TCW

INSIGHT

VIEWPOINT

LIBOR, SOFR or OTHER?

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Introduction

Recent developments around alternative short-term benchmark rates are likely to hasten a transition away from LIBOR. In addition to the Secured Overnight Financing Rate (SOFR) officially being designated by the Alternative Reference Rates Committee (ARRC) as its preferred benchmark rate in the U.S., derivatives contracts based on SOFR have begun trading on the Chicago Mercantile Exchange (CME). Since USD LIBOR is the benchmark rate across an estimated $200 trillion in financial products (per New York Federal Reserve), the daily publication of SOFR and trading in its derivatives are important first steps in ARRC's paced transition plan.

While the introduction of SOFR does not guarantee the broader market will initially embrace it, we believe it will achieve widespread utilization due to the current state of LIBOR and the global migration away from it, as well as SOFR's underlying characteristics, and regulators' strong preference for it.

However, given the unique challenges across different segments of the financial markets that currently benchmark to LIBOR, the pace of adoption will differ and bear watching across both derivatives and cash markets. Ultimately, each sector must assess the risks and likely impacts of proactively transitioning to SOFR, potentially waiting for a redefined version of LIBOR or passively accepting some other rate.

Current State of LIBOR

Since Andrew Bailey's surprise speech last year on the "end of LIBOR," market participants have been speculating on the possible outcomes for the beleaguered rate. During that speech, Mr. Bailey, the head of London's Financial Conduct Authority (FCA), stated that past 2021, the FCA (regulator of the LIBOR panel banks) would no longer compel those banks to remain in the panel and submit daily LIBOR rates. While these banks can voluntarily remain in the panel and continue submitting rates past 2021, we find it unlikely that most will continue, given on-going litigation risk and lack of unsecured short-term borrowing due to secular changes in the money markets and bank regulation. (Societe Generale left the USD LIBOR panel in late 2017 but the remaining 16 banks have agreed to stay on through at least 2021).

Today, although the remaining 16 banks continue submitting USD LIBOR fixings based on the waterfall instituted by the Intercontinental Exchange (ICE) below, anecdotal evidence suggests they are uncomfortable doing so. The lack of actual funding activity underlying those fixings continues to undermine the robustness and credibility of the headline LIBOR levels. In fact, on many days, 3mo USD LIBOR seems to "trade in its own world," periodically setting higher/lower-than-expected relative to levels in other short-term rates (secured and unsecured) and conditions in the broader market. These dynamics have not gone unnoticed as various officials across the globe have commented on them in recent speeches. For example, Bank of England Governor Mark Carney offered: "[T]he reality is that, since the financial crisis, LIBOR really has become the rate at which banks *don't* lend to each other," NY Fed President Bill Dudley said: "LIBOR's potential cessation after 2021 poses a clear risk to financial stability…all of us must prepare for a world without LIBOR."

Although LIBOR panel banks have likely already been following the waterfall below in submitting fixings, the waterfall protocol is now official and adherence is mandatory. Looking under the hood of 3mo USD LIBOR, it is telling that in 1Q2018, only 28% of fixings were based on Level 1 transactions (actual borrowings) while about 72% were based on Level 3 transactions – the lowest point on the waterfall. So the beat goes on for LIBOR and the headline rates beyond the overnight tenor continue to be mostly based on "expert judgment" not actual market funding levels:

LIBOR Water Fall

Level #1: Transaction Based

A VWAP of eligible transactions, with a higher weighting for transactions booked closer to 11 AM London time

Level #2: Transaction – Derived

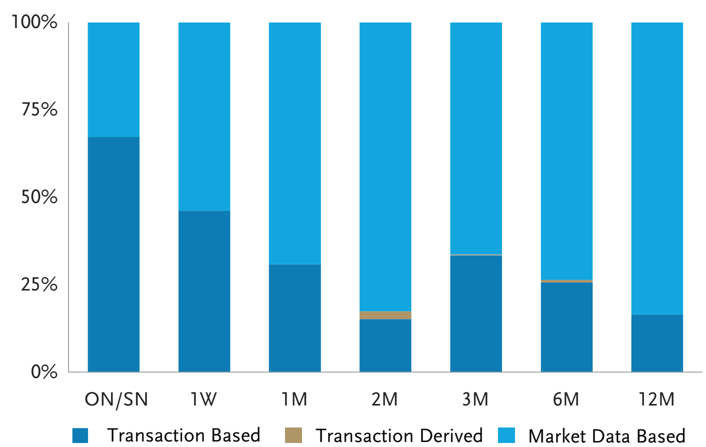
Transactions – derived data, including time-weighted historical eligible transactions adjusted for market movements, and linear interpolation

Level #3: Expert Judgement

Market and transaction data-based expert judgement, using the bank's own internally approved procedure (based on a set of permitted inputs and agreed with IBA)

Source: ICE

USD LIBOR Underlying Transactions (1Q 2018)



Source: ICE
Statistics are calculated from data submitted by panel banks in the currencies for which they are a LIBOR panel contributor. For information regarding the number of panel banks included in the calculation, please refer to https://www.theice.com/iba/libor

SOFR Debut

Earlier this year, the Federal Reserve Bank of New York began publishing SOFR on a daily basis. This was an important first step in the paced transition plan away from LIBOR that was proposed by ARRC. While SOFR (secured rate) is fundamentally different from LIBOR (unsecured rate), it is based on a robust amount of actual transactions and the market for those transactions is reasonably expected to remain large and liquid into the foreseeable future – two qualities that regulators strongly prefer and that arguably inspire more market confidence. Briefly, SOFR is a composite rate from various segments of the U.S. Treasury repurchase agreement (repo) market. U.S. Treasury repo rates are simply rates that are charged in the market to borrow or lend money vs. U.S. Treasury collateral. ARRC estimates that in aggregate, the amount of U.S. Treasury repo transactions underlying SOFR average over $800 billion on a daily basis while the median transaction volume underlying 3mo USD LIBOR is less than $1 billion with some days registering less than $500 million.

Sub-Sets of SOFR	
Tri-Party TSY Repo	Client/Dealer
Cleared Bi-Lateral TSY Repo	Client/Dealer
General Collateral Financing(GCF) TSY Repo	Dealer/Dealer

SOFR futures contracts began trading in May of this year and are off to a respectable start. Relative to other short-term rate futures during their inaugural four weeks of trading, the volume of 1mo and 3mo SOFR futures have looked comparable. Obviously, it has only been a few months and current SOFR futures trading volume is dwarfed by that of Eurodollar futures (LIBOR-based short-term futures) but activity in SOFR futures has generally exceeded expectations thus far and liquidity continues to build. Over the coming quarters, activity in this market will be important to watch as a deep, liquid futures market will promote more confidence for potential hedging activity. (Basis markets or spreads between SOFR and other short-term rates have also started trading. Below are trading statistics for 1mo and 3mo SOFR futures):

Trading Stats: First 4 Weeks of Trading

	SOFR	EURO DOLLARS	FED FUNDS
Launch Date	5/7/2018	12/9/1981	10/3/1988
Total Volume	36,400	17,000	8,000
Open Interest	11,000	1,500	2,200

Trading Stats: As of 7/18/2018

	SOFR	EURO DOLLARS	FED FUNDS
As of Date	7/18/2018	7/18/2018	7/18/2018
Total Volume	2,700	870,000	73,000
Open Interest	17,000	13,600,000	1,700,000

Source: CME, Bloomberg

Thus far, the ARRC's transition plan with respect to the derivatives markets continues to hit all the key dates, beginning with the launch of SOFR futures. While the specifics of future dates/goals of the transition plan are beyond the scope of this paper, broadly speaking over the next two to three years, industry groups will be addressing the mechanics and protocol to be followed in transitioning outstanding LIBOR swaps maturing beyond 2021. Interest rate swaps referencing USD LIBOR total over $100 trillion per the latest ARRC presentation and so remain a key focus of the market during this transition period.

Markets in Transition

In addition to the derivatives market, the cash fixed income markets are also grappling with issues around LIBOR's uncertain future. While the challenges and issues facing each sector/sub-sector may be unique, a few common themes appear across most markets.

In both the securitized and corporate markets, the lowest hanging fruit for a smooth transition is any new floating rate issuance since they can be indexed off a new benchmark when that time comes. Although the question becomes how quickly a new issue would be embraced and the depth of its liquidity, bonds are not likely to be issued until the market signals its readiness to accept them.

Within the securitized markets, most deals already contain some basic language with respect to determining a benchmark rate if LIBOR becomes unavailable but these are intended to address *temporary* disruptions around LIBOR. It is not yet clear what would happen in the event of a permanent discontinuation of LIBOR. Some options being discussed include taking a poll of select commercial banks to determine a LIBOR rate, using the LIBOR print from the previous interest period, or having the calculation agent determine the rate itself which may involve switching to a Prime, Fed Funds or some other appropriate rate plus a spread.

In the corporate bond market, much of the same fallback language is present with respect to a possible discontinuation of LIBOR beyond 2021. The current options range from polling a group of banks to get a "best efforts" LIBOR level to using the last known LIBOR setting from the previous interest period. Also, given the increasing dialogue around LIBOR's future, investment-grade issuers have also started to include specific language about the prospect of LIBOR being phased out in their offering documents. Among other items, the language discloses the unknown impact on pricing were LIBOR to go away and the mechanics of setting the coupon if that were to happen before the bond's maturity.

Lastly, although we have been focused on benchmark reform in the U.S., it is important to point out that the movement to alternative short-term benchmark rates has been a global initiative. Alternative reference rates have already been chosen or are in the process of being chosen by major countries/regions. These discussions remain at various stages with potential candidates representing a mix of secured and unsecured rates depending on the region's specific market structure:

	UNITED STATES	UK	EUROPEAN UNION	JAPAN	SWITZERLAND
Working Group	• Alternative Reference Rate Committee (ARRC) – Buy-Side Advisory Group	• Working Group on Sterling Risk-Free Reference Rates	• Working Group formed by FSMA, ESMA, ECB, & the EC	• Study Group on Risk-Free Reference Rates	• National Working Group
Sponsor Central Bank	• Federal Reserve Board	• Bank of England ("BOE")	• European Central Bank ("ECB")	• Bank of Japan ("BOJ"), Japan Financial Services Agency (Observer)	• Swiss National Bank
Alternative Reference Rate Proposals / Selections	• **Selected Secured** Overnight Funding Rate "SOFR" (Jun 2017)	• **Selected Unsecured** Reformed Sonia (Apr 2017)	• **Undecided** Developing daily unsecured overnight rate as a backstop and potential replacement for existing EUR benchmarks	• **Selected Unsecured** TONAR (Dec 2016)	• **Selected Secured** SARON, an overnight GC Repo Rate (Feb 2016)
Transition Strategy	• "Paced" transition, replacing LIBOR • SOFR publication April 3, 2018	• Not yet determined; trade-off between ease of implementation & depth of market (OIS then LIBOR) • Sonia reforms to take effect April 23, 2018	• Not yet determined; Alternative reference rate not yet selected	• Not determined at this time; current focus is on how to increase liquidity of OIS market	• Termination of the TOIS fixing 12/29/17; SARON replaced TOIS in advance

Source: Morgan Stanley Bank Resource Management
1. Additional jurisdictions that are currently in progress for selecting a fall-back rate are Australia, Singapore and Hong Kong

Although progress toward alternative rates has differed by country and region, it is worth highlighting that the European Investment Bank (EIB), a AAA-rated supranational based in Luxembourg, issued an inaugural bond benchmarked to an official alternative rate to LIBOR. The benchmark rate chosen here was Sterling Overnight Index Average (SONIA) which is effectively a secured rate (similar to Fed Funds in the U.S.). Although SONIA was already well understood in the EU and had an existing derivatives market, the official stamp of approval placed on SONIA in lieu of LIBOR was a landmark moment. The EIB printed $1.3 billion (upsized from $250 million) of a 5-year SONIA floater to very strong demand and the issue has also traded well in secondary markets. Although this is only one data point, we think the success of this issue is an important first step in signaling the acceptance and comfort with floating rate bond issuance indexed to a new alternative short-term rate. Issuers in the U.S. and abroad have undoubtedly taken notice and may use this deal as a template for their own funding down the road.

In the U.S., we have yet to see any issuance indexed to SOFR which is not surprising given the rate just started printing and the futures market is only two months old. However, if an entity were to issue a floating rate note indexed to SOFR, we find it likely an agency would be the first issuer to test the waters. As an example, Federal Farm Credit Bank (FFCB) has issued short-maturity floaters in the past indexed to non-LIBOR benchmarks like Fed Funds, Prime, and even Treasury bills so they could be a likely candidate. When and if that happens, other agencies could follow with possibly an investment grade corporate issuer not far behind.

Conclusion

While the "deadline" for LIBOR's ultimate fate is a few years away, the recent events around SOFR and LIBOR's current state make a concerted move towards SOFR more likely. Although ICE has made adjustments to the LIBOR-setting process in an effort to "redefine" it, confidence in the construct of the rate continues to wane. As the global markets slowly begin to migrate towards alternative rates, we will continue to see a disparate market where global benchmark rates represent both secured and unsecured borrowing – no longer uniformly referencing LIBOR. They will more closely reflect actual transactions/dynamics unique to each region's markets.

In the U.S., the launch of SOFR futures along with its evolving market depth and term structure will bear close watching over the next few quarters as lenders and borrowers determine next steps. In cash markets, the myriad of complex legal and operational issues that need to be addressed remain high hurdles and will likely be drawn out – the pace of transition will differ greatly by sector and in some cases on a deal-by-deal basis. While fallback language in various fixed income deals currently defaults to using various "other" rates in the event of LIBOR's discontinuation, SOFR's official designation in the U.S. make it the most likely candidate for eventual widespread acceptance. So while the short-term impacts have been negligible thus far, TCW will continue monitoring developments as markets transition to alternative short-term benchmark rates over the longer term. ■

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