

Consultation on the Potential Replacement Rates for LIBOR and EONIA in the MSCI Indexes

December 2020

Background

The London Inter-bank Offered Rate (**LIBOR**) is a benchmark interest rate at which major global banks lend to one another in the interbank market.

- It is a forward-looking, unsecured rate administered by the Intercontinental Exchange (ICE) and regulated by the UK's Financial Conduct Authority (FCA).
- LIBOR is published for five currencies: US dollar, the Euro, the British Pound, the Japanese Yen, and the Swiss Franc
- The FCA announced that after 2021 it will no longer compel panel banks to submit quotes for LIBOR* and firms should transition to alternative reference rates.
- Euro OverNight Index Average (**EONIA**) is the rate at which banks of sound financial standing in the European Union (EU) and European Free Trade Area (EFTA) countries lend funds in the interbank money market in Euro.
- European Money Markets Institute (EMMI) will continue to publish EONIA until 3rd January 2022, after which it will be discontinued.

Proposed LIBOR replacement rates in MSCI Indexes*

- **Overnight Rates:** The working groups on LIBOR replacement across all currencies have already recommended alternate risk-free rates (RFR) for overnight maturity
 - MSCI proposes to use these as the replacement for overnight LIBOR
 - MSCI proposes to replace EONIA with ESTER (Euro Short-Term Rate)
- **Term Rates:** There is currently no solidification on the replacement for forward-looking term rates for most currencies
 - In such cases, and where other suitable term rates are not available, MSCI proposes to use the overnight RFRs as the replacement for term LIBOR rates

LIBOR	USD	GBP	EURO	CHF	JPY
Proposed Overnight Replacement Rate	SOFR (Secured Overnight Financing Rate)	SONIA (Sterling Overnight Index Average)	ESTER (Euro Short-Term Rate)	SARON (Swiss Average Rate Overnight)	TONA (Tokyo Overnight Average Rate)
Proposed Term Replacement Rate (1M,3M)	SOFR	SONIA	Euribor (1M, 3M)	SARON	Yen TIBOR (1M, 3M)

- MSCI invites feedback on this proposal on or before February 26, 2021, and will announce its decision by March 31, 2021
 - MSCI proposes to implement this change from the August 2021 Quarterly Index Review (QIR)

MSCI may modify the proposals based on any newly available information prior to the announcement of the results of the consultation



*Indexes where LIBOR/EONIA are used directly in the calculation and / or rebalancing of the Index.

Impact across MSCI Indexes

- LIBOR and EONIA are used as a direct component for the calculation and / or rebalancing in the following MSCI Index methodologies*

Methodology Type	Risk Control	Momentum**	Short & Leveraged	FX Hedge and Global Currency
Rate and Tenor	3-month LIBOR	3-month LIBOR	Overnight LIBOR	1-month LIBOR
Currency	USD, EUR, GBP, JPY, CHF	EUR, GBP, CHF	EONIA for EUR, LIBOR for other currencies	USD, EUR, GBP, JPY, CHF

- LIBOR is additionally used as an input in Equity Risk Models (such as GEM-LT)
 - Some MSCI Indexes (e.g. MSCI Minimum Volatility Indexes, MSCI Diversified Multiple-Factor Indexes, etc.) are constructed using the Equity Risk Model data
 - The potential candidate rates for LIBOR replacement to be adopted in the Equity Risk Models are given for reference only in the latter part of the presentation***

*These are standard MSCI methodologies. Any other standard methodologies using the above indexes for construction are also impacted. MSCI has indexes based on custom methodologies which use LIBOR and EONIA.

** MSCI Momentum Indexes use USD 3-month T-Bill rate for USD and 1-month Euroyen TIBOR for Japanese Yen

***Refer to the slide titled "MSCI Indexes using Equity Risk Model data" for further details. These are not in the scope of this consultation.

Proposed Replacement Rates for LIBOR and EONIA

Proposed replacement rates: Overnight LIBOR

- The working groups for LIBOR replacement across different currencies have recommended replacement rates for overnight LIBOR
- MSCI proposes to replace overnight LIBOR rates with the below rates in line with the recommendations by the working groups

LIBOR	USD	GBP	EURO	CHF	JPY
Proposed Replacement Rate	SOFR (Secured Overnight Financing Rate)	SONIA (Sterling Overnight Index Average)	ESTER (Euro Short-Term Rate)	SARON (Swiss Average Rate Overnight)*	TONA (Tokyo Overnight Average Rate)
Administrator	Federal Reserve Bank of New York	Bank of England	European Central Bank	SIX Exchange	Bank of Japan
Secured	Yes	No	No	Yes	No

- The proposed replacement rates are either EU BMR compliant / IOSCO compliant / published by central banks
- MSCI proposes to implement this change starting at the August 2021 Quarterly Index Review (QIR)
- MSCI proposes to use the rate published on the previous day if the current days' rate is not available in time within the MSCI systems for use in the calculation of the indexes on that day
- MSCI proposes to replace EONIA with ESTER in line with the recommendation by working group tasked with EONIA replacement

Replacement rates for term LIBOR

- There is currently no solidification on the replacement of forward-looking term rates for most currencies and these rates are at different stages of evolution for each currency

LIBOR (1M, 3M)	Current Status on forward-looking term rate
USD	The Alternative Reference Rates Committee (ARRC) has released a Request for Proposals (RFP) seeking a potential administrator to publish forward-looking term rates. Rate publication expected by H1 2021.
GBP	Multiple vendors are publishing forward-looking term rates. However, these are proto-type rates. Publication of production rates expected in Q4 2020.
EUR	Euribor is available as the potential replacement rate. EURIBOR is actively used by market participants.
JPY	Quick Corp publishes Tokyo Term Risk Free Rate (TORF) with 1-month, 3-month and 6-month tenors. However, these are proto-type rates. Publication of production rates expected in mid 2021. Another forward-looking rate - TIBOR - is actively used by market participants.
CHF	Currently no forward-looking term rates are available. There are no plans currently to make available forward-looking term rates.

Proposed replacement rates: Term LIBOR

- In the case of EURO and Yen, MSCI proposes to use other forward-looking term rates - Euribor and TIBOR respectively as replacement rates since these are already actively used by market participants
- For the other currencies (USD, GBP and CHF), as no forward-looking term replacements are currently available, MSCI proposes to replace them with the overnight RFRs

LIBOR (1m, 3m)	USD	GBP	EURO	CHF	JPY
Proposed Replacement Rate	SOFR (Secured Overnight Financing Rate)	SONIA (Sterling Overnight Index Average)	Euribor	SARON (Swiss Average Rate Overnight)*	TIBOR (Tokyo Interbank Offered Rate)
Administrator	Federal Reserve Bank of New York	Bank of England	EMMI	SIX Exchange	JBATA

- The proposed replacement rates are either EU BMR compliant / IOSCO compliant / published by central banks
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Simulated Index Impact: MSCI Short & Leveraged Indexes

There was no significant difference observed in the index performance for MSCI World Short Daily Index and MSCI World Leveraged 2X Daily Index using overnight SOFR versus overnight USD LIBOR.

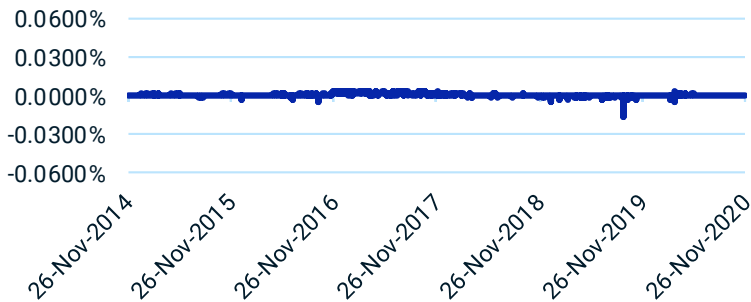
Cumulative Return from Nov 2014 to Nov 2020

Index using	MSCI World Short Daily Index	MSCI World Leveraged 2X Daily Index
Overnight USD LIBOR	-46.61%	137.48%
Overnight SOFR	-46.73%	137.74%
Difference	0.12%	-0.26%

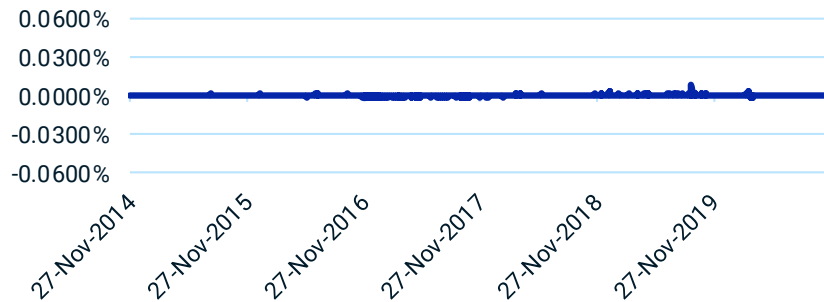
MSCI World Short Daily Index

MSCI World Leveraged 2X Daily Index

Difference in Index Performance for Index using Overnight USD LIBOR - SOFR



Difference in Index Performance for Index using Overnight USD LIBOR - SOFR



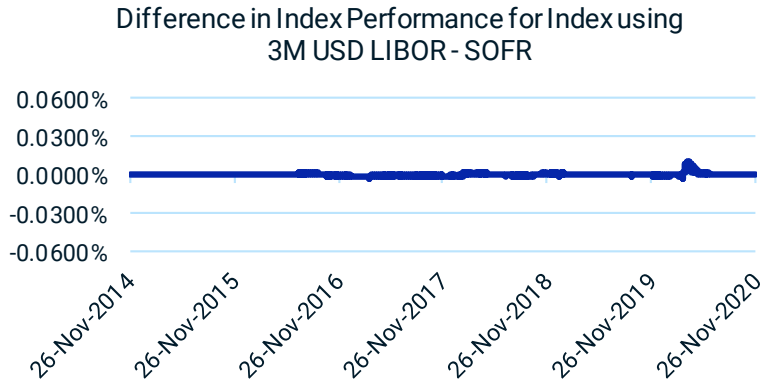
Simulated Index Impact: MSCI Risk Control Indexes

Minor difference was observed in the excess return variant as the value for 3M USD LIBOR is slightly higher than overnight SOFR for most part of the time period over which simulation is performed

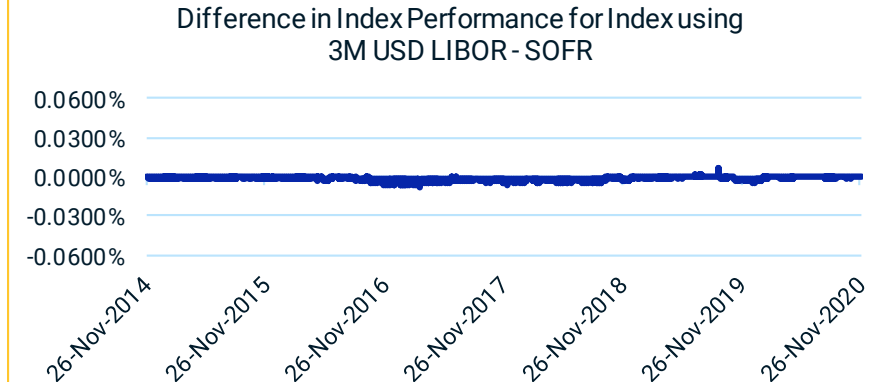
Cumulative Return from Nov 2014 to Nov 2020

Index using	Total Return	Excess Return
3M USD LIBOR	68.81%	56.25%
Overnight SOFR	68.55%	58.90%
Difference	0.26%	-2.65%

MSCI World (Gross) Risk Control 10% (Total Return) Index



MSCI World (Gross) Risk Control 10% (Excess Return) Index



MSCI Indexes using Equity Risk Model data

- Equity Risk Model data is used in many MSCI Index methodologies such as MSCI Minimum Volatility Indexes, MSCI Diversified Multiple-Factor Indexes, etc.
- LIBOR is used as risk-free rate by the model to compute:
 - Local excess asset returns
 - Currency factor returns
- Potential Candidate rates* for affected currencies in the Equity Risk Models are shown below:

Currency	USD	GBP	EURO	CHF	JPY
Rate currently used	US 3-month T-bill	GBP LIBOR	EUR LIBOR	CHF LIBOR	TIBOR
Candidate rates	No change	SONIA	Euribor	SARON	No change

- The change in the Equity Risk Models to transition away from LIBOR is currently scheduled to be implemented in late Q2/early Q3 2021, and will flow through to impacted MSCI Indexes starting with the August 2021 Quarterly Index Review, as per the respective methodologies

Discussion points

- **Overnight LIBOR and EONIA**

- Do you agree with the proposed replacement rates for overnight LIBOR and EONIA?
- The overnight rates may be volatile during specific periods such as month end, quarter end, year end. Do you prefer to apply any smoothing prior to using these rates?
- Do you prefer to apply any spread adjustment after transitioning to replacement rates which are secured in nature?
- Do you agree with the timeline of implementation of the proposed rates (August 2021)?

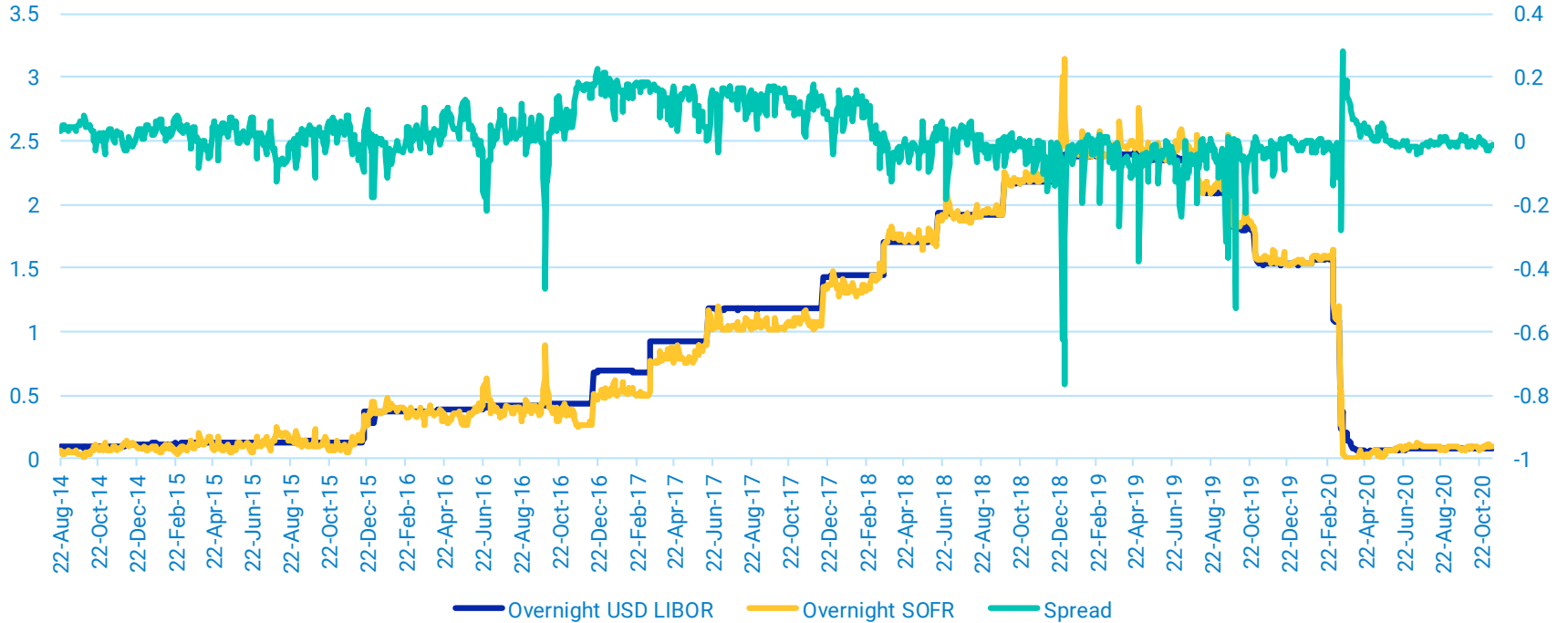
- **Term LIBOR**

- Do you agree with the proposal to use overnight rates for replacement for term USD, GBP and CHF LIBOR as no suitable term replacement rates are currently available?
 - Would you consider any other suitable replacement rates such as T-Bill rates or Government Bond rates for replacement of term LIBOR rates?
- Do you agree with the timeline of implementation of the proposed rates (August 2021)?

Appendix

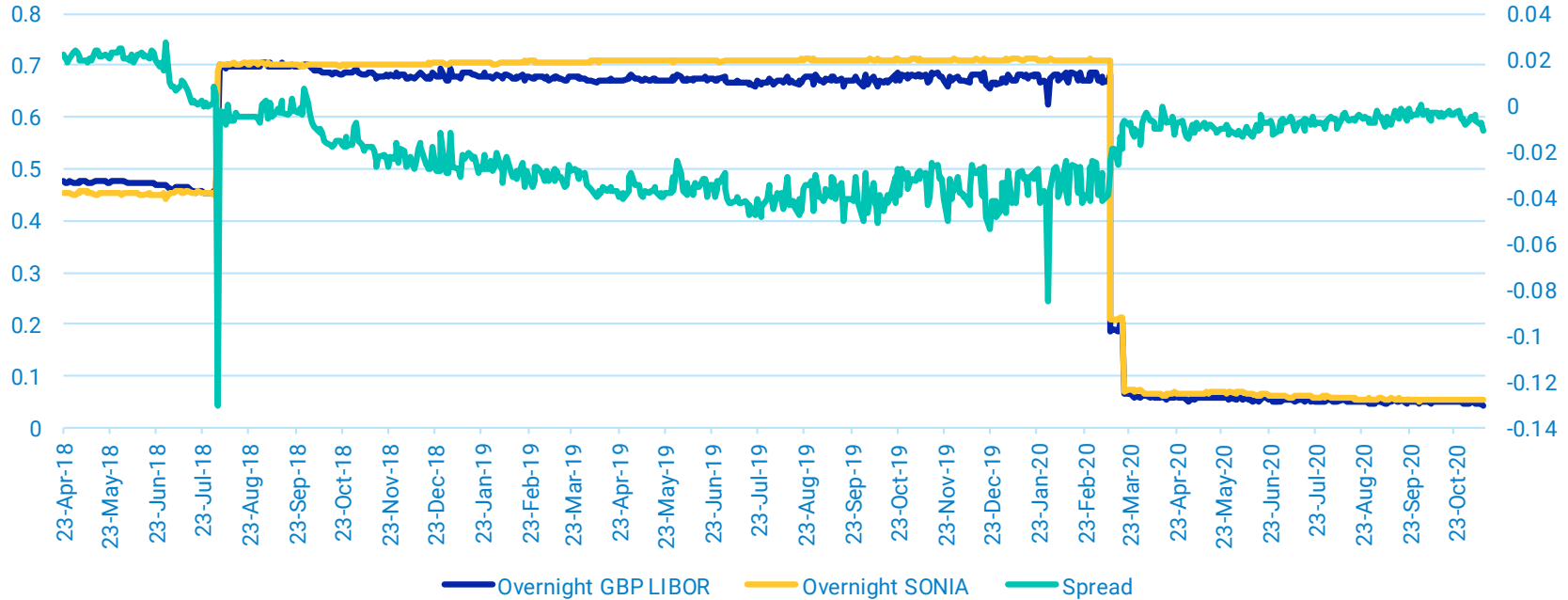
Overnight USD LIBOR vs SOFR

Rate Comparison (USD)



Overnight GBP LIBOR vs SONIA

Rate Comparison (GBP)

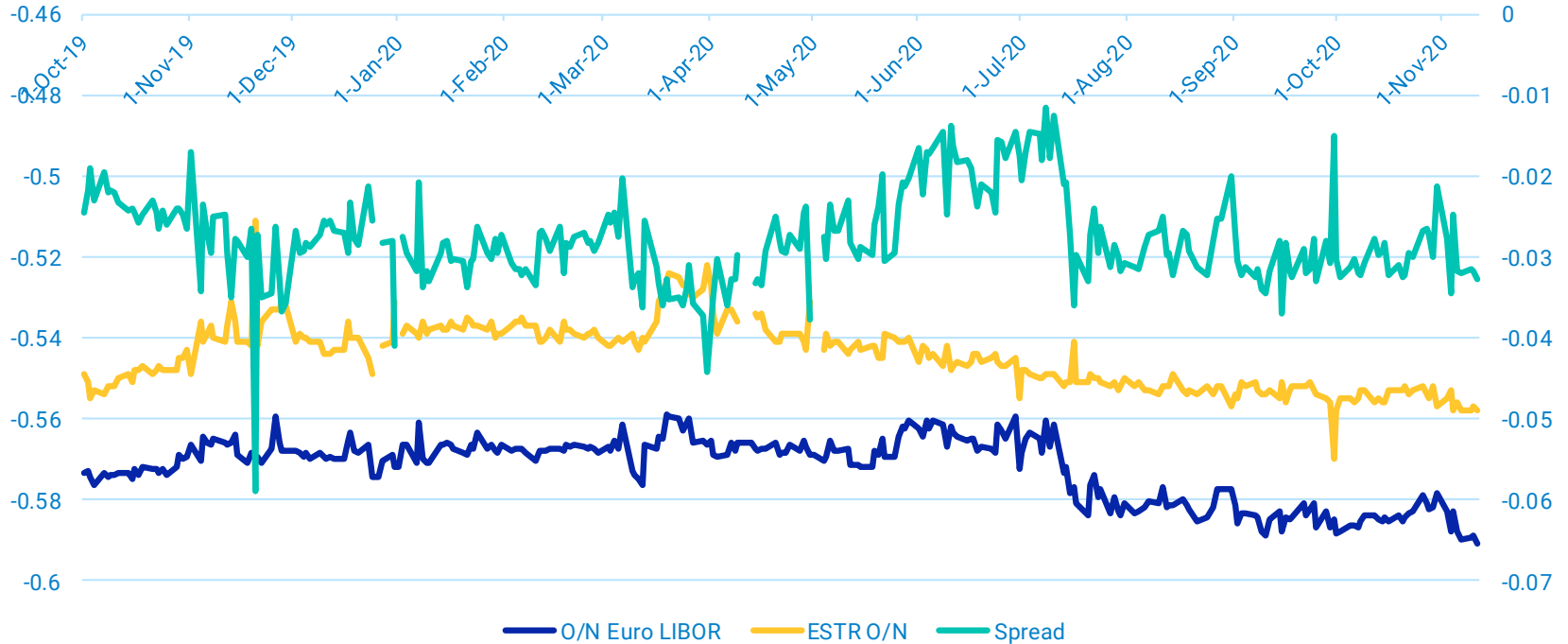


Spread values on RHS = LIBOR - Alternative Rate.

LIBOR and Alternative Rate are based on computation date.

Overnight EUR LIBOR vs ESTR

Rate Comparison (EUR)

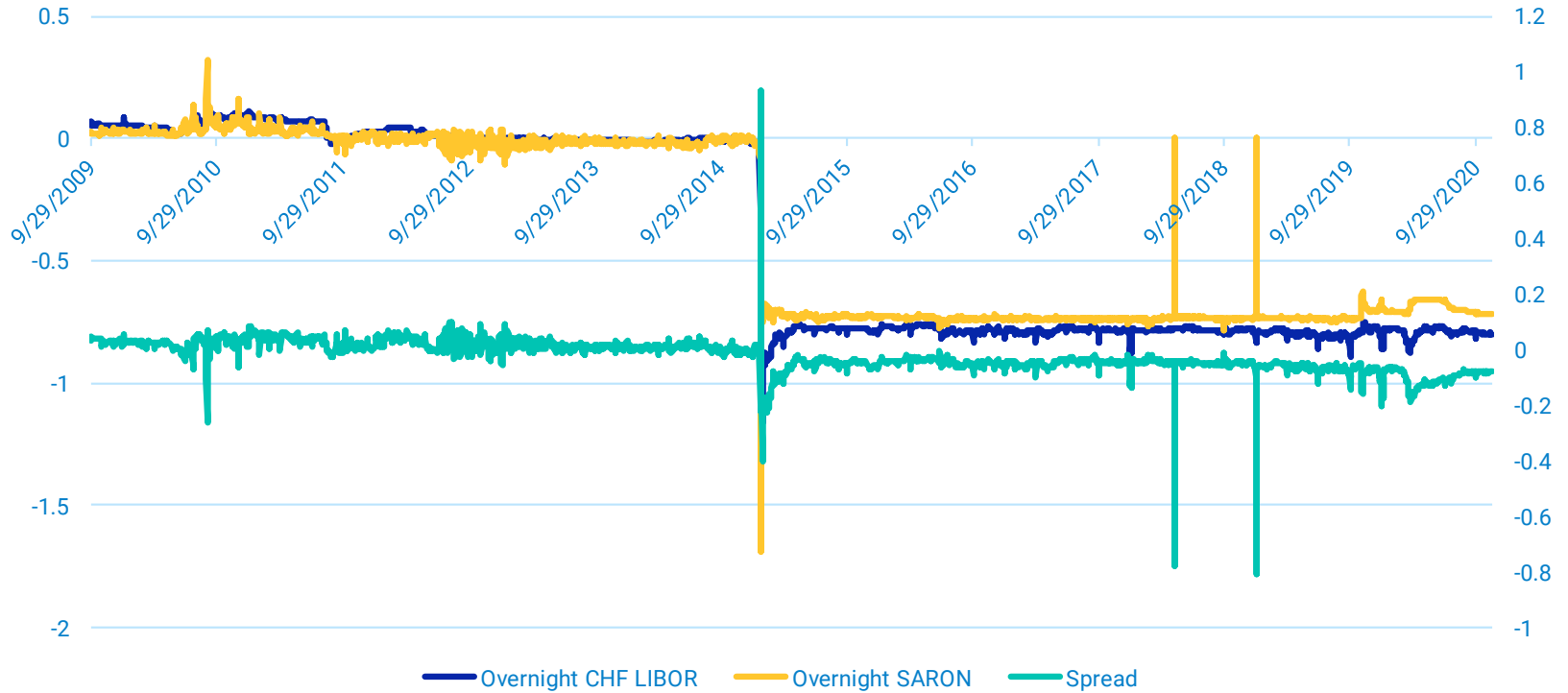


Spread values on RHS = LIBOR - Alternative Rate.

LIBOR and Alternative Rate are based on computation date.

Overnight CHF LIBOR vs SARON

Rate Comparison (CHF)

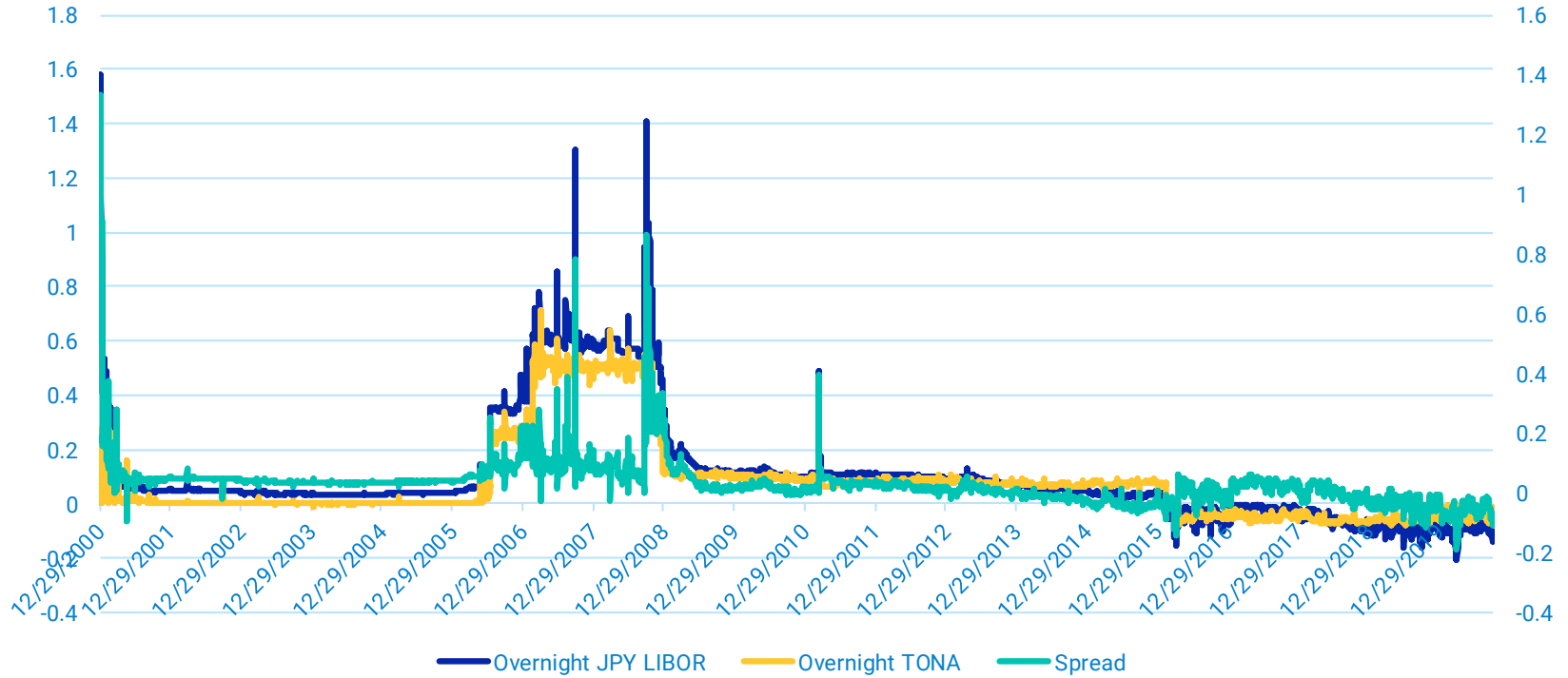


Spread values on RHS = LIBOR - Alternative Rate.

LIBOR and Alternative Rate are based on computation date.

Overnight JPY LIBOR vs TONA

Rate Comparison (JPY)

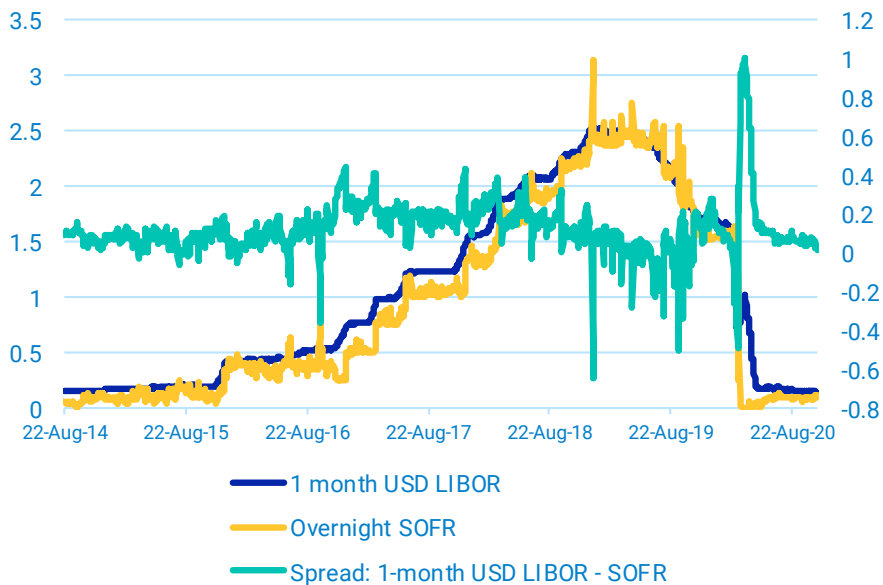


Spread values on RHS = LIBOR - Alternative Rate.

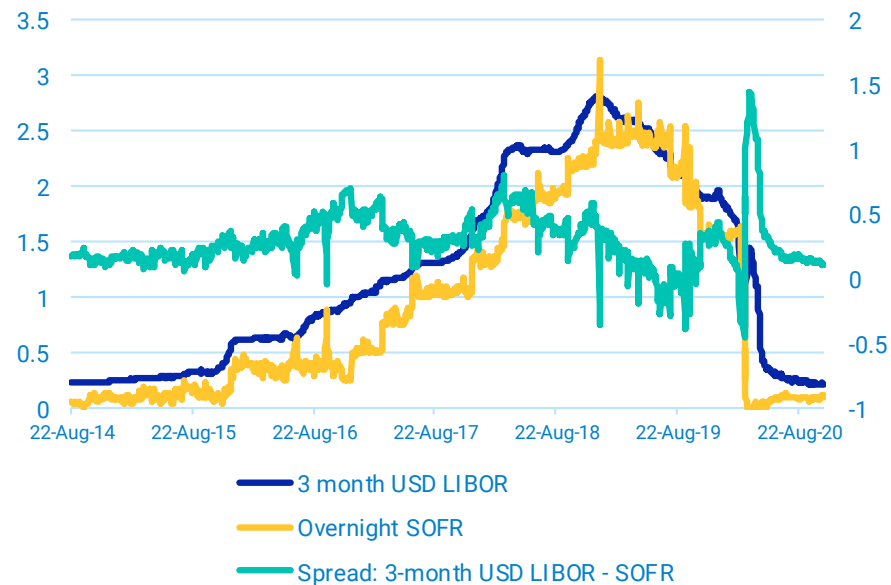
LIBOR and Alternative Rate are based on computation date.

Term USD LIBOR vs SOFR

1M Term Rate Comparison (USD)



3M Term Rate Comparison (USD)

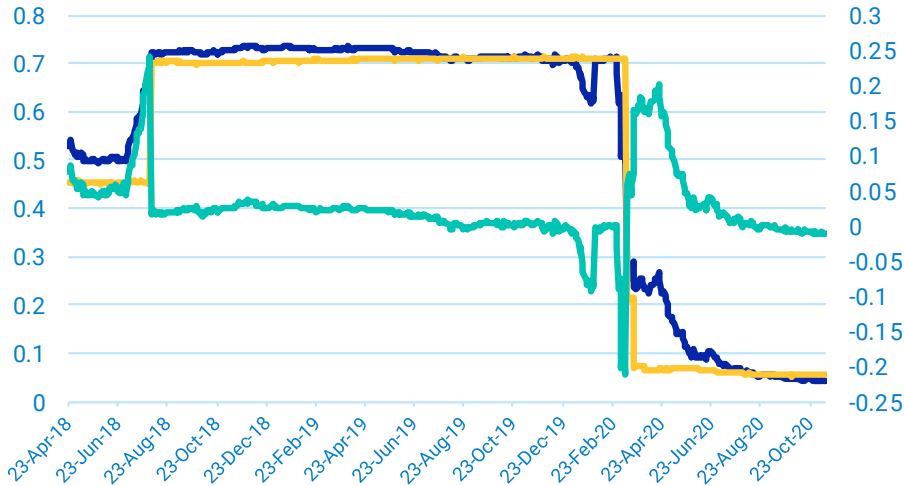


Spread values on RHS = LIBOR - Alternative Rate.

LIBOR and Alternative Rate are based on computation date.

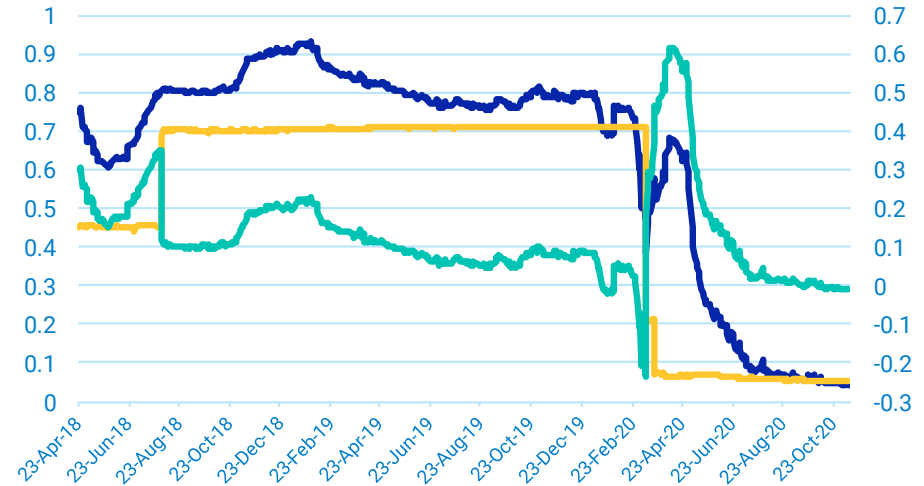
Term GBP LIBOR vs SONIA

1M Term Rate Comparison (GBP)



- 1 month GBP LIBOR
- Overnight SONIA
- Spread: 1-month GBP LIBOR - SONIA

3M Term Rate Comparison (GBP)



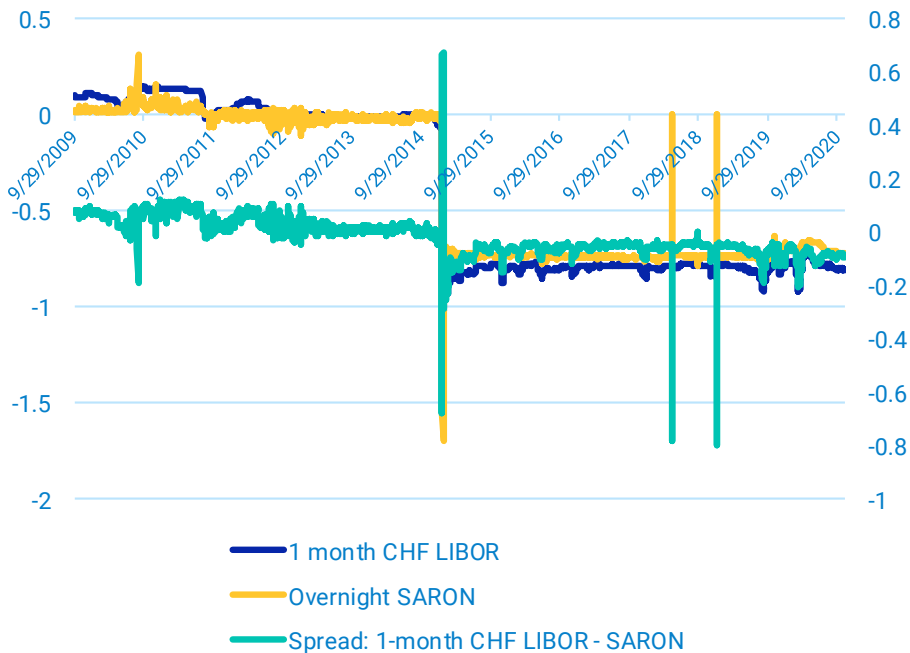
- 3 month GBP LIBOR
- Overnight SONIA
- Spread: 3-month GBP LIBOR - SONIA

Spread values on RHS = LIBOR - Alternative Rate.

LIBOR and Alternative Rate are based on computation date.

Term CHF LIBOR vs SARON

1M Term Rate Comparison (CHF)



3M Term Rate Comparison (CHF)



Spread values on RHS = LIBOR - Alternative Rate.

LIBOR and Alternative Rate are based on computation date.

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