing purposes," Wu says. "It depends on the real case, but in some situations we only need 100 documents to start a model, and use 80 of them to determine the pattern and 20 for testing. This can also give us a reasonable result."

The NLP tool was built on an open-source library trained on the English-language version of Wikipedia. Synechron also defined its own financial terminology and has created a Libor pattern-matching library, which recognises key terms and strings of terms, which may be correlated or interchangeable. The algorithm looks at the wider context to determine whether words that can sometimes be interchangeable, such as 'notional' and 'principal', are not confused in settings where they have different meanings.

As an example, Percy-Hughes notes the word 'apple' means something different in a tech journal than it does in a supermarket paper.

Despite the potential savings – the fintech claims the techniques can speed up the contract review process 30 times, reducing costs as much as 80% – Percy-Hughes warns that NLP cannot single-handedly address the shift out of Libor.

"I think there's a bit of misconception in many applications of NLP and machine learning and a variety of artificial intelligence techniques that they will just replace everything," he says, "but it's very much about augmenting the role and bringing more information and a better structure to the user." ■

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