

Progress on Global Transition to RFRs in Derivatives Markets

This paper examines the progress made on the global transition to risk-free rates (RFRs). Specifically, it analyzes the adoption of the Secured Overnight Financing Rate (SOFR) in different regions and highlights major industry developments that are expected to take place in the first half of 2023. The paper also explores several current topics related to the RFR transition, including synthetic LIBOR rates, term RFRs, credit-sensitive rates and the modification of clearing and trading requirements.

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EXECUTIVE SUMMARY

Five remaining US dollar LIBOR settings will cease to be published on a representative basis after June 30, 2023, marking the final major global milestone in the transition from LIBOR to RFRs.

At the end of 2021, all euro, Japanese yen, sterling and Swiss franc LIBOR tenors and the one-week and two-month US dollar LIBOR settings ceased or (in the case of certain Japanese yen and sterling LIBOR tenors) continued to be published on a non-representative basis as synthetic rates. While the remaining US dollar LIBOR settings will continue to be published until mid-2023, various regulators have stated that firms should not enter new US dollar LIBOR contracts from the beginning of 2022 except in limited circumstances, significantly reducing use of these rates.

This paper examines the progress made on the global transition to RFRs. Specifically, it analyzes the adoption of SOFR in different regions and highlights major industry developments that are expected to take place in the first half of 2023. The paper also explores several current topics related to the RFR transition, including synthetic LIBOR rates, term RFRs, credit-sensitive rates and the modification of clearing and trading requirements.

- **RFR Adoption:** Trading activity in RFR-linked derivatives increased significantly in 2022. The ISDA-Clarus RFR Adoption Indicator shows¹:
 - RFR-linked derivatives trading activity reached 54.3% in December 2022 – its highest level to date – compared to 32.0% in January 2022².
 - By the end of 2022, almost 100% of over-the-counter (OTC) and exchange-traded derivatives (ETD) trading activity denominated in Japanese yen, sterling and Swiss franc (as measured by DV01) referenced the relevant RFRs.
 - The percentage of trading activity executed in SOFR increased from 28.4% of total US dollar IRD DV01 in January 2022 to 64.1% in December 2022.
- **Expected Market Developments:** Plans are in place to convert cleared US dollar LIBOR swaps and Eurodollar futures and options into corresponding contracts referencing SOFR in advance of June 30, 2023. Non-cleared derivatives that continue to reference US dollar LIBOR may transition via bilateral negotiations and/or compression processes prior to June 30, 2023. However, many contracts will reference SOFR-based fallbacks after that date. The Adjustable Interest Rate (LIBOR) Act will replace US dollar LIBOR in tough legacy contracts (including non-cleared derivatives) governed by US law that do not have fallbacks and don't provide clearly defined benchmark replacements.
- **Synthetic LIBOR:** To support the transition of legacy contracts, the UK Financial Conduct Authority (FCA) required temporary publication of several sterling LIBOR settings on a synthetic basis. Synthetic yen LIBOR was published for one year and permanently ceased at the end of 2022. These synthetic rates can be used in all legacy contracts, except for cleared derivatives (which shifted from LIBOR following a transition conducted by central counterparties prior to the publication of synthetic rates). The FCA has conducted a consultation on the potential publication of synthetic US dollar LIBOR for certain tenors until September 2024 to further support the transition of those legacy contracts that do not have workable fallbacks and are not covered by the Adjustable Interest Rate (LIBOR) Act.

¹ The indicator tracks how much global trading activity (as measured by DV01) is conducted in cleared over-the-counter (OTC) and exchange-traded interest rate derivatives (IRD) that reference risk-free rates (RFRs) in six major currencies

² ISDA launched the indicator in July 2020 to monitor the adoption of RFRs in derivatives trading <https://www.isda.org/2020/07/28/isda-launches-risk-free-rate-adoption-indicator/>

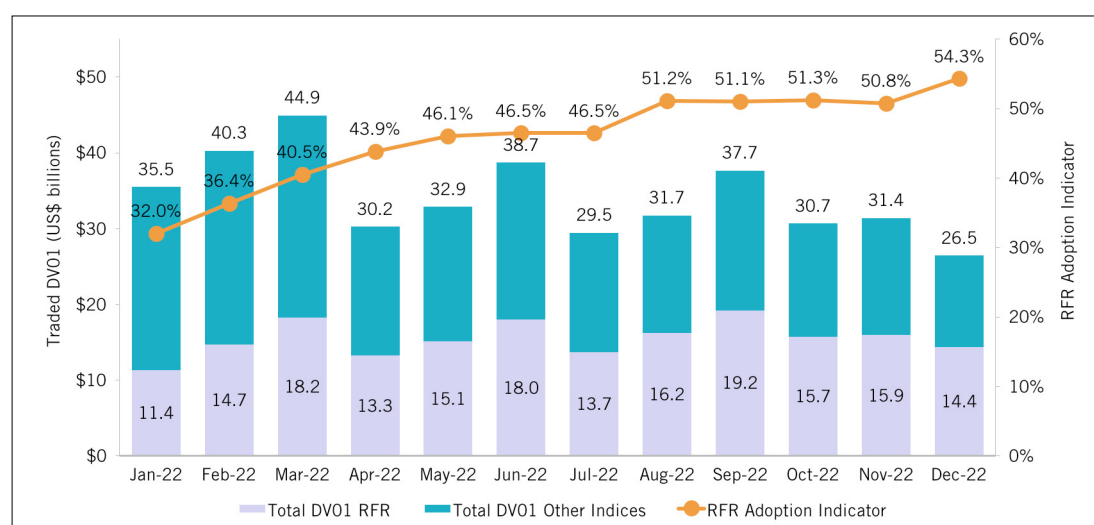
- **Term RFRs:** Some market participants view the development of term RFRs as an essential tool in the transition from US dollar LIBOR. However, supervisors have been vocal on the need to limit the use of term rates to certain specific cases. Based on ISDA analysis and Depository Trust & Clearing Corporation (DTCC) swap data repository (SDR) data³, term SOFR transactions accounted for less than 3% of monthly SOFR-linked OTC interest rate derivatives (IRD) traded notional required to be reported under US regulations in 2022.
- **Credit-sensitive Rates:** Several US dollar credit-sensitive rates have been launched or are being developed to measure the credit risk component of unsecured borrowing in certain markets. Various global regulators have expressed concerns about the use of credit-sensitive rates as a replacement for US dollar LIBOR. Utilization of credit-sensitive rates in derivatives transactions has been minimal so far. Based on DTCC SDR data, there were approximately 1,500 IRD transactions referencing the Bloomberg Short-Term Bank Yield Index (BSBY) compared to about 22,000 IRD transactions referencing term SOFR during 2022.
- **Modification of Clearing and Trading Requirements:** Regulators in several jurisdictions have issued consultations and/or final rules that modify the scope of derivatives clearing obligations and derivatives trading obligations. Specifically, new rules have removed contracts referencing certain interbank offered rates (IBORs) and the Euro Overnight Index Average (EONIA) from clearing obligations and replaced them with overnight index swaps (OIS) referencing RFRs. In some cases, related amendments have been made to trading requirements, with certain RFR-linked OIS contracts coming under the scope of derivatives trading obligations.

³ DTCC SDR data covers only transactions that are required to be disclosed under Commodity Futures Trading Commission regulations

GLOBAL ADOPTION OF RFRS IN 2022

Trading activity in RFR-linked derivatives increased significantly in 2022, with the monthly ISDA-Clarus RFR Adoption Indicator reaching its highest level of 54.3% in December 2022 compared to 32.0% in January 2022⁴. The indicator tracks how much global trading activity (as measured by DV01) is conducted in cleared OTC and exchange-traded IRD that reference the RFRs in six major currencies (see Chart 1)^{5,6}.

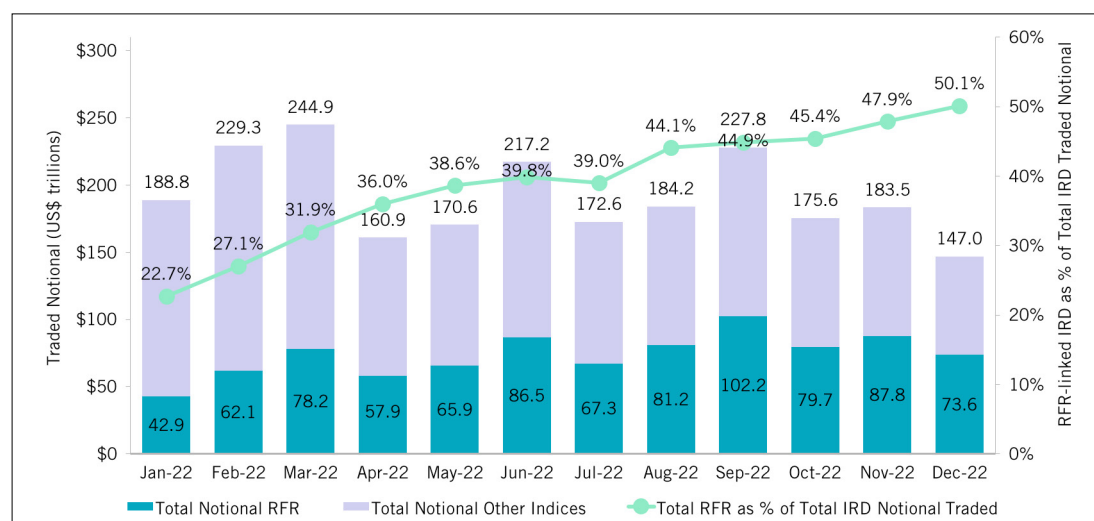
Chart 1: RFR Adoption Indicator: % of DV01 Transacted as RFR-linked IRD Products in USD, EUR, GBP, JPY, AUD, and CHF



Source: ISDA-Clarus RFR Adoption Indicator

On a traded notional basis, the percentage of RFR-linked IRD rose to 50.1% of total IRD transacted in December 2022 compared to 22.7% in January 2022 (see Chart 2).

Chart 2: Global IRD Traded Notional (including OTC and ETD)



Source: ISDA-Clarus RFR Adoption Indicator

⁴ ISDA launched the indicator in July 2020 to monitor the adoption of RFRs in derivatives trading www.isda.org/2020/07/28/isda-launches-risk-free-rate-adoption-indicator/

⁵ ISDA-Clarus RFR Adoption Indicator White Paper www.isda.org/a/SlmTE/ISDA-Clarus-RFR-Adoption-Indicator-Whitepaper.pdf

⁶ Exchange-traded IRD (ETD) includes only futures and doesn't include options

By the end of 2022, almost 100% of OTC and ETD trading activity denominated in Japanese yen, sterling and Swiss franc (as measured by DV01) referenced the corresponding RFRs. The percentage of trading activity referencing SOFR increased from 28.4% of total US dollar IRD DV01 in January 2022 to 64.1% in December 2022.

The percentage of trading activity in the Euro Short-Term Rate (€STR) grew from 14.6% of total euro IRD DV01 in January 2022 to 22.0% in December 2022, as market participants continue to use EURIBOR along with €STR⁷ (see Table 1).

Table 1: The Percentage of DV01 Per Currency Traded as an RFR (including OTC and ETD)

RFRs	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
AUD	28.8%	30.5%	29.5%	26.8%	26.1%	28.2%	27.1%	29.0%	38.3%	41.7%	28.4%	30.7%
CHF	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.9%	100.0%	100.0%	100.0%	100.0%
EUR	14.6%	20.1%	20.3%	22.9%	21.9%	23.9%	20.4%	19.4%	23.5%	18.3%	20.4%	22.0%
GBP	99.8%	99.5%	99.8%	99.9%	99.9%	99.9%	99.7%	99.9%	99.7%	99.9%	99.9%	99.5%
JPY	92.5%	87.8%	91.5%	92.8%	96.8%	96.0%	97.1%	97.5%	94.9%	93.4%	97.8%	97.8%
USD	28.4%	33.4%	41.1%	47.0%	50.1%	49.7%	51.7%	57.2%	56.6%	58.1%	58.3%	64.1%

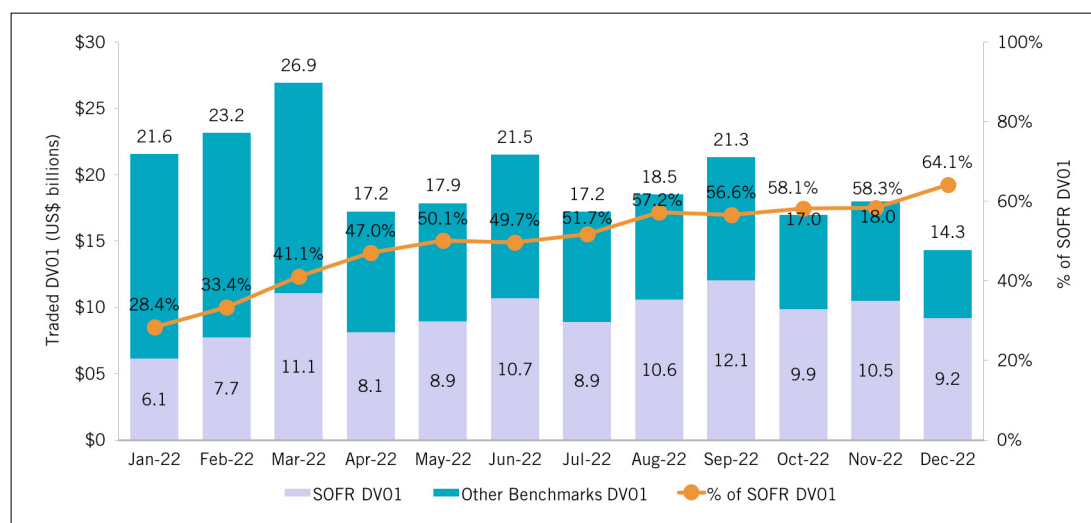
Source: ISDA-Clarus RFR Adoption Indicator

⁷ EURIBOR has no confirmed cessation date

PROGRESS ON GLOBAL ADOPTION OF SOFR IN 2022

Good progress was observed in the transition from US dollar LIBOR to SOFR in 2022. The percentage of global trading activity referencing SOFR (as measured by DV01) rose from 28.4% of total US dollar IRD DV01 in January 2022 to 64.1% in December 2022 (see Chart 3).

Chart 3: Trading Activity in SOFR as % of USD IRD DV01 (including OTC and ETD)

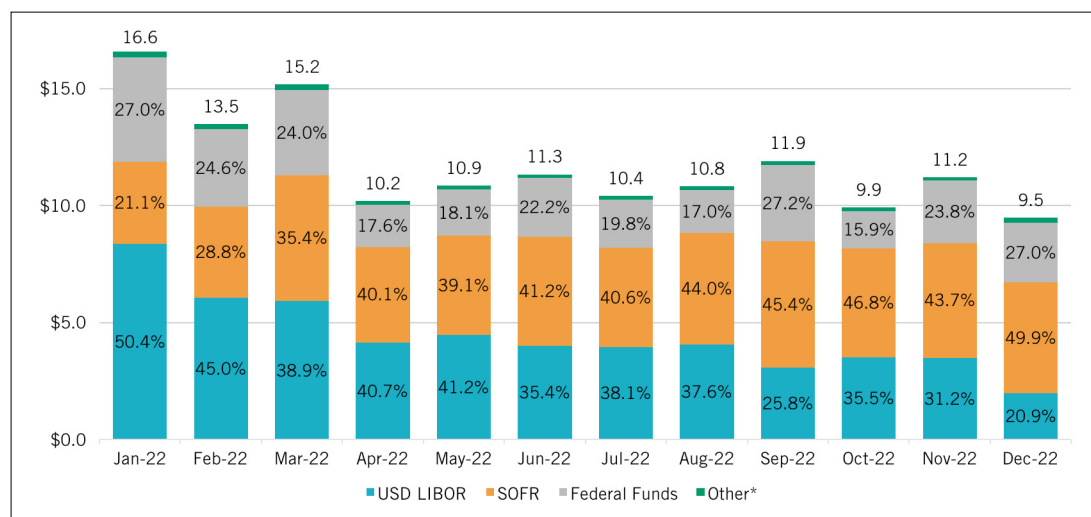


Source: ISDA-Clarus RFR Adoption Indicator

SOFR-linked OTC IRD Reported in the US

In the US, OTC IRD traded notional referencing SOFR accounted for 49.9% of total US dollar-denominated IRD traded notional in December 2022 compared to 21.1% in January 2022. The proportion of transactions referencing US dollar LIBOR declined to 20.9% from 50.4% over the same period (see Chart 4).

Chart 4: US Dollar-denominated OTC IRD Traded Notional Reported in the US (US\$ trillions)

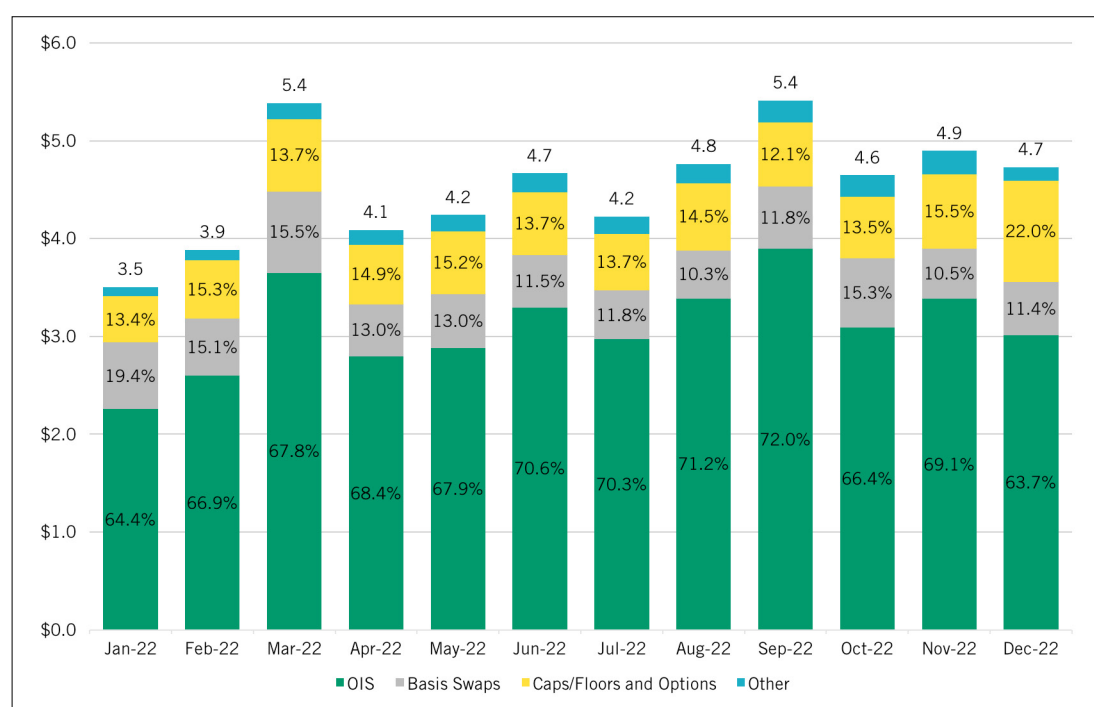


*Other includes other underlying reference rates. SOFR/US dollar LIBOR and SOFR/fed funds transactions are included in SOFR

Source: DTCC SDR

OIS accounted for the majority of SOFR-linked IRD contracts in 2022. Of the \$4.7 trillion of SOFR-linked traded notional in December 2022, OIS transactions comprised 63.7%, basis swaps represented 11.4% and caps/floors and options made up 22.2%. Other transactions, including fixed-for-floating interest rate swaps, cross-currency fixed-for-floating swaps and exotic products, accounted for 2.9% (see Chart 5).

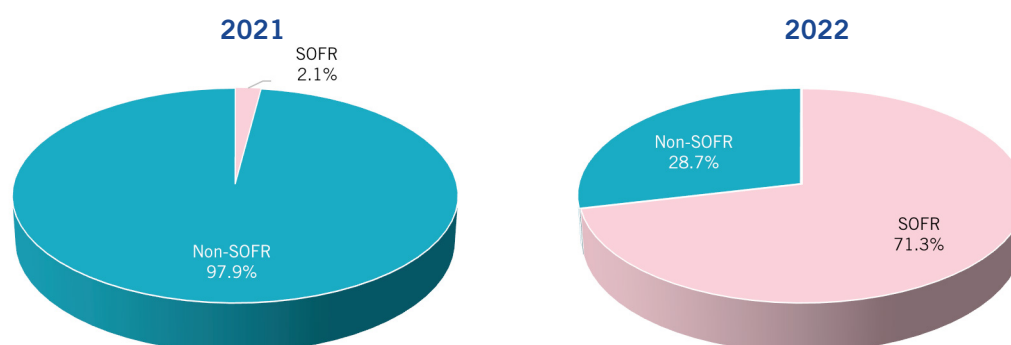
Chart 5: SOFR-linked OTC IRD Traded Notional Reported in the US by Product (US\$ trillions)



Source: DTCC SDR

The use of SOFR in cross-currency swaps significantly increased in 2022 compared to the prior year: 71.3% of cross-currency fixed-for-floating swaps traded notional referenced SOFR in 2022 compared to 2.1% in 2021 (see Chart 6).

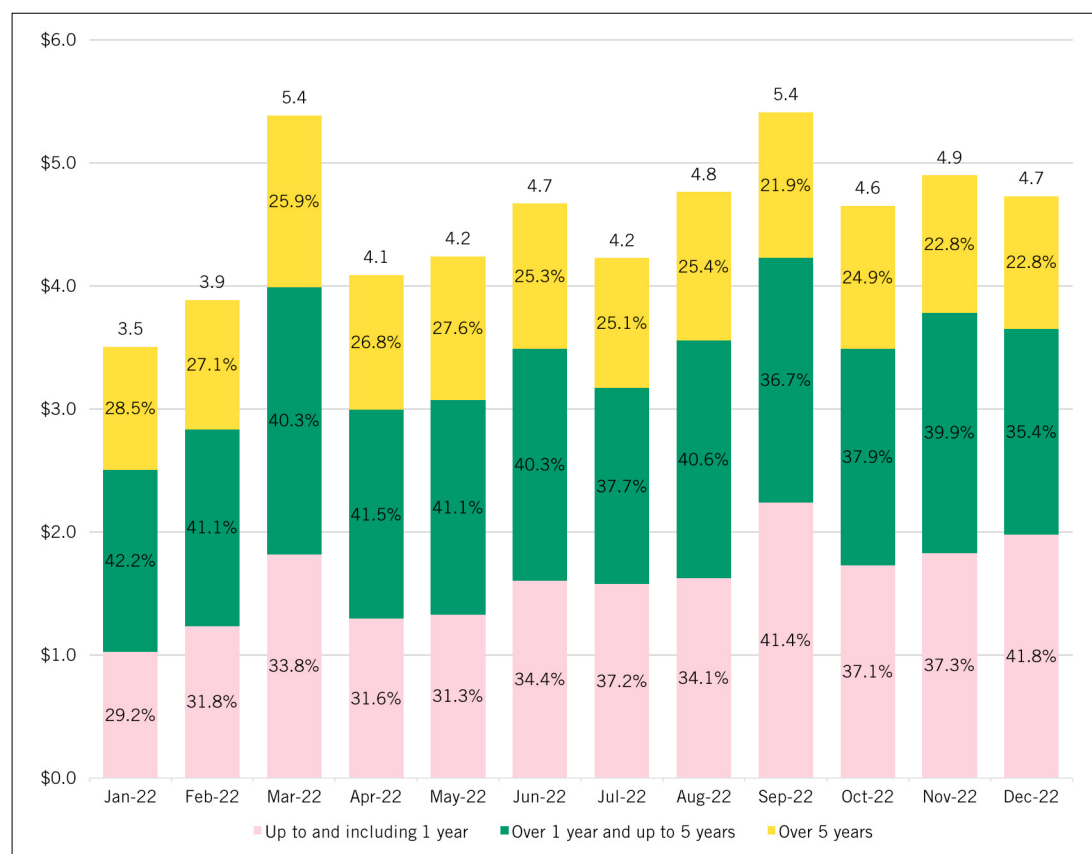
Chart 6: Cross-currency Fixed-for-floating Swaps Referencing SOFR Reported in the US



Source: DTCC SDR

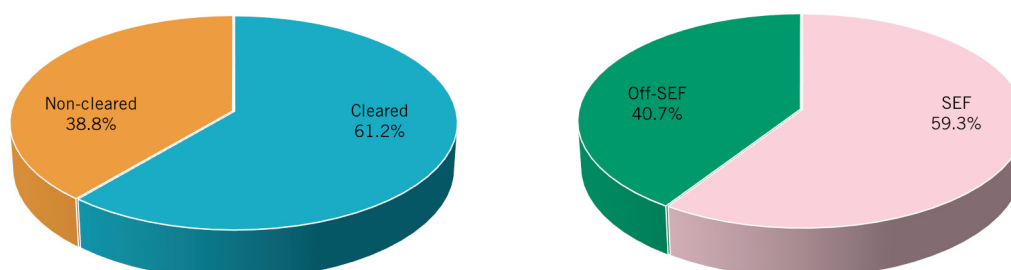
The majority of SOFR-linked transactions were short-dated. Of the \$4.7 trillion of SOFR-linked IRD traded notional in December 2022, 41.8% had a tenor up to and including one year, 35.4% was over one and up to five years and 22.8% had a tenor over five years⁸ (see Chart 7).

⁸ Tenor is calculated as the difference between the effective date and the maturity date

Chart 7: SOFR-linked OTC IRD Traded Notional Reported in the US by Tenor (US\$ trillions)

Source: DTCC SDR

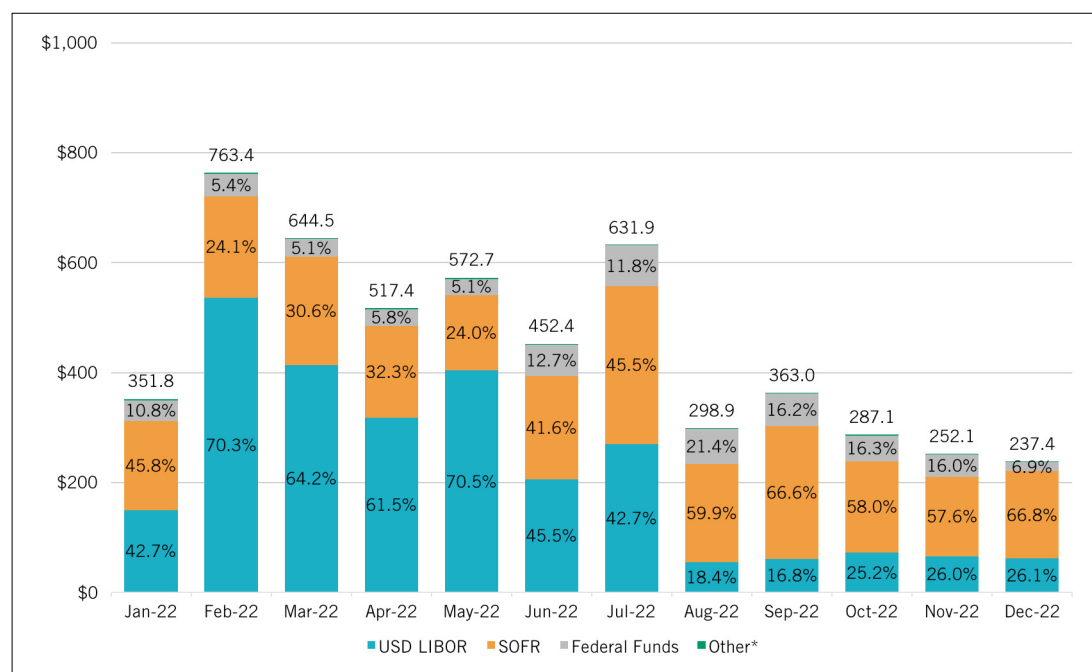
Most SOFR-linked transactions were cleared in 2022 (61.2% of total SOFR-linked traded notional), while 59.3% of total SOFR-linked IRD traded notional was executed on swap execution facilities (see Chart 8).

Chart 8: SOFR-linked OTC IRD Traded Notional Reported in the US in the Full Year 2022

Source: DTCC SDR

SOFR-linked OTC IRD Reported in the EU and UK

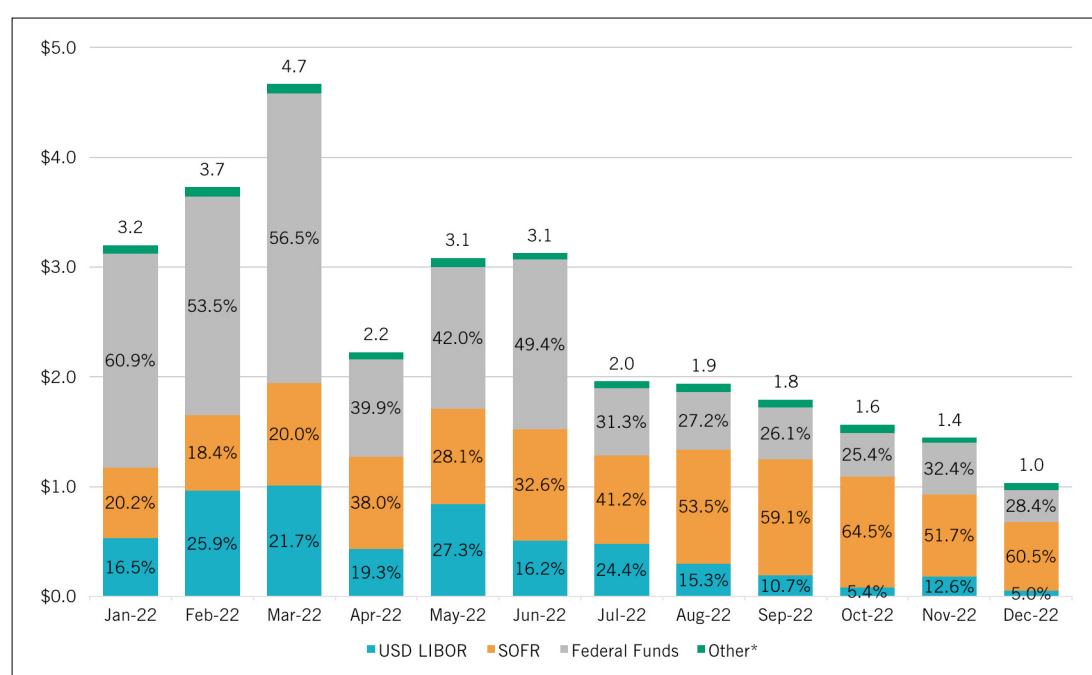
The percentage of trading activity in SOFR in the EU reached 66.8% of total US dollar-denominated IRD traded notional in December 2022 versus 45.8% in January 2022. US dollar LIBOR-linked traded notional dropped to 26.1% from 42.7% over the same period (see Chart 9).

Chart 9: US Dollar-denominated OTC IRD Traded Notional Reported in the EU (US\$ billions)

* Other includes other underlying reference rates. SOFR/US dollar LIBOR and SOFR/fed funds transactions are included in SOFR

Source: EU APAs and TVs

In the UK, trading activity in SOFR accounted for 60.5% of total US dollar-denominated IRD traded notional in December 2022 compared to 20.2% in January 2022. US dollar LIBOR-linked traded notional fell to 5.0% in December 2022 from 16.5% in January 2022 (see Chart 10).

Chart 10: US Dollar-denominated OTC IRD Traded Notional Reported in the UK (US\$ trillions)

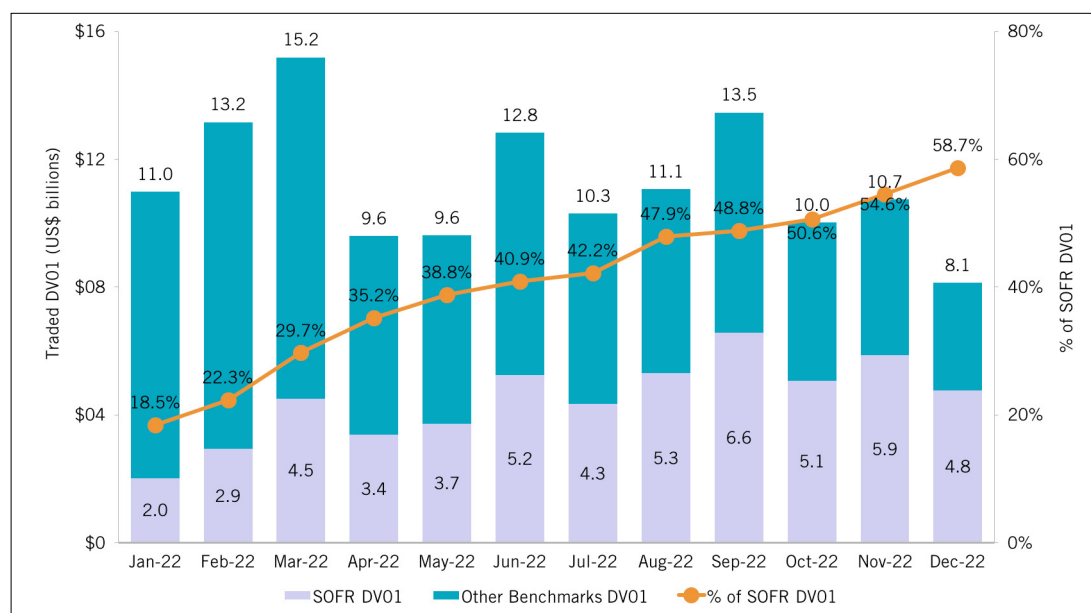
* Other includes other underlying reference rates. SOFR/US dollar LIBOR and SOFR/fed funds transactions are included in SOFR

Source: EU APAs and TVs

Trading in SOFR Futures

Trading activity in SOFR-linked futures (as measured by DV01) grew to 58.7% of total US dollar-denominated futures DV01 in December 2022 compared to 18.5% in January 2022 (see Chart 11).

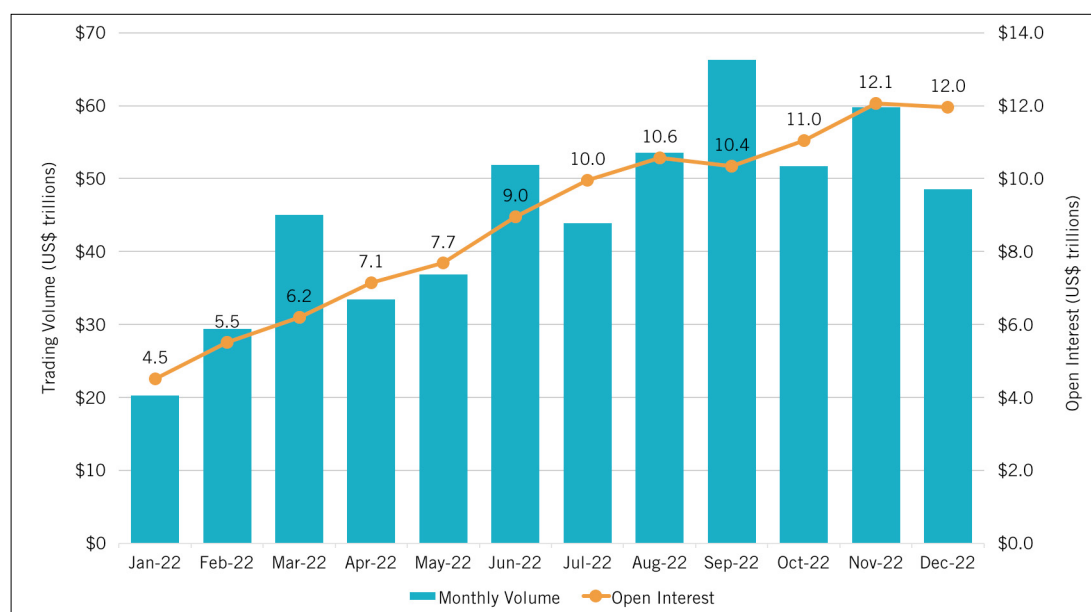
Chart 11: Trading Activity in SOFR Futures as % of US Dollar-denominated Futures DV01



Source: ISDA-Clarus RFR Adoption Indicator

SOFR futures open interest reached \$12.0 trillion at the end of December 2022 compared to \$4.5 trillion at the end of January 2022. Trading volume in SOFR futures rose to \$48.6 trillion from \$20.3 trillion over the same period (see Chart 12).

Chart 12: SOFR Futures Monthly Trading Volume and Open Interest (Implied Notional in OTC Equivalent)

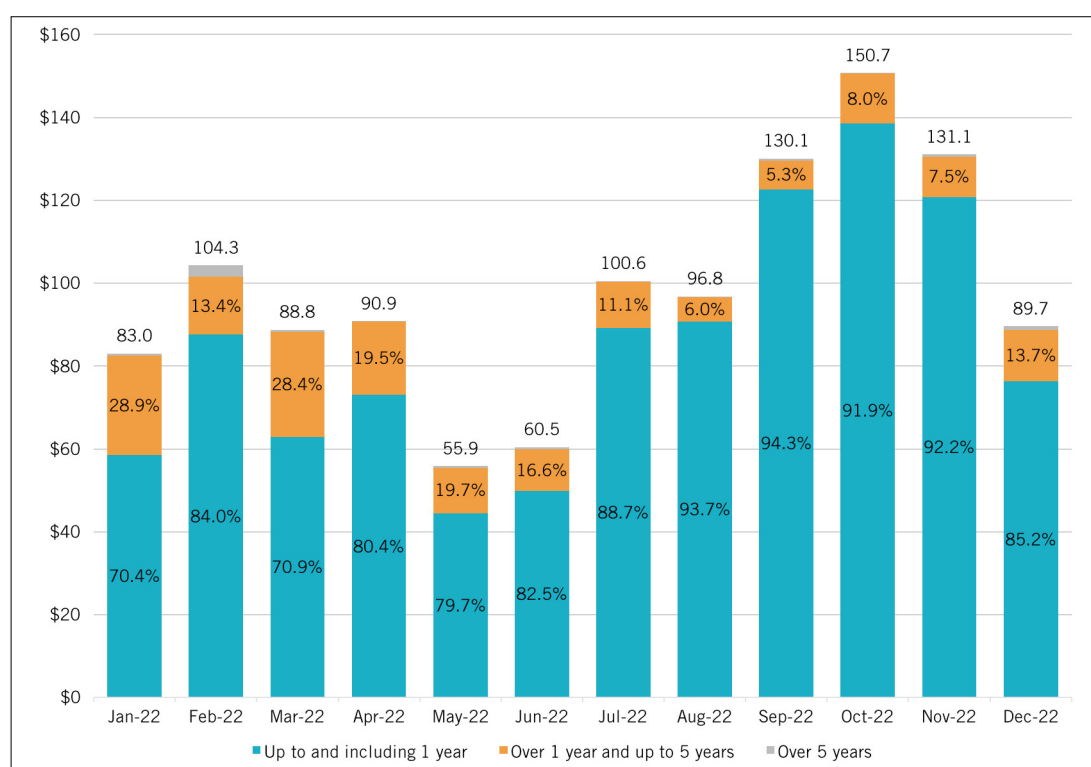


Source: CME and ICE

Issuance of SOFR-based Cash Securities

Monthly issuance of SOFR-based cash securities increased in the second half of 2022, with cumulative issuance for the year totaling \$1.2 trillion. Most issuance had a maturity up to and including one year (see Chart 13).

Chart 13: Issuance of SOFR-based Cash Securities (US\$ billions)



Source: Bloomberg, compiled by CME Group

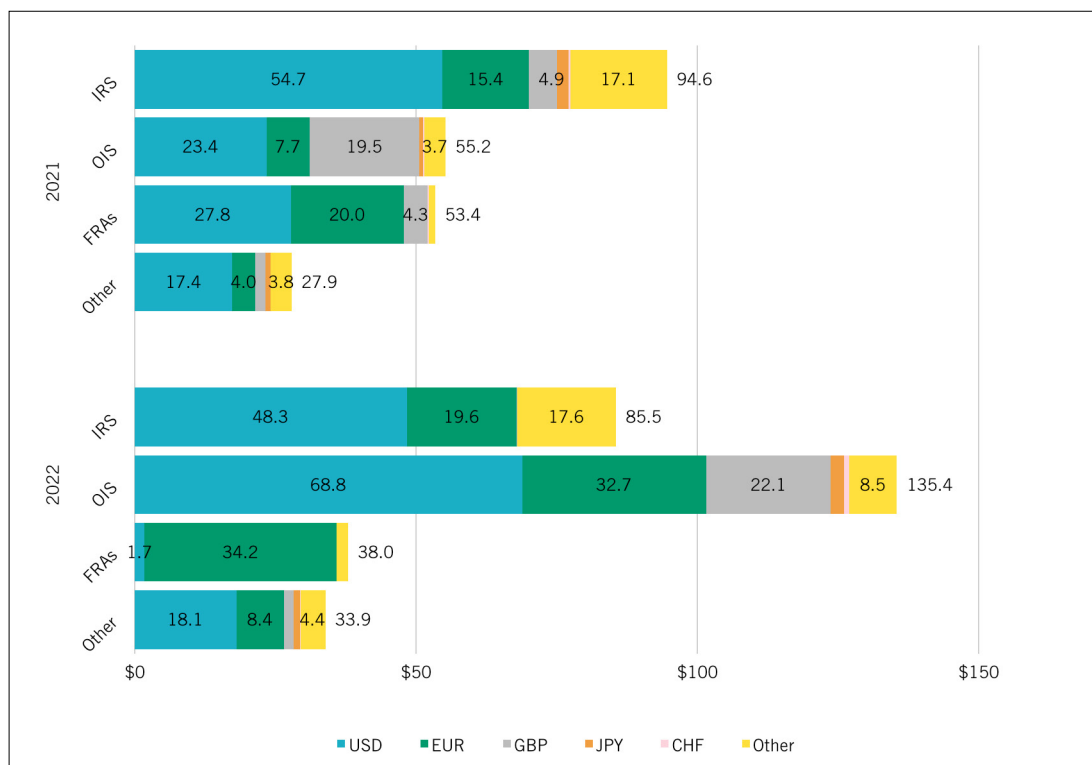
The Decline in FRA Trading

The transition from LIBOR to RFRs reduced the need for market participants to use forward rate agreements (FRAs), which led to a significant drop in FRA trading in 2022.

Prior to the transition, FRAs were widely used to hedge fixing risk in LIBOR-based swaps, in which the floating coupons are typically fixed for three or six months. In contrast, RFR-referencing swaps have floating coupons based on inputs that are fixed daily (although calculated at the end of the period), which significantly reduces the fixing risk. As FRAs reference a forward-looking term rate that is known at the start of the period, they are also incompatible with RFRs⁹.

US-dollar denominated FRA traded notional declined from \$27.8 trillion in 2021 (12.0% of total IRD traded notional) to \$1.7 trillion in 2022 (0.6% of total IRD traded notional). There were no sterling-, Swiss franc- and yen-denominated FRA transactions in 2022. In contrast, euro-denominated FRAs grew by 70.5% as market participants continued to use these instruments to hedge EURIBOR, which is not currently expected to cease (see Chart 14).

⁹ The Post-Libor World: A Global View from the BIS Derivatives Statistics https://www.bis.org/publ/qtrpdf/r_qt2212e.pdf

Chart 14: OTC IRD Traded Notional Reported in the US by Product and Currency (US\$ trillions)

Source: DTCC SDR

EXPECTED DEVELOPMENTS IN 2023

Conversion of Cleared US Dollar LIBOR Swaps

CME Group and LCH plan to convert cleared US dollar LIBOR swaps into cleared SOFR swaps ahead of the US dollar LIBOR cessation date of June 30, 2023. Similar conversions were conducted for non-US dollar LIBOR cleared swaps ahead of the discontinuation of Japanese yen, sterling and Swiss franc LIBOR at the end of 2021.

CME intends to convert all LIBOR swaps denominated in US dollars in several stages.

Mandatory splitting for US dollar LIBOR-LIBOR and LIBOR-SOFR basis swaps will occur on March 24, 2023, prior to the main conversion dates¹⁰.

The primary conversion will take place on April 21, and will cover all US dollar LIBOR swaps except for zero-coupon contracts. Zero-coupon swaps and any US dollar LIBOR swaps cleared after the primary conversion will be converted as part of the daily end-of-day process beginning on July 3, 2023.

Under CME's methodology, each original LIBOR swap will be replaced with two swaps – a forward-starting SOFR swap and a short-dated LIBOR swap. A forward-starting SOFR replacement swap will capture all future cashflows and a cash compensation. A short-dated LIBOR replacement swap will cover LIBOR fixings that settle after the index cessation date.

LCH will run a two-part US dollar LIBOR swap conversion, with the first stage taking place over the weekend of April 22-23, 2023, and the second stage occurring over the weekend of May 20-21, 2023. The first phase will include the conversion of basis swaps, variable notional swaps and zero-coupon swaps. The second stage will cover all other products¹¹. There will be cash compensation to account for any valuation differences between the original LIBOR trade and the corresponding SOFR trade.

LCH will legally amend each original LIBOR trade and use the same process of operational overlay bookings used in its non-US dollar conversion processes. It will not undertake a mandatory basis swap splitting exercise and has provided tools and functionality to allow market participants to choose how to proceed.

Conversion of Eurodollar Futures and Options

CME intends to convert all eligible Eurodollar futures and options to corresponding SOFR contracts on April 14, 2023. Eurodollar futures and associated options for expiries in April 2023, May 2023 and June 2023 will be excluded from the conversion and will continue to be available for trading until the original expiration¹².

At the time of conversion, trading in eligible Eurodollar futures will be discontinued and all open positions will be converted on a one-to-one basis into corresponding CME three-month SOFR futures. The converted contracts will have a price adjustment of 26.161 basis points to their daily settlement price on April 14, 2023. The adjustment aligns with the fixed fallback spread adjustment for three-month US dollar LIBOR published by Bloomberg.

Options on three-month Eurodollar futures will be converted into corresponding options on three-month SOFR futures. Open positions on each Eurodollar option strike will be converted to the nearest standard strike on the corresponding listed SOFR options contract.

¹⁰ CME Conversion for USD LIBOR Cleared Swaps www.cmegroup.com/trading/interest-rates/files/cme-conversion-for-usd-libor-cleared-swaps.pdf

¹¹ LCH USD LIBOR Conversion Quick Guide www.lch.com/system/files/media_root/SwapClear/LCH_USD_LIBOR_ConversionQuickGuide_A4_030123-04.pdf

¹² Transitioning From Eurodollar Futures And Options To SOFR – FAQ www.cmegroup.com/articles/faqs/transitioning-from-eurodollar-futures-and-options-to-sofr-faq.html

CME also offers several trading mechanisms to support market participants that want to proactively move their Eurodollar futures positions to three-month SOFR futures ahead of conversion. All Eurodollar options have an equivalent three-months SOFR option listed.

Fallbacks for Non-cleared Derivatives Under ISDA Documentation

Non-cleared derivatives that continue to reference US dollar LIBOR may transition via bilateral negotiations and/or compression processes prior to June 30, 2023. However, many derivatives will reference SOFR-based fallback rates after that date.

ISDA-developed fallbacks for all US dollar LIBOR settings will apply on the first London banking day on or after July 1, 2023. While one-week and two-month US dollar LIBOR ceased at the end of 2021, the ISDA fallbacks did not immediately take effect. Instead, rates for these tenors have been computed by each calculation agent using linear interpolation between the next shorter and next longer tenors that have continued to be published¹³.

Fallbacks for US dollar LIBOR have been included in all US dollar LIBOR derivatives referencing ISDA's standard definitions for interest rate derivatives since January 25, 2021. These fallbacks are based on SOFR compounded in arrears plus a fixed spread adjustment.

Bloomberg Index Services Limited (BISL) calculates and publishes an all-in fallback rate, which comprises an overnight RFR compounded over the relevant IBOR tenor with a two-day backward shift, and a fixed spread adjustment representing the median over a five-year period of the difference between the relevant IBOR tenor and the RFR compounded over the same tenor. Alongside the all-in fallback rate, BISL also separately publishes the adjusted RFR and spread adjustment components¹⁴.

In addition, over 15,500 entities have adhered to the ISDA 2020 IBOR Fallbacks Protocol, which allows firms to include the fallbacks into legacy non-cleared transactions entered into with other adhering parties before January 25, 2021¹⁵.

Adjustable Interest Rate (LIBOR) Act

In December 2022, the Federal Reserve Board (FRB) adopted a final rule that implements the Adjustable Interest Rate (LIBOR) Act. The legislation was enacted to establish a uniform process for replacing US dollar LIBOR in tough legacy contracts (including derivatives) governed by US law that do not provide a clearly defined benchmark replacement or person to determine such a replacement¹⁶.

The final rule identifies SOFR-based benchmark rates to replace overnight, one-month, three-month, six-month and 12-month US dollar LIBOR in those contracts subject to the act¹⁷.

After US dollar LIBOR ceases to be published on a representative basis in mid-2023, the Adjustable Interest Rate (LIBOR) Act and the US FRB regulation will generally apply the fallbacks in ISDA's standard definitions to any covered non-cleared derivatives contract that does not already contain ISDA's fallbacks or other fallbacks to a specific rate or determining person.

¹³ ISDA Guidance: UK FCA Announcement on the LIBOR Benchmarks www.isda.org/2021/03/05/isda-guidance-uk-fca-announcement-on-the-libor-benchmarks

¹⁴ ISDA Guidance: Bloomberg Published Fallback Rates www.isda.org/a/Ev2gE/ISDA-Guidance-IBOR-Fallbacks-090822.pdf

¹⁵ ISDA 2020 IBOR Fallbacks Protocol www.isda.org/protocol/isda-2020-ibor-fallbacks-protocol/adhering-parties

¹⁶ Board of Governors of the Federal Reserve System Press Release www.federalreserve.gov/newsevents/pressreleases/bcreg20221216a.htm#:~:text=The%20Federal%20Reserve%20Board%20on,contracts%20after%20June%2030%2C%202023

¹⁷ Regulations Implementing the Adjustable Interest Rate (LIBOR) Act www.federalregister.gov/documents/2023/01/26/2023-00213/regulations-implementing-the-adjustable-interest-rate-libor-act

CURRENT TOPICS RELATED TO THE RFR TRANSITION

Synthetic LIBOR Rates

Synthetic rates are intended to give market participants more time to complete the transition from LIBOR and support an orderly wind down of legacy LIBOR contracts.

Following the cessation of sterling and yen LIBOR in December 2021, the FCA required ICE Benchmark Administration (IBA) to continue publication of the one-, three- and six-month sterling and yen LIBOR settings under a synthetic methodology¹⁸. There are no synthetic rates for other terminated LIBOR rates (euro and Swiss franc LIBOR).

With the approaching deadline for the cessation of US dollar LIBOR, the FCA has conducted a consultation on the potential publication of synthetic US dollar LIBOR rates for certain tenors.

Under the proposal, IBA would be required to publish non-representative one-, three- and six-month US dollar LIBOR settings under a synthetic methodology until end-September 2024¹⁹. The synthetic US dollar LIBOR settings would be based on CME term SOFR plus the relevant spread adjustment in the fallbacks published by Bloomberg.

The proposal is intended to address contracts governed by non-US law (and, therefore, not covered by the Adjustable Interest Rate (LIBOR) Act) that will not be able to transition from US dollar LIBOR by the end of June 2023. The fallbacks in ISDA's documentation take effect following cessation or non-representative publication of US dollar LIBOR and would therefore apply after the end of June 2023, even if synthetic US dollar LIBOR is published after that time.

Term RFRs

Some market participants view RFR term rates as an essential tool in the transition from LIBOR. Forward-looking term rates can provide certainty for calculating interest payments and other contractual payments in advance, which may be important for some products.

Regulators have limited the scope of use of RFR term rates and encouraged the adoption of overnight RFRs. Regulators argue that overuse of term rates could reintroduce the vulnerabilities that plagued LIBOR because term rates are based on futures and other derivatives that reference the RFRs, rather than directly referencing the RFRs²⁰.

Not all jurisdictions plan to develop term RFRs. For example, the National Working Group on Swiss Franc Reference Rates did not develop a term rate for the Swiss Average Rate Overnight.

SOFR

Term SOFR rates are published for one-, three-, six- and 12-month tenors by CME and IBA. The US Alternative Reference Rates Committee (ARRC) endorsed CME term SOFR as the fallback for certain cash products²¹. The FRB's regulation under the Adjustable Interest Rate (LIBOR) Act also stipulates use of CME term SOFR in certain non-derivatives contracts covered by that law.

¹⁸ Article 21(3) Benchmarks Regulation-Notice of First Decision www.fca.org.uk/publication/libor-notice/article-21-3-benchmarks-regulation-first-decision-notice.pdf

¹⁹ CP22/21: Consultation On Synthetic US Dollar LIBOR And Feedback to CP22/11 www.fca.org.uk/publications/consultation-papers/cp22-21-synthetic-us-dollar-libor

²⁰ ARRC Provides Update on Forward-Looking SOFR Term Rate www.newyorkfed.org/medialibrary/Microsites/arrc/files/2021/arrc-press-release-term-rate-for-publication

²¹ ARRC Provides Update Endorsing CME 12-Month SOFR Term Rate www.newyorkfed.org/medialibrary/Microsites/arrc/files/2022/ARRC_CME_12-Month_SOFR_Term_Rate.pdf

CME term SOFR is calculated using CME SOFR futures trading activity, including 13 one-month and five three-month SOFR futures contracts. CME's methodology includes the option to include SOFR-linked OIS, subject to liquidity. SOFR OIS would be eligible for inclusion in the benchmark calculation when monthly transaction volumes exceed 25% of SOFR futures volumes for a six-month rolling period²².

The ARRC supports use of the SOFR term rate for business loan activity, such as multi-lender facilities, middle market loans and trade finance loans. The use of term SOFR is not supported for use in most derivatives transactions²³.

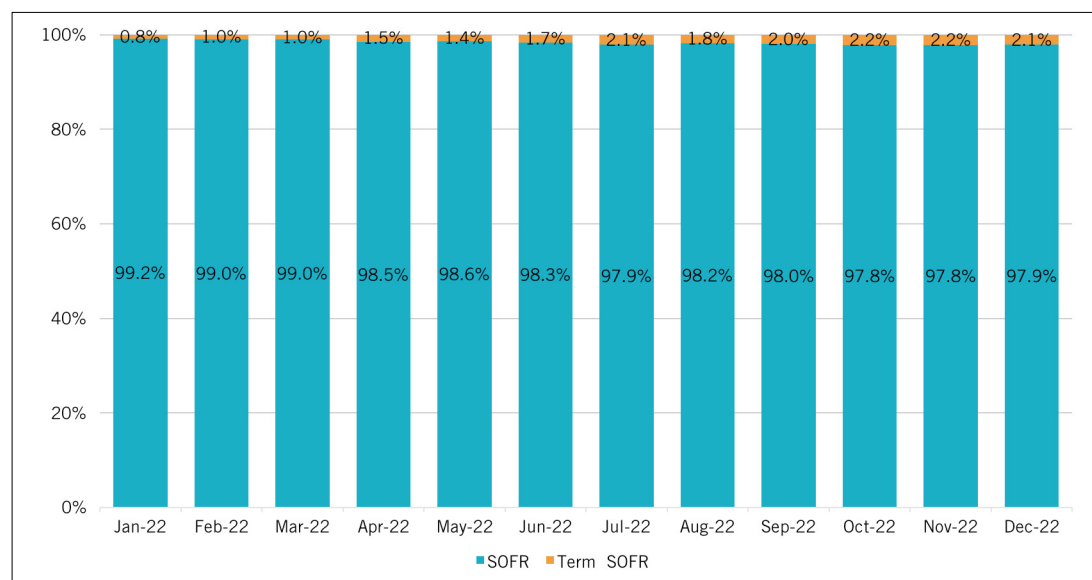
The ARRC recommends that term SOFR derivatives should only be used to hedge end-user exposure to cash products that reference the SOFR term rate. The ARRC's recommendations don't include interdealer trading in term SOFR derivatives.

The ARRC has stated that limiting the use of term SOFR in derivatives markets is intended to avoid the possibility that use of overnight SOFR is materially reduced. This would affect the depth of transactions in the underlying derivatives markets that are essential to the construction of the SOFR term rate, making the term rate unstable over time²⁴.

As a result of this restriction, dealers have to use overnight SOFR and SOFR averages to hedge their term SOFR exposures. Some market participants have expressed concerns about the development of a one-sided market for term SOFR and have called for an easing of the restrictions.

Based on DTCC SDR data, term SOFR transactions accounted for less than 3% of monthly SOFR-linked OTC IRD traded notional reported in the US in 2022²⁵ (see Chart 15).

Chart 15: SOFR-linked OTC IRD Traded Notional Reported in the US



Source: DTCC SDR

²² CME Term SOFR Reference Rates Benchmark Methodology www.cmegroup.com/market-data/files/cme-term-sofr-reference-rates-benchmark-methodology.pdf

²³ ARRC Best Practice Recommendations Related to Scope of Use of the Term Rate www.newyorkfed.org/medialibrary/Microsites/arrc/files/2021/ARRC_Scope_of_Use.pdf

²⁴ ARRC Frequently Asked Questions on Best Practice Recommendations Related to Scope of Use of the Term Rate www.newyorkfed.org/medialibrary/Microsites/arrc/files/2021/ARRC-Scope-of-Use-FAQ.pdf

²⁵ Transactions that referenced term SOFR in the underlier description were mapped as term SOFR and the rest was mapped as SOFR. SOFR/term SOFR basis swaps were included in both categories and therefore were double counted

SONIA

In the UK, the FICC Markets Standards Board outlined several limited use cases where there may be a robust rationale for using a Sterling Overnight Index Average (SONIA) term rate. In the derivatives market, these included end-user-facing transactions used to hedge cash products that reference term SONIA or tough legacy products that reference synthetic LIBOR²⁶.

IBA and Refinitiv have offered term SONIA in one-, three-, six- and 12-month tenors since January 2021²⁷. Term rates are calculated using eligible prices and volumes for specified SONIA-linked IRD products provided by trading venues, starting with SONIA OIS quotes provided by participants in interdealer central limit order books.

€STR

In the EU, the Working Group on Euro Risk-free Rates recommends using forward-looking €STR term rates as a fallback for certain products referencing EURIBOR (primarily non-derivatives)²⁸.

The European Money Markets Institute announced the launch of a euro forward-looking €STR-based term rate (EFTERM) in October 2022. The benchmark is offered in five tenors, including one week and one-, three-, six- and 12-months²⁹.

EFTERM rates are based on a waterfall methodology using €STR OIS dealer-to-client bid and offer prices and volumes obtained from Tradeweb's institutional trading platform or end-of-day settlement prices for ICE one-month €STR futures contracts³⁰.

Refinitiv also launched prototype forward-looking €STR term rates in October 2022. The rates are based on a waterfall methodology that uses €STR OIS dealer-to-client quotes from Tradeweb's institutional trading platform as the primary source³¹.

TORF

The Tokyo Term Risk Free Rate (TORF) is used in Japan as the fallback for certain non-derivatives referencing Japanese yen LIBOR. Market participants can also use TORF for new transactions, although significant use is not expected in derivatives markets³².

TORF has been published by Quick Corp since April 2021. The rates are available for one-, three- and six-month tenors. TORF is calculated based on Japanese yen OIS transaction data and is intended to show the risk-free rate of Japanese yen term products at the beginning of the interest rate calculation period³³.

²⁶ Standard on Use of Term SONIA Reference Rates https://fmsb.com/wp-content/uploads/2021/07/Standard-on-use-of-Term-SONIA-reference-rates_FINAL.pdf

²⁷ ICE Benchmark Administration term SONIA was used as the basis of synthetic sterling LIBOR

²⁸ Recommendation by the Working Group on Euro Risk-free Rates on EURIBOR Fallback Trigger Events and €STR-based EURIBOR Fallback Rates www.ecb.europa.eu/pub/pdf/other/ecb.recommendationsEURIBORfallbacktriggereventsandESTR.202105~9e859b5aa7.en.pdf

²⁹ Launch of the Euro Forward-looking Term Rate EFTERM www.emmi-benchmarks.eu/globalassets/documents/pdf/communication/news/launch-of-the-euro-forward-looking-term-rate-efterm.pdf

³⁰ EFTERM www.emmi-benchmarks.eu/benchmarks/efterm/

³¹ Refinitiv Launches Prototype Forward-looking €STR Term Rate www.refinitiv.com/en/media-center/press-releases/2022/october/refinitiv-launches-prototype-forward-looking-estr-term-rate#2

³² Expanding TORF Usage - a Smooth Transition from LIBOR in Japan www.nikkei.co.jp/nikkeiinfo/en/global_services/quick/expanding-torf-usage---a-smooth-transition-from-libor-in-japan.html

³³ TORF Methodology www.torf.co.jp/wp-content/uploads/TORFMethodologyEN.pdf

Credit-sensitive Rates

Several credit-sensitive rates have been launched or are being developed to measure the credit risk component of unsecured borrowing in certain markets. Some of the rates that are currently published include BSBY and AMERIBOR.

BSBY represents a series of credit-sensitive reference rates that incorporate systemic bank credit spreads. It measures the average yields at which large global banks access short-term US dollar senior unsecured wholesale funding. The rates are calculated for overnight, one-, three-, six- and 12-month tenors³⁴.

AMERIBOR is an interest rate benchmark based on overnight unsecured loans transacted on the American Financial Exchange. It reflects the actual borrowing costs of thousands of small, medium and regional banks across the US³⁵.

Invesco Indexing and SOFR Academy launched the US Dollar Across-the-Curve Credit Spread Indices (AXI) and the US Dollar Financial Conditions Credit Spread Indices (FXI) in July 2022. AXI is based on a weighted average of credit spreads of unsecured bank funding transactions with maturities ranging from overnight to five years. FXI incorporates data based on transactions of both financial and non-financial corporate debt instruments. These credit spread indices are intended to be added to term SOFR or other SOFR variants to form credit-sensitive interest rate benchmarks³⁶.

ISDA has published provisions in its standard definitions for credit-sensitive benchmarks, including AMERIBOR, BSBY, AXI and FXI. These updates to ISDA's standard definitions are meant to facilitate hedges for loans and other cash instruments that may use credit-sensitive rates.

Various global regulators have expressed concerns about the use of credit-sensitive rates as a replacement for LIBOR^{37,38}. For example, the International Organization of Securities Commissions (IOSCO) issued a statement on credit-sensitive rates, reiterating the importance of the transition to RFRs rather than credit-sensitive rates. IOSCO also noted that alternative benchmarks need to be compliant with IOSCO principles on financial benchmarks³⁹.

The use of credit-sensitive rates in derivatives transactions has been relatively limited. Based on DTCC SDR data that covers transactions required to be reported under US regulations, there were approximately 1,500 IRD transactions referencing BSBY compared to about 22,000 IRD transactions referencing term SOFR during 2022.

Modification of Clearing and Trading Requirements for OTC IRD

Regulators in several jurisdictions have issued consultations and/or final rules that modify the scope of derivatives clearing obligations and derivatives trading obligations. Specifically, new rules remove contracts referencing certain IBORs and EONIA from clearing obligations and replace them with RFR-linked OIS contracts. Related amendments have also been made to the trading obligations (see Table 2).

³⁴ Bloomberg Short-Term Bank Yield Index www.bloomberg.com/professional/product/indices/bsby/

³⁵ AMERIBOR <https://ameribor.net/american-interbank-offered-rate-ameribor>

³⁶ Across-the-curve Credit Spread Indices <https://sofracademy.com/axi/>

³⁷ LIBOR – 6 Months To Go, www.fca.org.uk/news/speeches/libor-6-months-to-go

³⁸ Prepared Remarks Before the Financial Stability Oversight Council – LIBOR www.sec.gov/news/speech/gensler-fsoc-libor-2021-06-11

³⁹ Statement on Credit-sensitive Rates www.iosco.org/library/pubdocs/pdf/IOSCOPD683.pdf

Table 2: Consultations and Rule Changes Related to the Derivatives Clearing Obligation (DCO) and Derivatives Trading Obligation (DTO)

UK				
December 2022	Financial Conduct Authority (FCA)	Consultation	DTO	<i>Changes to the DTO:</i> Removal of all derivatives products that reference USD LIBOR.
June 2022 (CP) and August 2022 (PS)	Bank of England (BoE)	Consultation and Policy Statement	DCO	<i>Changes to the DCO:</i> Addition of OIS that reference SOFR and removal of contracts referencing USD LIBOR.
September 2021 (CP) and December 2021 (PS)	BoE	Consultation and Policy Statement	DCO	<i>Changes to the DCO:</i> Addition of OIS that reference TONA.
July 2021 (CP) and October 2021 (PS)	FCA	Consultation and Policy Statement	DTO	<i>Changes to the DTO:</i> Removal of contracts referencing GBP LIBOR and addition of SONIA OIS.
May 2021 (CP) and September 2021 (PS)	BoE	Consultation and Policy Statement	DCO	<i>Changes to the DCO:</i> Removal of contracts referencing EONIA, JPY LIBOR and GBP LIBOR; addition of OIS referencing €STR; extension of the maturities in scope for OIS referencing SONIA.
EU				
July 2022 (CP) and January 2023 (final report)	European Securities and Markets Authority (ESMA)	Consultation and final report (including final draft RTS)	DCO and DTO	<i>Changes to the DCO:</i> Further amendments to introduce OIS referencing TONA and extension of OIS referencing SOFR (additional maturities in scope up to 50 years). <i>Changes to the DTO:</i> Adding certain OIS referencing €STR.
July 2021 (CP) and February 2022 (final RTS)	ESMA	Consultation and Final RTS	DCO and DTO	<i>Changes to the DCO/DTO:</i> Removal of swaps referencing EONIA, GBP LIBOR, JPY LIBOR and USD LIBOR from the scope of the DCO and related amendments to the DTO; addition to the DCO of certain OIS referencing €STR and SOFR; extension of the maturities in scope for OIS referencing SONIA.
US				
May 2022 (proposed rules) and August 2022 (final rules)	Commodity Futures Trading Commission	Proposed rules and final rules	DCO	<i>Changes to swap clearing requirement:</i> Removal of swaps referencing CHF LIBOR, GBP LIBOR, JPY LIBOR and EONIA; removal of swaps referencing USD LIBOR and SGD swap offer rate effective July 1, 2023. Inclusion of OIS referencing SARON, SOFR, €STR, TONA and SONIA (additional maturities in scope up to 50 years).
Australia				
February 2023	Australian Securities and Investments Commission (ASIC)	Consultation	DCO	<i>Changes to the DCO (derivatives transactions rules):</i> Removal of contracts referencing USD LIBOR; addition of OIS referencing SOFR.
December 2021 (CP) and May 2022 (final rules)	ASIC	Consultation and final rules	DCO	<i>Changes to the DCO (derivatives transactions rules):</i> Removal of contracts referencing EONIA, JPY LIBOR and GBP LIBOR; addition of contracts referencing €STR, TONA and SONIA.
Japan				
September 2021 (consultation) and November 2021 (final rules)	Japanese Financial Services Agency	Consultation and final rules	DCO and DTO	<i>Changes to the DCO/DTO:</i> Replacement of JPY LIBOR with TONA for the products in the scope of the DCO; related amendments to the DTO.
Switzerland				
May 2022 (CP) and December 2022 (final rules)	Financial Market Supervisory Authority	Consultation and final rules	DCO	<i>Changes to the DCO (clearing requirement):</i> Update aligns with the EU's scope for products subject to the clearing obligation.



ISDA has published other recent research papers:

- ***ISDA-Clarus RFR Adoption Indicator: February 2023***

<https://www.isda.org/a/aaJgE/ISDA-Clarus-RFR-Adoption-Indicator-February-2023.pdf>

- ***Transition to RFRs Review: Full Year 2022 and the Fourth Quarter of 2022***

www.isda.org/a/hlxgE/Transition-to-RFRs-Review-Full-Year-2022-and-the-Fourth-Quarter-of-2022.pdf

- ***SwapsInfo Full Year 2022 and the Fourth Quarter of 2022 Review***

www.isda.org/a/8VygE/SwapsInfo-Full-Year-2022-and-the-Fourth-Quarter-of-2022-Review-Full-Report.pdf

The [ISDA-Brattle microsite](#) provides background information about the IBOR Fallbacks, including adoption rates for the IBOR Fallbacks Protocol, graphs comparing certain fallback rates for LIBOR to LIBOR in the corresponding currency and information about the consultations that resulted in the final fallbacks.

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ABOUT ISDA

Since 1985, ISDA has worked to make the global derivatives markets safer and more efficient.

Today, ISDA has over 1,000 member institutions from 78 countries. These members comprise a broad range of derivatives market participants, including corporations, investment managers, government and supranational entities, insurance companies, energy and commodities firms, and international and regional banks. In addition

to market participants, members also include key components of the derivatives market infrastructure, such as exchanges, intermediaries, clearing houses and repositories, as well as law firms, accounting firms and other service providers. Information about ISDA and its activities is available on the Association's website: www.isda.org. Follow us on [Twitter](#), [LinkedIn](#), [Facebook](#) and [YouTube](#).