SOFR and SONIA derivative markets: Small in size but growing

by Dr. Luca Cazzulani, Deputy Head of FI Strategy (UniCredit Bank, Milan)

- The Libor reform is becoming an increasingly hot topic, particularly as December 2021, the date after which Libor contributions will no longer be guaranteed, approaches.
- The proposal that is receiving the strongest momentum is to move to benchmarks based on risk-free rates (RFR). The US and the UK have robust transaction-based RFR with a history of at least one year. In the eurozone, the ECB is expected to start publishing €STR at the beginning of October.
- In the US and UK, absolute volumes and sizes traded in RFR futures, derivatives and FRN are still very small compared to Libor. However, these markets have been growing and have strong upside potential.
- Developments in the US and UK can be a useful blueprint for the eurozone. However, as the Euribor will not be directly affected by the December 2021 deadline, pressure to move into RFR benchmarks may be lower than in other jurisdictions.

Libor reform and the rise of risk-free rates

Libor reform has become a hot topic, as the December 2021 deadline approaches. While there seems to be consensus about the shortcomings of Libor, there is still some uncertainty about which rate should replace it. For the time being, regulators and some market participants are pushing in the direction of using benchmarks that reflect risk free rates (RFR). RFR essentially measure the wholesale overnight banks borrowing.

The main advantage of RFR is that they reflect an underlying for which a sizable amount of transactions can be observed. For example, transactions underlying SOFR have amounted to around USD 1tn per day in the recent past. Similarly, transactions underlying SONIA in the UK have been around GBP 45bn per day. In both cases, the volume of transactions underlying these benchmarks is a multiple of those that can be observed in reference to Libor.

The main disadvantage of using RFR as a replacement for Libor is that, being overnight rates, they contain no term premium nor credit risk. The first issue may be overcome by creating a term structure, for example with OIS or through futures, but the second one is intrinsic in the nature of a RFR. Because bank credit risk can fluctuate over time depending on risk appetite, RFR would not be directly usable to transfer a bank's funding level to lending rates. ICE (Intercontinental Exchange) has presented a paper proposing an alternative benchmark[1] (bank yield index), which could overcome this last problem, at least for the US. Finally, technical issues may arise from the fact that SOFR relates to secured transactions while SONIA and ESTER references unsecured transactions.

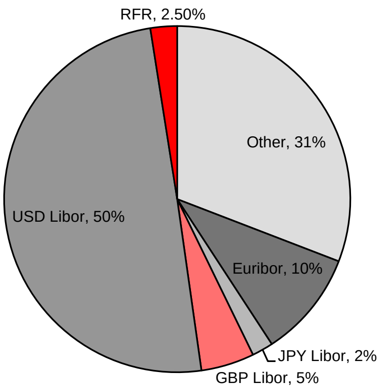
The solution that is eventually chosen to replace Libor remains to be seen; but for the time being using RFR is the one attracting most attention. In this respect, it is important to become familiar with these rates and with instruments linked to them as well as with the respective markets.

In the eurozone, the ECB has developed €STR, which will become the new RFR, replacing EONIA. Publication is expected to begin on 2 October 2019. Derivatives and bonds tied to this new benchmark will start to develop with time. Issuance of debt indexed to this benchmark will be an important factor for the growth of the whole market.

In this note we analyze how market activity in instruments related to RFR (derivatives and FRN) is progressing in the US and the UK. The experience in these two jurisdictions can serve as a blueprint for the eurozone.

In both cases, absolute volumes and sizes of derivatives and cash markets are very small compared to Libor. However, these are markets that have been growing relatively fast and which have large upside potential.

CHART 1: IRD TRADED NOTIONAL Q1 2019



Source: ISDA Quarterly Report, Bloomberg, UniCredit Research

SOFR

SOFR (Secured Overnight Financing Rate) is a rate that reflects overnight transactions with USTs as collateral. It is administered by the Fed and was first published in April 2018.

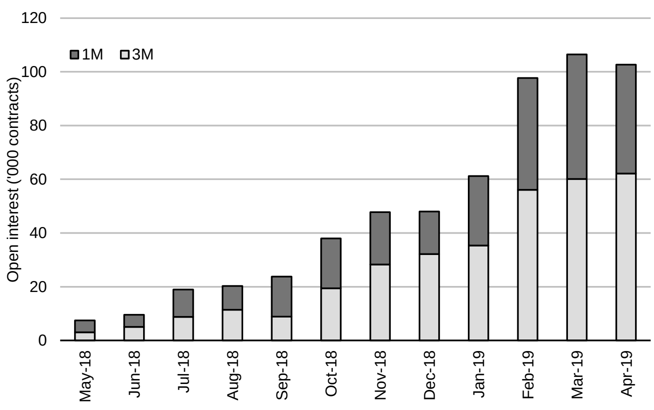
The amount of transactions underlying SOFR is quite high and runs at around USD 1tn per day, which makes this benchmark a robust indicator.

[1] See: https://www.theice.com/publicdocs/futures/Bank_Yield_Index_WP.pdf

A large amount of transactions in the underlying interest rate is not the only important factor to look at. For the long-term success of a benchmark, it is important to have a well-developed and liquid market of derivatives and bonds.

We start by looking at trading in futures, because these instruments are important in creating a term structure. There are two maturities in SOFR futures, the 3M and the 1M, which are traded at the CME (Chicago Mercantile Exchange) and on ICE. The following chart shows how open interest in these two futures has grown over time.

CHART 2: CME SOFR FUTURES: GROWING OPEN INTEREST



Source: Bloomberg, UniCredit Research

As CME highlights in its website, SOFR futures rank among the fastest-growing new products in the CME exchange's history. In the past year, participation in the SOFR futures liquidity pool has risen and broadened steadily and now comprises more than 140 firms, reflecting a balanced mix of bank, buy-side, and proprietary trading firms. In January-April 2019, SOFR futures changed hands at the rate of 28,000 contracts/day, or about USD 775,000 per day in terms of DV01 of SOFR exposure. Open interest at the end of April was around 125,000 contracts, roughly USD 4.2mn in DV01 terms. CME also presents a set of statistics comparing SOFR futures with other products one year after their launch, which highlights how fast trading in SOFR futures has progressed. This is an important indication as to the perception by market participants of the importance of this benchmark.

With all this said, it is important to keep things in perspective. Trading on SOFR futures is still much lower than in both Libor and fed funds futures (FFF). The following table compares the three instruments.

TABLE 1: US FUTURES ON SHORT-TERM RATES IN 1Q'19

	SOFR	FFF	Libor
ADV ('000 USD, DV01 equiv.)	707	9,744	60,030
O.I. (mn of USD, DV01 equiv.)	3	69	275

Source: Bloomberg, UniCredit Research

In addition to futures trading, it is interesting to look at statistics on OTC instruments. We will refer to data published by ISDA (International Swap and Derivatives Association) in its report *Interest Rate Benchmarks Review: First Quarter of 2019*. In this publication, ISDA analyzes trading volumes of interest rate derivatives referencing a number of short-term rates (RFR and Libor in various currencies), using data from the Depository Trust & Clearing Corporation (DTCC) and Bloomberg swap data repositories (SDRs). The report only covers trades that are required to be disclosed under US regulations. This should not be a particular limitation when we focus on SOFR. The following table shows the data:

TABLE 2: USD INTEREST RATES DERIVATIVES TRADE D NOTIONAL (USD BN)

	Q318	Q418	Q119
USD Libor	25,191	26,824	34,772
SOFR	0	4	20
Basis swap SOFR	1	1	3
Total SOFR	2	5	23
Share SOFR/Libor	0.0%	0.0%	0.1%

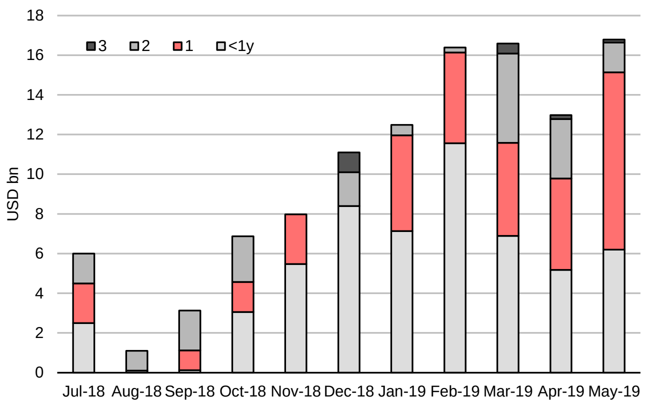
Source: ISDA , Bloomberg, UniCredit Research

The figures broadly confirm that activity in SOFR is still at an early stage: during 1Q19, USD 23bn of SOFR derivatives were traded (about half cleared and half non-cleared), which is only a tiny fraction of the USD 34tn traded in Libor derivatives. It is also a small fraction of the USD 7tn traded in OIS (referencing the fed funds effective) in the same period.

The main take from these figures is that, while activity in SOFR-related instruments is developing, in terms of absolute market size we are still in a highly preliminary phase, where liquidity is modest.

Finally, we look at how the issuance of bonds and notes linked to SOFR has grown. The following chart shows that the pool of such instruments is growing, although activity is mainly concentrated at the shorter maturities and in government-sponsored enterprises. The total amount of SOFR-linked notes issued since July 2018 is USD 110bn. Similarly to OTC derivatives, activity in cash markets shows good progress but is still modest in absolute size.

CHART 3: SOFR-LINKED BOND ISSUANCE



Source: Bloomberg, UniCredit Research

In all cases, the potential for further growth in SOFR-related instruments is enormous. Given that contributions to Libor will cease to be mandatory from January 2022, a shift of activity away from Libor instruments is almost a given. SOFR currently appears to be the most likely choice for a replacement.

SONIA

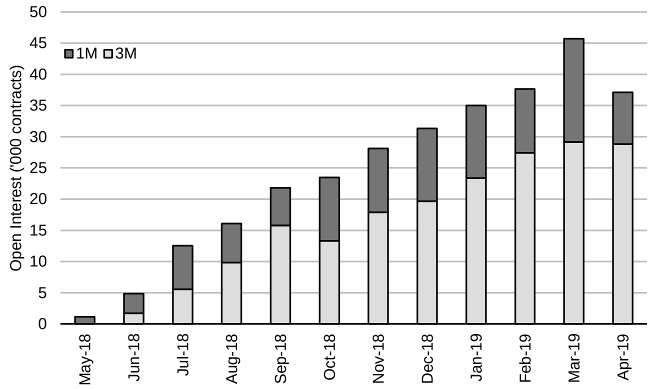
SONIA (Sterling Overnight Index Average) has a longer history than SOFR. It was introduced in 1997; the Bank of England took responsibility for it in 2016 and reformed it in April 2018[2].

The amount of transactions underlying SONIA is around GBP 45bn per day, considerably lower than for SOFR but high enough to make this benchmark a robust indicator.

To gauge how liquidity in SONIA related instruments is developing, we start by looking at trading in futures. Like for SOFR, Sonia futures are available with 3M and 1M maturity and are traded on the CME and on ICE Futures Europe – Financials.

The following chart shows the development of open interest in these contracts:

CHART 4: SONIA FUTURES: OPEN INTEREST



Source: Bloomberg, UniCredit Research

SONIA futures have a lower open interest than SOFR, although it should be considered that the GBP market is smaller than the USD market. The average daily volume (ADV) in the period January-April 2019 was 14,000 contracts, about half the size registered in SOFR during the same period. In terms of DV01, this amounts to around GBP 350,000.

Next we look at OTC activity as reflected in ISDA figures:

TABLE 3: GBP INTEREST-RATE DERIVATIVES TRADED , NOTIONAL (GBP BN)

	3Q18	4Q18	1Q19
GBP Libor	2,553	2,354	3,443
Sonia	1,715	2,049	1,673
Basis swap Sonia	29	55	41
Total Sonia	1,744	2,104	1,714
Share SONIA/Libor	40.6%	47.2%	33.2%

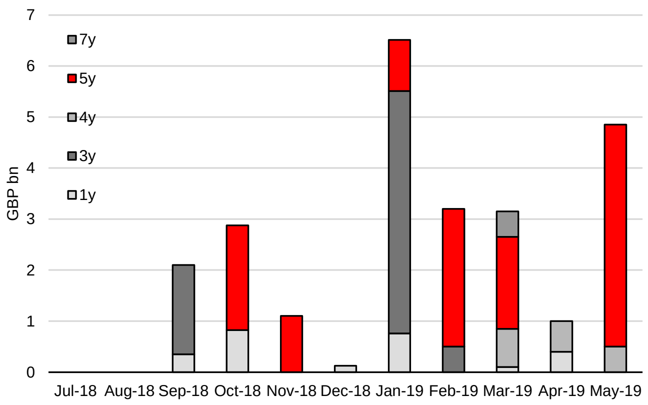
Source: ISDA , Bloomberg, UniCredit Research

The most important difference compared to the US is that volumes of SONIA OTC instruments are much higher than in SOFR, both in absolute terms and relative to Libor derivatives. In 1Q19, SONIA-based derivatives represented a third of OTC activity. ISDA data also show that basis swap activity is gaining momentum. In 1Q19 basis swap contracts had a notional value of GBP 41bn. The higher share of OIS contracts in the UK probably reflects the fact that SONIA has been around for much longer than SOFR.

2 The key issues in the reform were: **1.** the Bank of England took over responsibility for its calculation and publication from the Wholesale Market Brokers Association; **2.** it broadened the data used to calculate it to include overnight unsecured transactions negotiated bilaterally, as well as those arranged through brokers; **3.** there was a change to the averaging methodology used to calculate it to a volume-weighted trimmed mean; and **4.** the publication time was changed to 9:00 on the following London business day (rather than 18:00 on the same day) to allow time to process the larger volume of transactions it captures.

Finally, we look at issuance activity in SONIA.

CHART 5: SONIA-LINKED BOND ISSUANCE



Source: Bloomberg, UniCredit Research

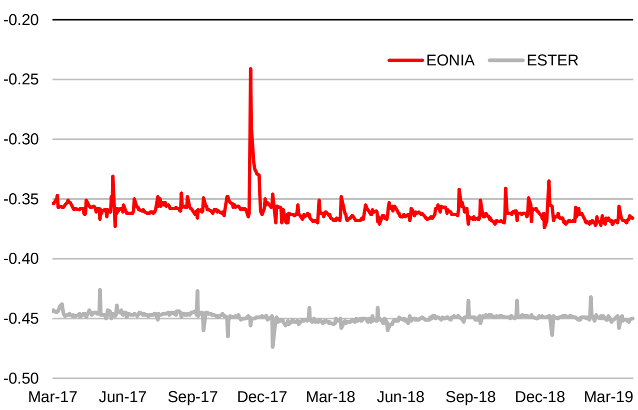
In line with futures and derivatives, issuance activity in bonds is smaller than in the USD market, totaling GBP 25bn since July 2018. Compared to the US, in the UK issuance has been a little livelier on the longer tenors.

ESTER (now renamed €STR)

In the eurozone, the ECB has developed €STR, which will become the new RFR. (for more details see: Rates Perspectives - Euribor and ESTER: Where we stand, where we're going).

Publication is expected to begin on 2 October 2019. Derivatives and bonds tied to this new benchmark will start to be developed over time. Ahead of the official launch of €STR, the ECB is publishing pre-€STR, a rate that is essentially calculated in the same way as €STR, with the only exception being that it can be revised in the event of errors in data submission. Pre-€STR enables investors to familiarize themselves with the behavior of the new benchmark.

CHART 6: €STR AND EONIA



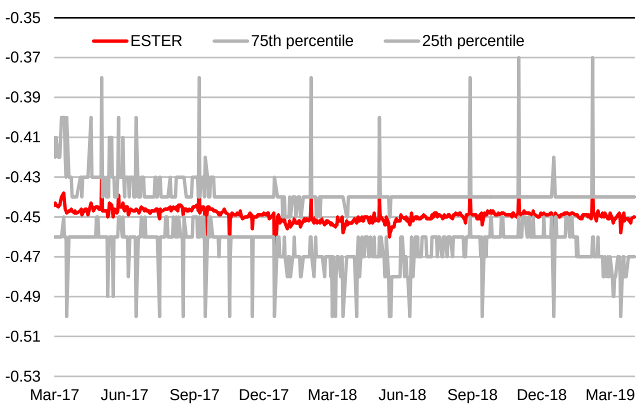
Source: ECB, UniCredit Research

As Chart 5 shows, €STR trades below the depo, which reflects that fact that, with high excess liquidity, banks are not interested in paying for additional funds more than what they can receive from the ECB.

€STR has been very stable so far, with lower volatility than EONIA. Once €STR starts to be published, EONIA will be calculated as €STR plus a (fixed) spread. Such a spread should be calculated with a 12M reference period and a 15% trimming mechanism. Based on historical data since October 2018, it would be 8.3bp. EMMI has launched a consultation on the technicalities of the recalibration; the feedback summary will be published on 31 May 2019.

The ECB is also publishing statistics on the 25th and 75th percentiles of €STR. The following chart shows that in the most recent months, money-market transactions carried out with a rate significantly lower than the depo has increased but this has not affected the level of €STR, which is calculated as a trimmed mean on the 50% central part of the rats distribution.

CHART 7: €STR RESILIENCY



Source: ECB, UniCredit Research

Looking ahead: comparing Eurozone with the US and UK

The experience in the US and the UK shows that trading in instruments tied to the new benchmarks is progressing nicely, although in absolute terms these markets are still extremely small and liquidity is considerably larger in Libor.

As the December 2021 deadline approaches, we expect a sharp acceleration in volumes of RFR instruments and a corresponding decline in Libor-related instruments. In this respect, it is very important to monitor developments in RFR markets, both in terms of absolute size and relative to Libor.

Developments in these two jurisdictions can serve as a blueprint for the eurozone. However, it is important to highlight that the eurozone has its own peculiarities.

In particular, while the end of 2021 is a critical date for Libor, it is less so for Euribor, which is calculated and supervised by European authorities. In this respect, pressure to move away from the Euribor may be smaller than in other jurisdictions.

Liquidity transfer from Euribor-linked instruments into €STR-linked instruments will depend on many factors: whether RFR will succeed in other jurisdictions as the replacement for Libor and whether and for how long the Euribor will remain in place in its new version (calculated under the Hybrid methodology).

On the other hand, once €STR is launched, OIS activity is likely to switch relatively fast from EONIA into the new benchmark. In the eurozone, OIS market is already well developed (around 25% of derivatives activity according to ISDA) and investors would just need to move to a new underlying rather than familiarize with a new asset class.

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