

IBOR GEÇİŞİ
ULUSAL ÇALIŞMA KOMİTESİ






31 Mart 2021 Çarşamba

IBOR Reformu: Küresel Bakış

Geçiş Sürecinde Dünyada Güncel Uygulamalar
Ürün Konvansiyonlarına Ait Önemli Karar Noktaları

Evolution of Benchmarks

Alternative Indexes

Actual Index	Term	Discontinuation	Geography / Currency	Alternative Index	Term	Administrator	Secured	Wholesale Non-Bank Cpty
LIBOR	All GBP, EUR, CHF, JPY LIBOR and USD LIBOR (1W and 2 M)	31.12.2021	 USD ➔	SOFR	O/N, Compounded Average (1M, 2M, 6M)	Federal Reserve Bank of NY	Yes	Yes
			 GBP ➔	SONIA		Bank of England	No	Yes
	USD LIBOR (O/N, 1, 3, 6 and 12M)	30.06.2023	 CHF ➔	SARON	and Term	SIX Swiss Exchange	Yes	No
EURIBOR	1 and 2W, 1, 2, 3, 6, 9 and 12M	No Discontinuation	 EUR ➔	Hybrid EURIBOR	1 and 2W, 1, 2, 3, 6, 9 and 12M	European Money Market Institute	No	No
EONIA	O/N	03.01.2022	 EUR ➔	€STR	O/N	European Central Bank	No	Yes

Benchmark Interest-Rate Reform: Confirmation of LIBOR Cessation Dates

The Financial Conduct Authority (FCA) has announced the dates that panel bank submissions for all LIBOR settings will cease, after which representative LIBOR rates will no longer be available.

The Financial Conduct Authority (FCA) announced the dates on which all LIBOR settings will either cease to be published by any administrator or will no longer be representative. This announcement follows the notification by ICE Benchmark Administration (IBA) that it will not be able to publish the LIBOR settings on a representative basis beyond these dates.

The following dates apply to each LIBOR currency and setting:

- All **GBP, EUR, CHF** and **JPY LIBOR** settings will either cease to be published or will no longer be representative after **31 December 2021**;
- For **USD LIBOR** settings, publication will cease or will no longer be representative:
 - (i) for 1 week and 2 month settings, after **31 December 2021**
 - (ii) for overnight (O/N), 1 month, 3 month, 6 month and 12 month settings, after **30 June 2023**.

The mentioned announcements are available via the links below for more information:

- FCA announcement: [Link](#)
- IBA announcement: [Link](#)

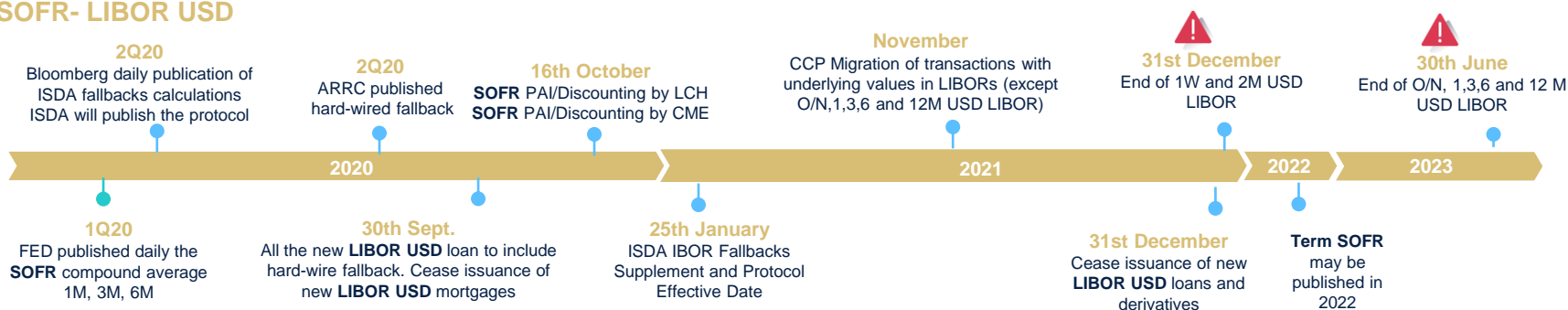
For LIBOR-linked contracts which already include robust fallback clauses, these announcements constitute a formal trigger event. Additionally, as a consequence of the FCA announcement, the ISDA Credit Adjustment Spread has been fixed for all LIBOR currencies at the values published by Bloomberg on 5 March 2021.

- ISDA Credit Adjustment Spread values: [Link](#)

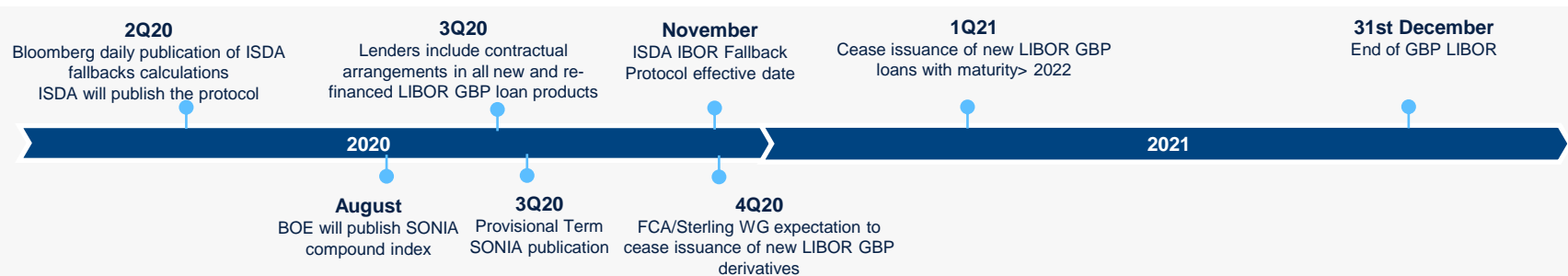
ARRC/FCA Regulatory Milestones – New Production & Legacy

The ARRC⁽¹⁾ and the FCA⁽²⁾ have proposed several milestones throughout the IBOR transition timeline in order to help Entities to complete the adaptation process to the new rates

SOFR- LIBOR USD



SONIA- LIBOR GBP



(1) ARRC: Alternative Reference Rates Committee

(2) FCA: Financial Conduct Authority

Scenarios of Change Legacy Portfolio

CCP Transition (LCH)

The transition process analyzed of legacy portfolio is composed of two main change scenarios in which the impacts on systems, processes and products are different

Scenario	Description	Key Dates	Impacts	Compensations
Discount / Collateral	<ul style="list-style-type: none"> Change in the interest rate curve used in the valuation of transactions. In this way, transactions valued with the EONIA / FFunds curve are now valued with the €STR / SOFR O/N curve. This change implies the use of the €STR / SOFR O/N index in the remuneration of the interest accrued by the collateral. 	<ul style="list-style-type: none"> EONIA → €STR LCH, CME and EUREX: (27/07/2020) FFunds → SOFR O/N LCH, CME: (19/10/2020) 	<ul style="list-style-type: none"> Impact on economic value (P/L), and therefore on Variation Margin (VM), due to the fact that trades are discounted with a different curve. Impact on exposure, due to the fact that trades are sensitive to a different curve. 	<ul style="list-style-type: none"> Adjustments in P/L through cashflow Adjustments through Basis Swaps
Estimation / underlying	<ul style="list-style-type: none"> Change of the overnight floating leg underlying of the operations (e.g. OIS EONIA). The trade coupons are then calculated on the basis of the new index. <ul style="list-style-type: none"> EONIA: two possible alternatives are currently being considered: <ol style="list-style-type: none"> Replacement of EONIA by €STR + 8.5 bp (EONIA fallback). Replacement of EONIA by €STR flat⁽²⁾. FFunds: no replacement of the FFunds by SOFR O/N as the underlying is foreseen. Change of the term floating leg underlying of the operations (e.g. LIBOR 3 months. ISDA and ARRC are preparing an update of the fallback language to incorporate fallbacks to adjusted versions of the RFRs that would apply in the event of permanent discontinuation of IBOR 			

Scenarios of Change Legacy Portfolio

Fallback - Derivatives

ISDA is amending its definitions for derivative contracts that reference IBORs to incorporate fallbacks to adjusted versions of the RFRs that would apply in the event of permanent discontinuation of IBOR

- During 2019, ISDA defined through a series of market consultations the methodology to be used for the derivative fallbacks. This methodology is based on a daily compounding of the interest during the interest period.
- Clients under ISDA protocol are expected to adhere to the ISDA fallbacks following industry trends. **In case a client do not adhere to ISDA protocol a renegotiation process should be started.**
- **ISDA** announced that Bloomberg is the adjustment services vendor for IBOR fallback calculations. Bloomberg calculates and publishes the term and spread adjustments base on the methodology proposed by ISDA (Fallback rate = ARR + SA).

Adjustments	Structural differences (RFR vs IBOR)	Adjustment proposed	Formula
Adjusted RFR (ARR)	<ul style="list-style-type: none"> • RFRs: overnight rate. • IBOR: term structure. 	<ul style="list-style-type: none"> • Compound in arrears for each RFR for each relevant term (daily compounding). 	$\left[\prod_{i=1}^{d_b} \left(1 + \frac{r_i \times n_i}{n} \right) - 1 \right] \times \frac{N}{d_c}$ <p>Translate the annual O/N rate into an effective day/next day rate Annualize the compound rate</p>
Spread adjustment (SA)	<ul style="list-style-type: none"> • Historical spread differential between IBORs and their “term equivalent” RFR compounded rates. 	<ul style="list-style-type: none"> • Median of the historical differences between the IBOR for each tenor and the compounded RFR for that tenor over a five-year period prior to an announcement triggering a fallback. 	$SA_t = \text{Median} (IBOR_t - ARR_t)$

Scenarios of Change Legacy Portfolio

Fallback - Cash Products

The Alternative Reference Rates Committee (ARRC) published **Hardwire Fallback (Waterfall)** for legacy loans. It is expected that entities will negotiate with clients to introduce this fallback.

ARRC has decided to work with a vendor to publish on a daily basis ARRC-Recommended LIBOR Fallback Spread Adjustments and Spread-Adjusted Rates. ARRC Announced that Refinitiv as publisher of its Spread Adjustment Rates for Cash Products.

		FLOATING RATE NOTES	BILATERAL BUSINESS LOANS	SYNDICATED LOANS	SECURITIZATION
1	Term SOFR² + spread adjustment Forward looking term SOFR for the applicable corresponding tenor. Note: Loan recommendation allow use of next longest tenor term SOFR rate if the corresponding tenor is unavailable	✓	✓	✓	✓
2	Compounded SOFR + spread adjustment Compounded average of daily SOFRs over the relevant period depending on the tenor of USD LIBOR being replaced. For syndicates loans they have released the simple daily SOFR with lookback although you can enter a compounded if the client agreed.	✓	✓	✓ "Simple daily with lookback"	✓ "in arrears" or "in advanced"
3	Relevant selected rate + spread adjustment Rate selected by the Relevant Governmental Body, lender or borrower & administrative agent.	✓ Governmental body	✓ Lender	✓ Borrower & admin agent	✓ Governmental body
4	Relevant ISDA replacement + spread adjustment The applicable replacement rate (without any spread adjustment) that is embedded in ISDA's standard definitions.	✓	○	○	✓
5	Issuer, designated transactions representative, or note holder replacement rate+ spread adjustment An identified party will select a replacement rate in some cases considering any industry-accepted rate in the related market. Note: in certain circumstances this stem could be omitted.	✓ Issuer	○	○	✓ Designated representative

(1) Summary of ARRC's LIBOR Fallback Language November 2019; (2) Forward Looking term does not currently exist (3) The hardwired fallback language has been updated to recommend the use of simple daily SOFR in arrears in the second step of the waterfall for legacy syndicated loans and include a more permissive early opt-in trigger, which allows parties involved in the loan to switch over to an alternative rate like SOFR before LIBOR is officially discontinued or determined to be unrepresentative. . The final recommendation for new syndicated loans will be published in July.

Scenarios of New Portfolio

Use of RFR in new products as recommended by regulators

The regulators are promoting a number of methodologies and conventions depending on the type of product and the type of customer

Products	Client Breakdown	Current Rate	Recommended Rate	Impact
Derivatives	Large Corporate	LIBOR term (forward looking)	Compounding/simple in arrears Lookback 5 days	Analysis is needed to be done by engineering in order to determine the impact in systems
Bonds / Loans	Large Corporate	LIBOR term (forward looking)		Analysis is needed to be done by engineering in order to determine the impact in systems
Loans	Mid to Large Corporate Specialist Finance	LIBOR term (forward looking)		Analysis is needed to be done by engineering in order to determine the impact in systems
	SMEs Private Banking Retail Banking	LIBOR term (forward looking)	Term / Alternative Rate Replacement Index (as determined by the regulator). Compounded/Simple in advanced	Low impact because the recommended rate structure is in advanced and therefore fixed at the beginning of the period as is the case with LIBOR at the moment

Source: STERLING WG

It is being observed that the market trend is to use RFRs Compounded/simple in Arrears in Lending business for corporate clients.



Likewise, the ARRC considers that this methodology is the most suitable for the total coverage of interest rate risk due to the fact that in **Global Markets for Overnight indices** (EONIA, Fed Funds) **Compounded in Arrears is already being used.**

Use of RFR Methodologies

Forward looking

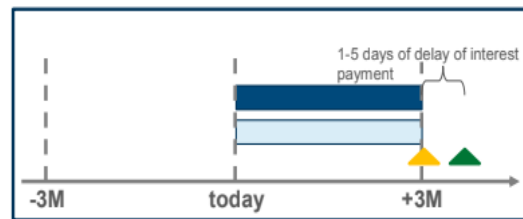
OIS (tradable) quotes-based methodology as the RFR-based forward-looking term structure methodology.

However, among other requirements...

- It needs a deep and liquid OIS market.
- It needs an administrator.

Backward looking

In arrears (Compounded)



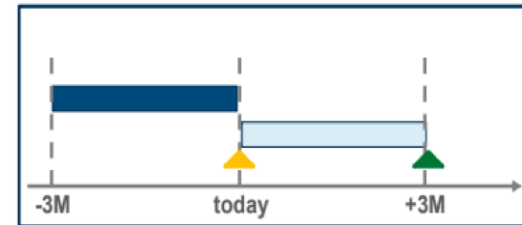
--PROS--

Reflects what actually happens to interest rates over the period and will therefore fully hedge interest rate risk.

--CONS--

Provides very little notice before payment is due.

In Advance (Compounded)



--PROS--

Allows to determine the period of time over which the daily RFR rate observed and averaged.

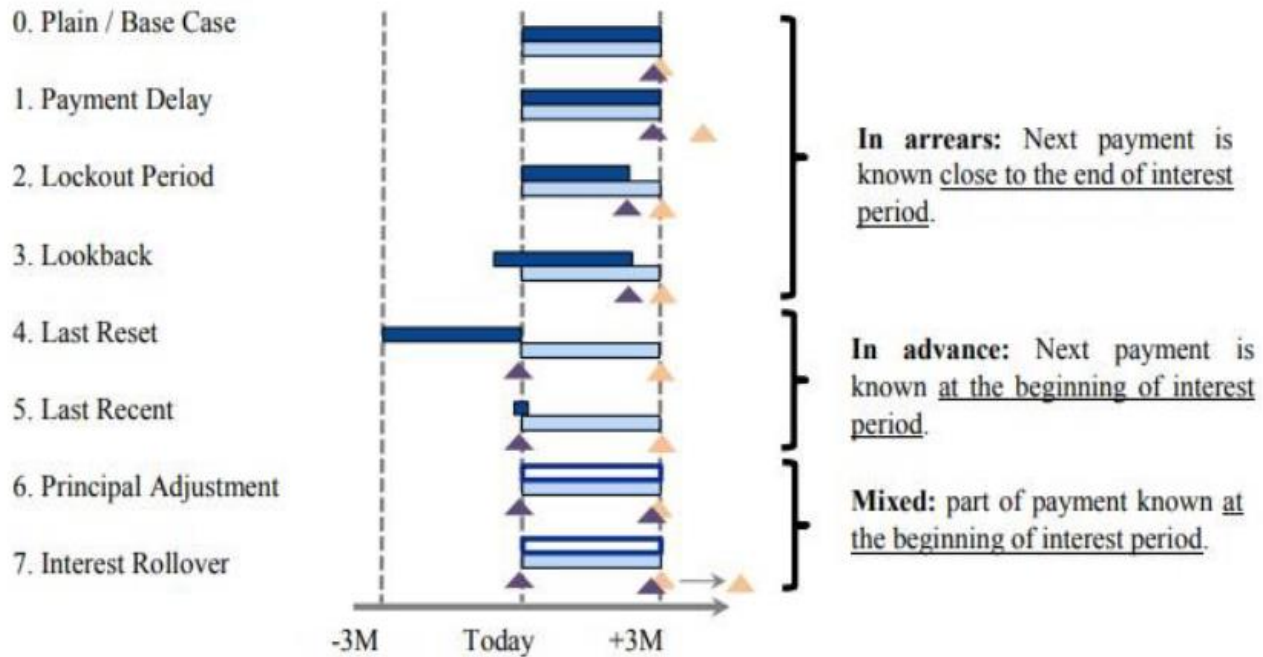
--CONS--

Rates in advance risk becoming "out of date" and not reflecting the real situation of interest rates.

- ▲ Fixing date
- ▲ Payment date
- Interest Calculation Period
- Accrued Period



- Private working groups launched by the ECB, the Bank of England and the FED are analysing the suitable backward-looking methodology for each financial product.
- The British working group has already stated their preference for compounded in arrears methodology except for non sophisticated clients.

Interest Calculation Approaches – Compounding Summary



Legend:

observation period:	period used to calculate the averaged RFR
second observation period:	period used to calculate the adjustment payment
interest period:	period for which an interest instalment is paid

-  payment date
-  payment known

Generic Systems Implication

IT and contractual implications due to the replacement of Term based on compounding in arrears/compounding in advance must be considered

Trades	Product	IT implications in systems	Contractual implications with
Legacy	Derivatives	<ul style="list-style-type: none"> Adapt systems to capture index published in Bloomberg (compounding setting in arrears, spread adjustment and all in fallback rate) 	<ul style="list-style-type: none"> Conduct client and external stakeholder outreach to communicate new ISDA adoption. Derivatives under ISDA: Negotiate with clients to include ISDA's fallback. Derivatives under another type of master agreement It depends on the fallback you enter or the trade you make with client/counterpart. The normal would be to introduce a fallback just like the ISDA fallback.
	Cash products	<ul style="list-style-type: none"> Adapt systems for the compounding in arrears methodology (corporates) and compounding in advanced (retail) 	<ul style="list-style-type: none"> Conduct client and external stakeholder outreach to communicate markets trends regarding the transition. Negotiate with client to include ARRC waterfall fallback
New	Derivatives	<ul style="list-style-type: none"> Adapt systems for the compounding in arrears methodology 	<ul style="list-style-type: none"> Derivatives under ISDA: In case new derivatives are referenced to LIBOR term index, they should include a ISDA fallback. Derivatives under another type of master agreement: In case new derivatives are referenced to LIBOR term index, they should include a fallback just like the ISDA fallback.
	Cash products	<ul style="list-style-type: none"> Adapt system to capture: FED publications for 30-, 90-, and 180-day SOFR Averages (compounding in advanced). Adapt systems for the compounding in arrears methodology (corporates) and compounding in advanced (retail). 	<ul style="list-style-type: none"> In case new derivatives are referenced to LIBOR term index ,they should include a fallback just like the ARRC fallback.

Risks derived from not undertaking IBORs Transition

As a consequence of this transition, Banks could experience important potential risks in case they do not follow market trends recommendation

Risks from IBORs Transition



- **Market loss due to non-compliance with regulation established by main authorities / alignment with new benchmarks and definition.** Performing a complete assessment of current exposures situation and setting a transition roadmap is key to set early mitigants for a successful transition.



- **Reputational risk** in case the Bank does not offer same services as other banks.



- **Operational and IT risk that may arise due to the bank's IT infrastructure and business processes not being compatible to operate** with new benchmarks.



- **Legal risk derived from not amending outstanding contracts with clients / counterparties affected that go beyond the end of 2021** regarding a permanent discontinuation scenario. Also, derived from a lack of an appropriate communication to clients operating with IBORs benchmarks.



- **Risks derived from not adjusting internal Risk and Finance models.** Identification of internal models affected, adjustments of methodologies for the identification of new curves referenced to new indexes, analysis of impacts in sensibilities and hedging, etc.

Action Plan

A) 1st assessment

- Analyze the main implications for the different areas affected.
- Deployment of Local Governance model for IBOR transition.
- Impact assessment in business and support areas.
- Macro-action lines definition.

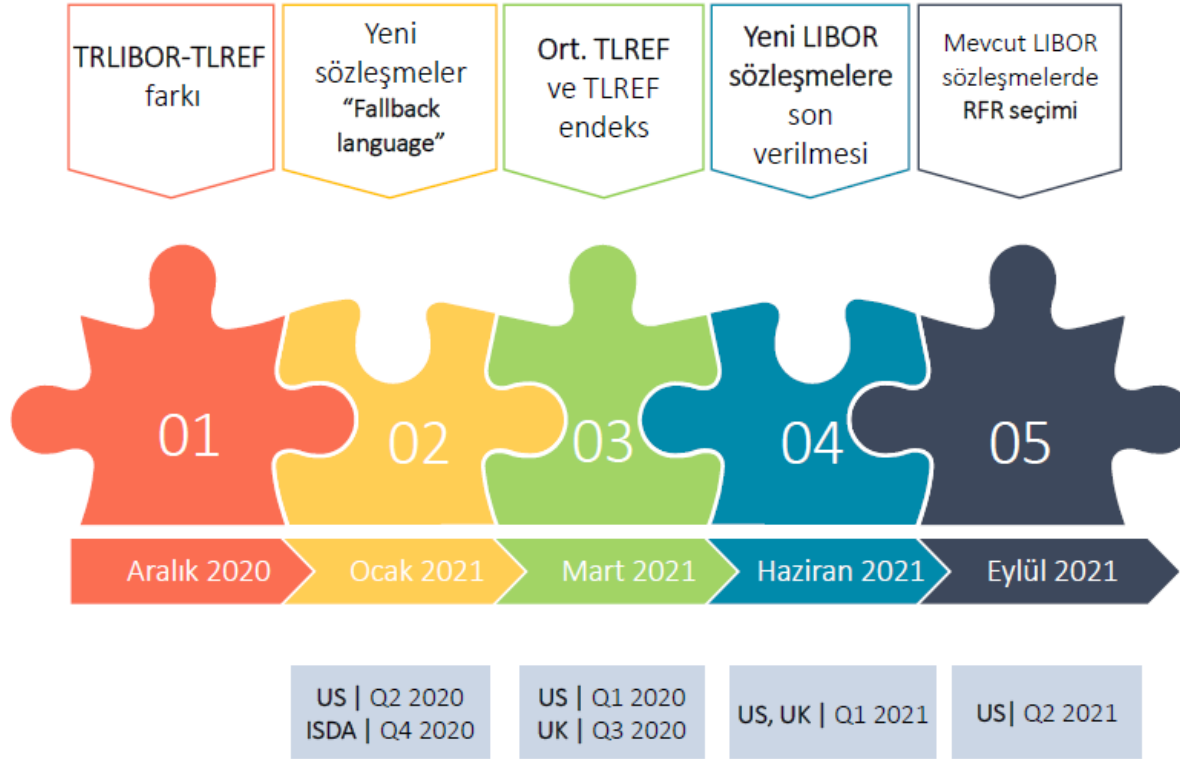
B) 2nd assessment

- Impact analysis for the new RFR and migration of legacy derivative portfolio to the new curves.
- Action plan definition for all LoB and derivatives and cash products.
- Strategy design and market trends for new products.

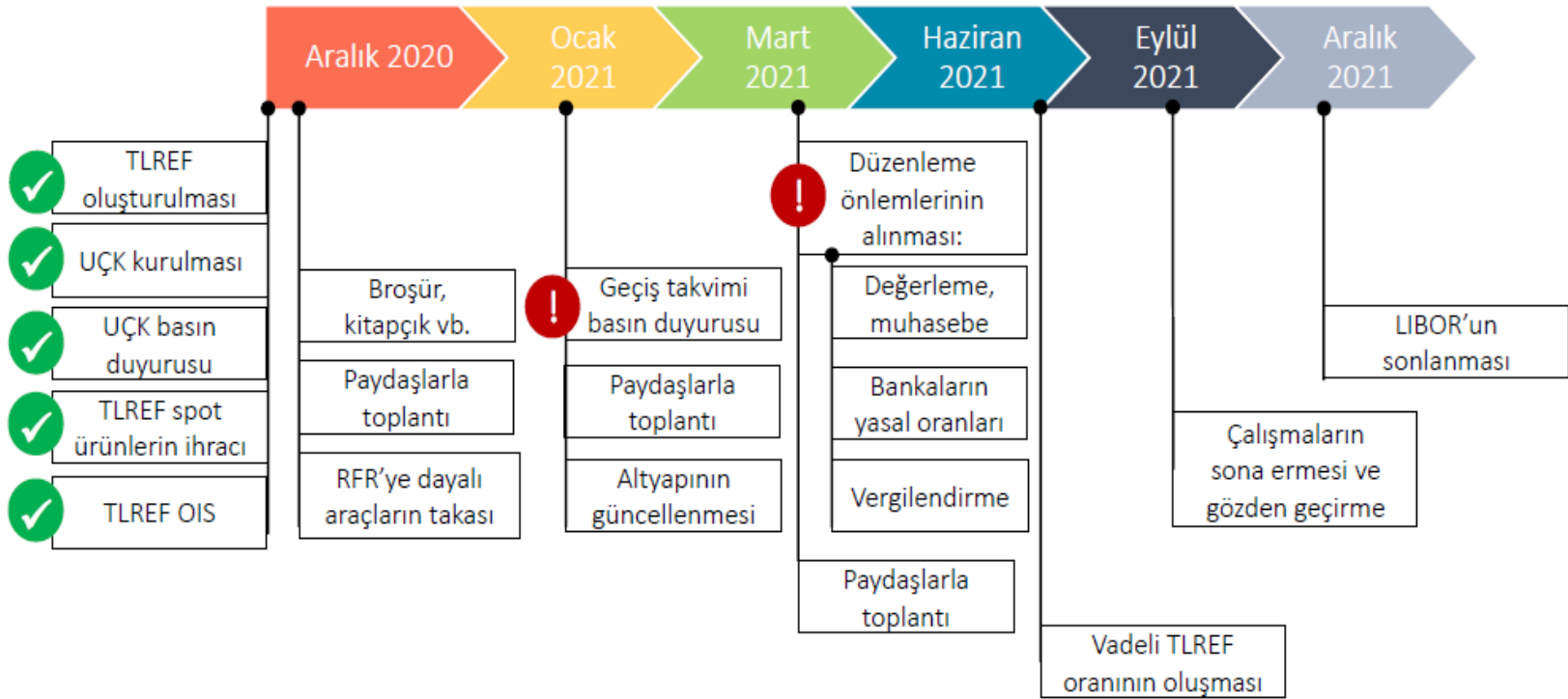
Türkiye'de IBOR Geçiş Süreci

IBOR Geçiş Sürecine Genel Bakış
Temel Aşamalar ve Yol Haritası
Ulusal Çalışma Komitesi: Alt Çalışma Grupları ve Takvimi

Türkiye için Olası Yol Haritası



Yol Haritasında Olası Önemli Diğer Adımlar



TLREF Geçiř Süreci: Muhtemel Alt Çalışma Grupları



Yerel Mevzuat ve Hukuk

- Yurtiçi Bankalar veya banka müşteri arası yaşanan sözleşmelerde X-IBOR tanımı içeren maddeler için FALLBACK tanımı, yeni endekslerin idame edilmesi. Yeni sözleşmelerde TLREF'e/SOFR'a/€STER'e bağlı tanım ve maddelerin neler olacağı üzerine çalışmalar yapılacaktır.



Finansal Koordinasyon; Muhasebe, Operasyon ve Yasal Raporlama

- Geçiř sürecinde ve sonrasında TLREF ve diđer yeni göstergelere dair **muhasabe usülleri ve resmi raporlama yeknesaklıđının** temin edilmesine yönelik çalışmalarını yapması beklenen gruptur.



İletişim

- Bu grubun Global IBOR a geçiř sürecine ve TLREF'e dair müşteriler ve yurtdışı banka ve ilgili kuruluşlarla iletişim çalışmalarından sorumlu gruptur.



Uluslararası Düzenlemelere Uyum

- Global IBOR geçiři kapsamında uluslararası mevzuatın takip edilmesi ve ISDA, GMRA, LMA Sözleşmeleri'nin Yurtiçi ikamelerinin yapılmasına yönelik çalışmalarda bulunulması.



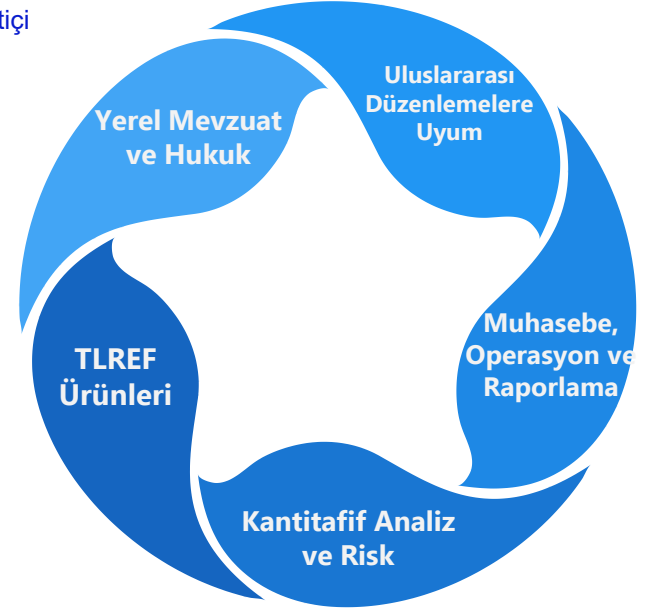
Kantitatif Analiz, Risk

- Geçiř sürecinde ve sonrasında TLREF ile TRLIBOR Baz Spread'ine/Riskine dair sayısal analizlerinden ve Risk Yönetimi hesaplamalarının **yeknesaklıđından** sorumlu olması beklenen gruptur.



TLREF Ürünleri

- Bu grubun TLREF'e bağlı ürünlerin hacminin artırılması, yeni ürünlerin geliştirilmesi ve müşterilere sunulan **standart kredi ve mevduat ürünlerinde hesaplama konvansiyonunun ve müşteriye verilen faizin karşılaştırılabilirliđinin** sağlanmasından sorumlu gruptur.



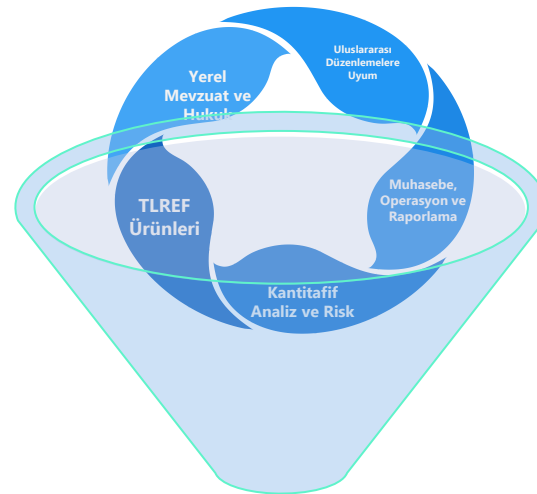
İletişim, Süpervizyon ve Zamansal Hedefler

3 ANA BLOK

Alt Çalışma Grupları (AÇG) arasında Düzenli İletişim

Ulusal Çalışma Komitesi (UÇK) Süpervizyonu

Çalışmaların Hedeflenen Sürelerde Bitirilmesi



- Her AÇG'da Hazine ve Piyasalar Birimi'nden min 3 Katılımcı
- AÇG'ların Toplantı Notları (TN)
- AÇG ve UÇK Ortak Email Grupları, Tüm TN'nin paylaşımı

Ulusal Çalışma Komitesi

- 30-09-2021: Tüm Çalışmaların Bitimi
- 3 aylık gözden geçirme süreci
- 31-12-2021: Son TRLIBOR fiixingi
- 01-01-2022: TLREF geçişi

Basis Keşif Analizi

Kantitatif Analiz ve Risk Alt Çalışma Grubu: Basis Çalışması
TRLIBOR ile TLREF arası Basis Keşif Analizleri

Bulgu ve Analiz Sonuçları

Kantitatif Analiz ve Risk Alt Çalışma Grubunun, TRLIBOR ve TLREF OIS Basis gelişimi keşif çalışmasında **Zero Rates** yöntemi analiz setine dahil edildi.

Mevcut yöntem ile basis gelişimi ve gelişmiş versiyon (Zero Rates) sonuçlarına karşılaştırmalı olarak yer verildi.

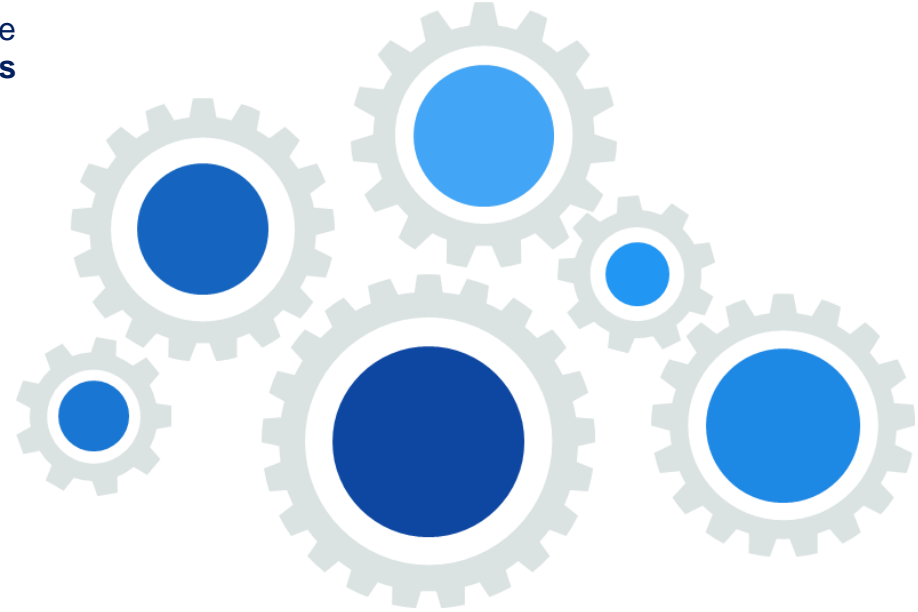
TRLIBOR vs TLREF OIS Basis gelişiminde

Basit metot ile gelişmiş metot karşılaştırıldığında:

En çok sapmanın olacağı **1 yıl basis'te** bile;

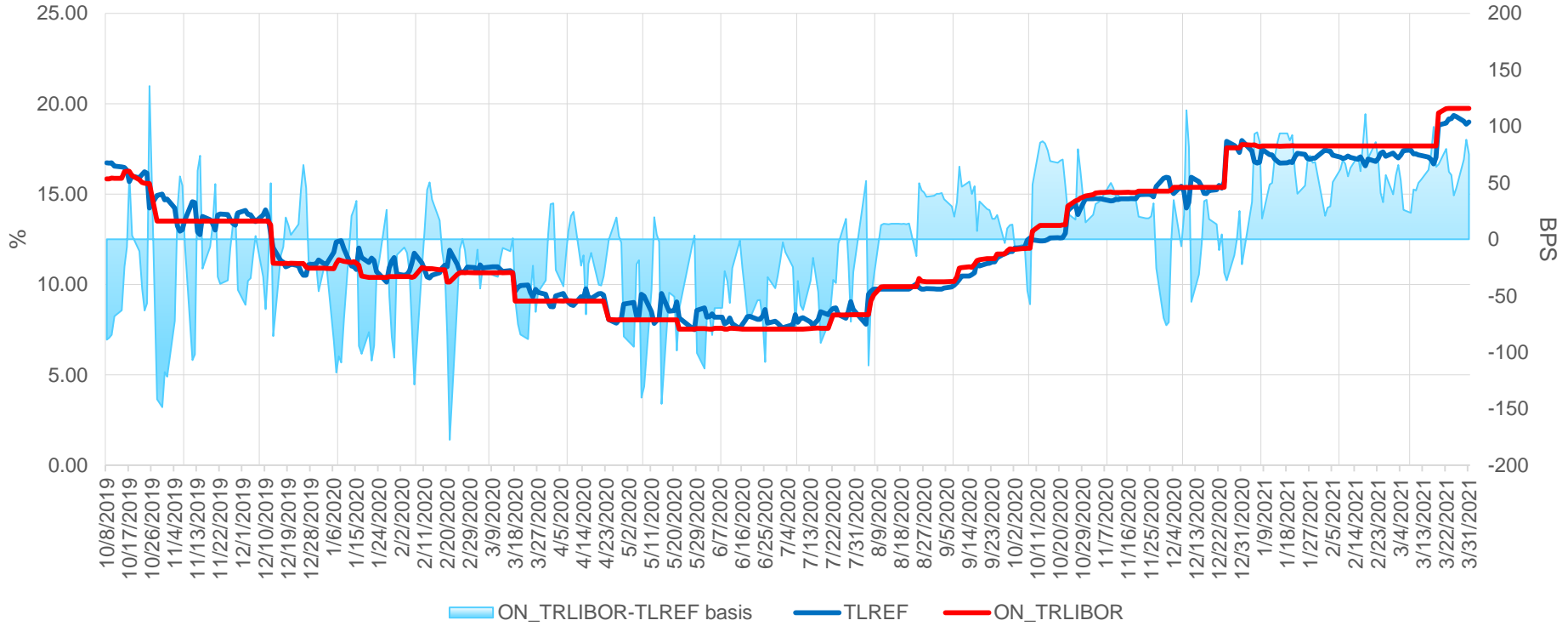
- **Data'nın kendisi 3-5 bps (-400 bps ile +80 bps mertebelerinde olan bir datada 3-5 bps),**
- **Standard sapması 0.5 bps;**

farklılaştığı gözlemlenmiştir.



O/N MID TRLIB (TRLIBID ile TRLIBOR ortası MID oran) ile O/N TLREF arasındaki Basis Gelişimi

ON_TRLIBOR vs TLREF (A/365)



08.10.2019
31.03.2021



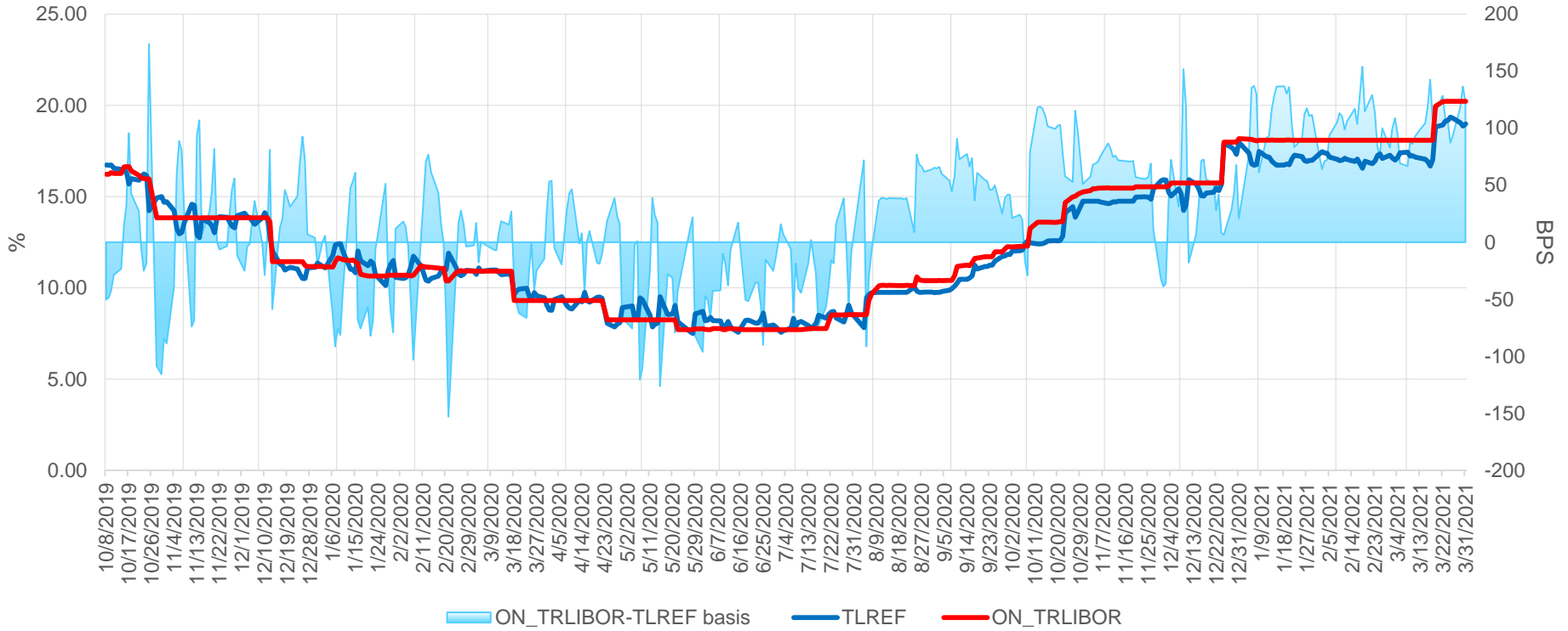
Basit faize ve A/365
gün sayısına göre
hesaplanmıştır.



Min Basis -178 bps
Max Basis +136 bps
 σ 42 bps

O/N TRLIBOR (offer oranı) ile O/N TLREF arasındaki Basis Gelişimi

ON_TRLIBOR vs TLREF (A/365)



08.10.2019
31.03.2021

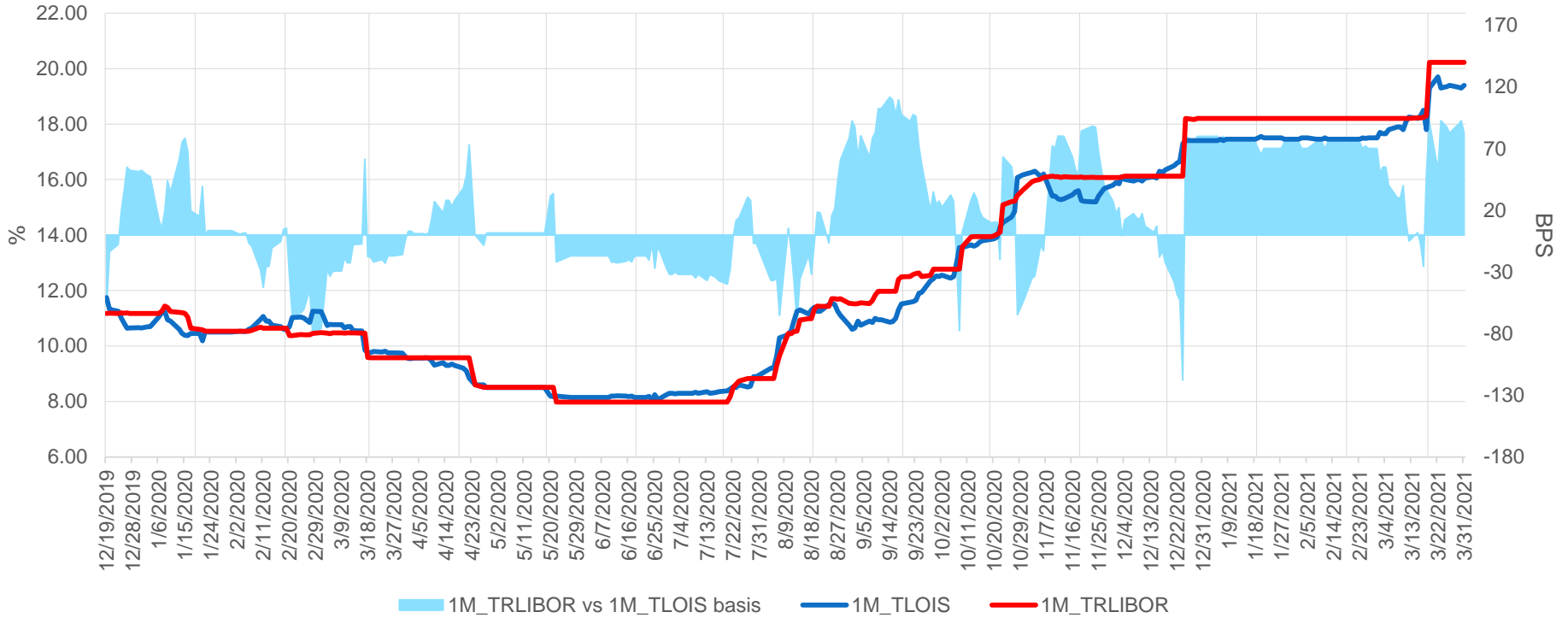


Basit faize ve A/365
gün sayısına göre
hesaplanmıştır.



Min Basis -153 bps
Max Basis +174 bps
 σ 42 bps

1M_TRLIBOR vs 1M_TLOIS



19.12.2019
31.03.2021

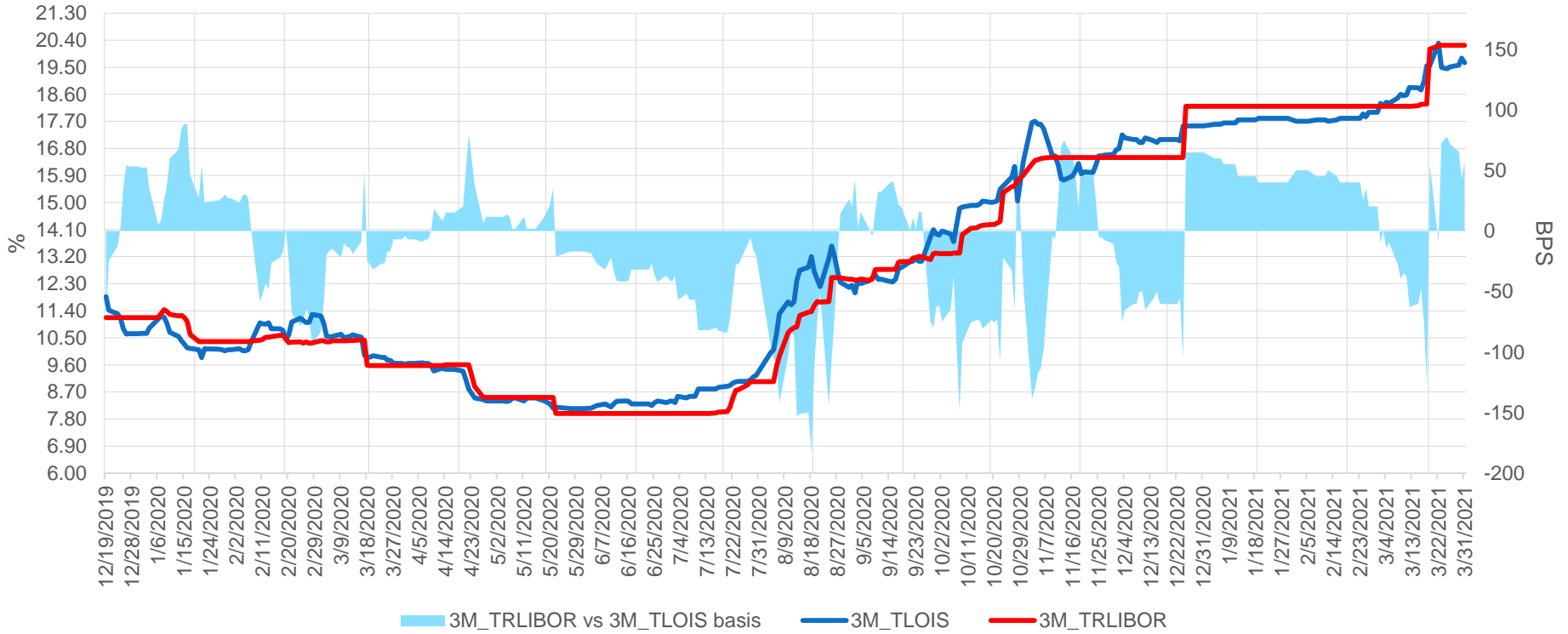


Basit faize ve A/365
gün sayısına göre
hesaplanmıştır.



Min Basis -118 bps
Max Basis +112 bps
 σ 23 bps

3M_TRLIBOR vs 3M_TLOIS



19.12.2019
31.03.2021

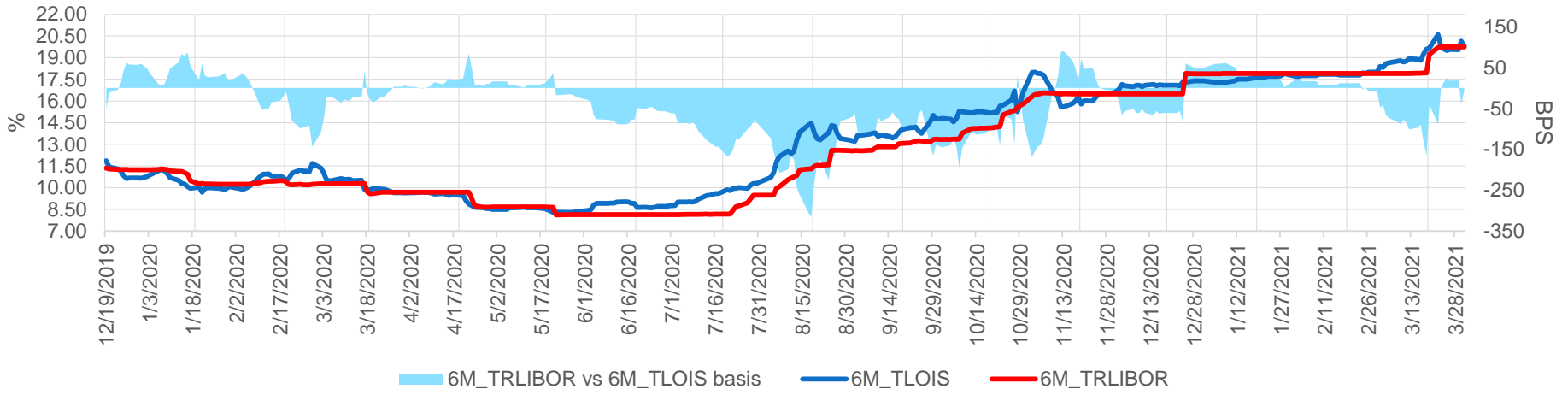


Basit faize ve A/365
gün sayısına göre
hesaplanmıştır.



Min Basis -183 bps
Max Basis +89 bps
 σ 28 bps

6M_TRLIBOR vs 6M_TLOIS



19.12.2019
31.03.2021

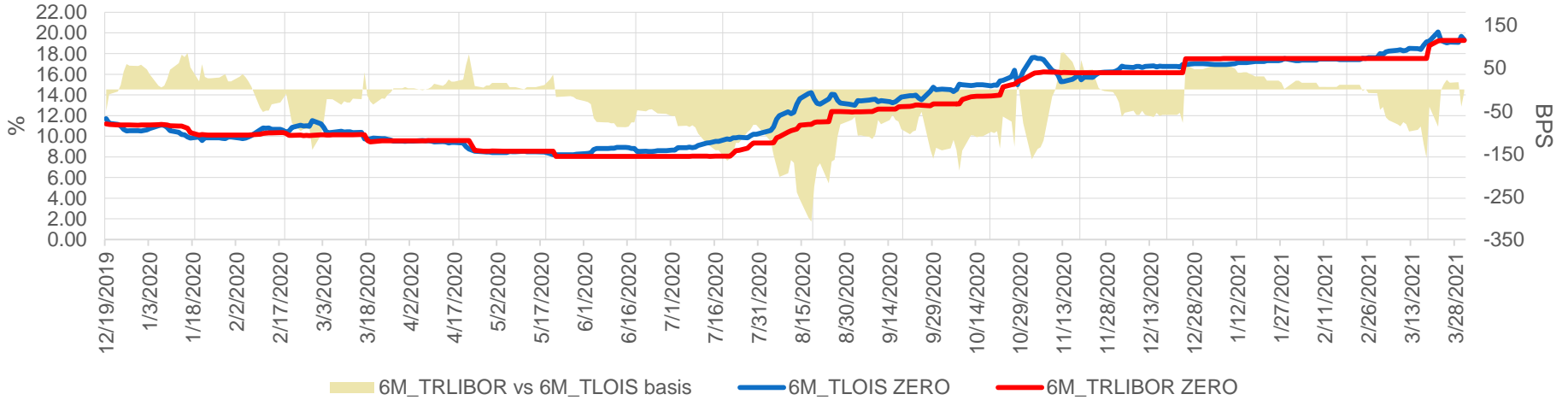


3 aylık basit faize ve
A/365 gün sayısına göre
hesaplanmıştır.



Min Basis -316 bps
Max Basis +90 bps
 σ 28 bps

6M_TRLIBOR vs 6M_TLOIS (ZERO Rates)



19.12.2019
31.03.2021

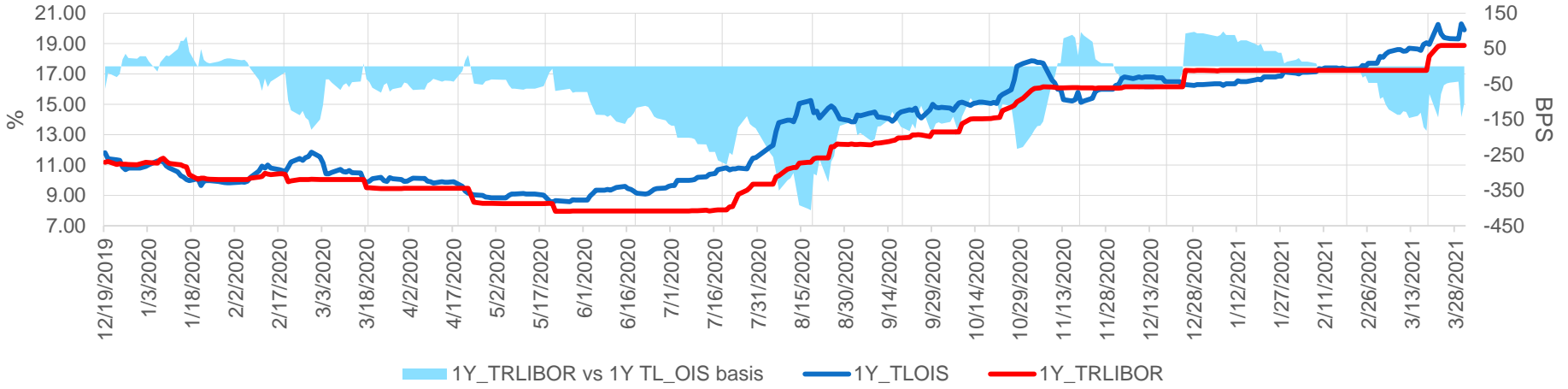


3 aylık basit faize ve
A/365 gün sayısına göre
hesaplanmıştır.



Min Basis -308 bps
Max Basis +86 bps
 σ 27 bps

1Y_TRLIBOR vs 1Y_TLOIS



19.12.2019
31.03.2021

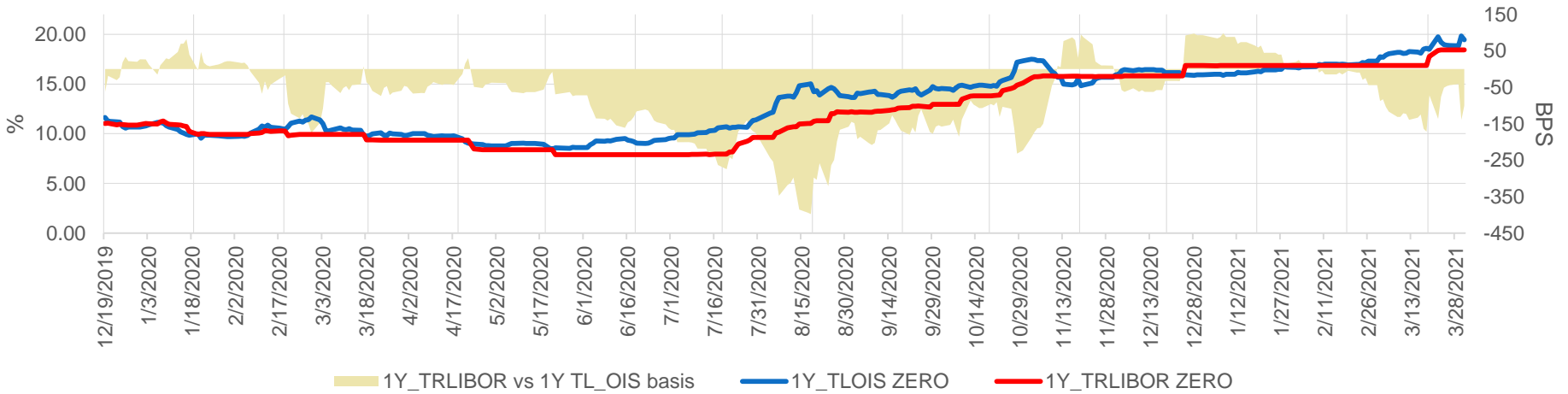


3 aylık basit faize ve
A/365 gün sayısına göre
hesaplanmıştır.



Min Basis -406 bps
Max Basis +98 bps
 σ 26 bps

1Y_TRLIBOR vs 1Y_TLOIS (ZERO Rates)



19.12.2019
31.03.2021

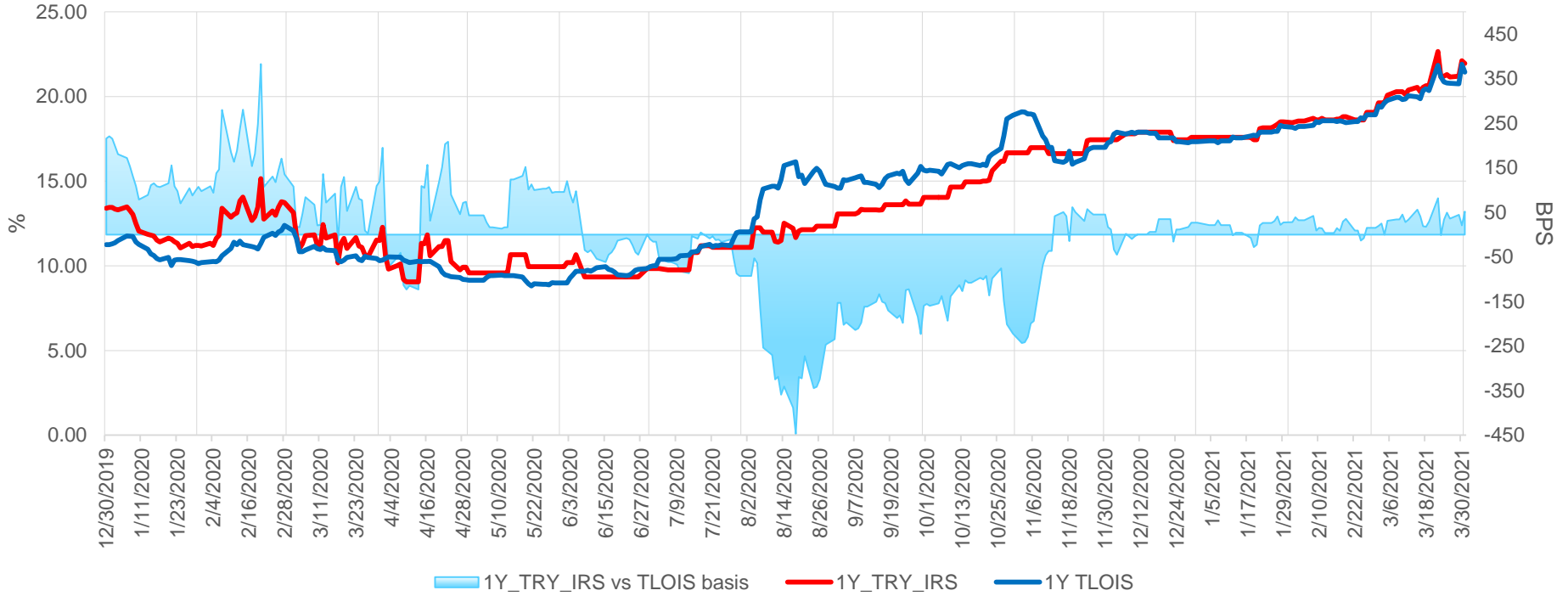


3 aylık basit faize ve
A/365 gün sayısına göre
hesaplanmıştır.



Min Basis -398 bps
Max Basis +98 bps
 σ 26 bps

1Y TRY_IRS vs 1Y TLOIS (A/365)



31.12.2019
31.03.2021

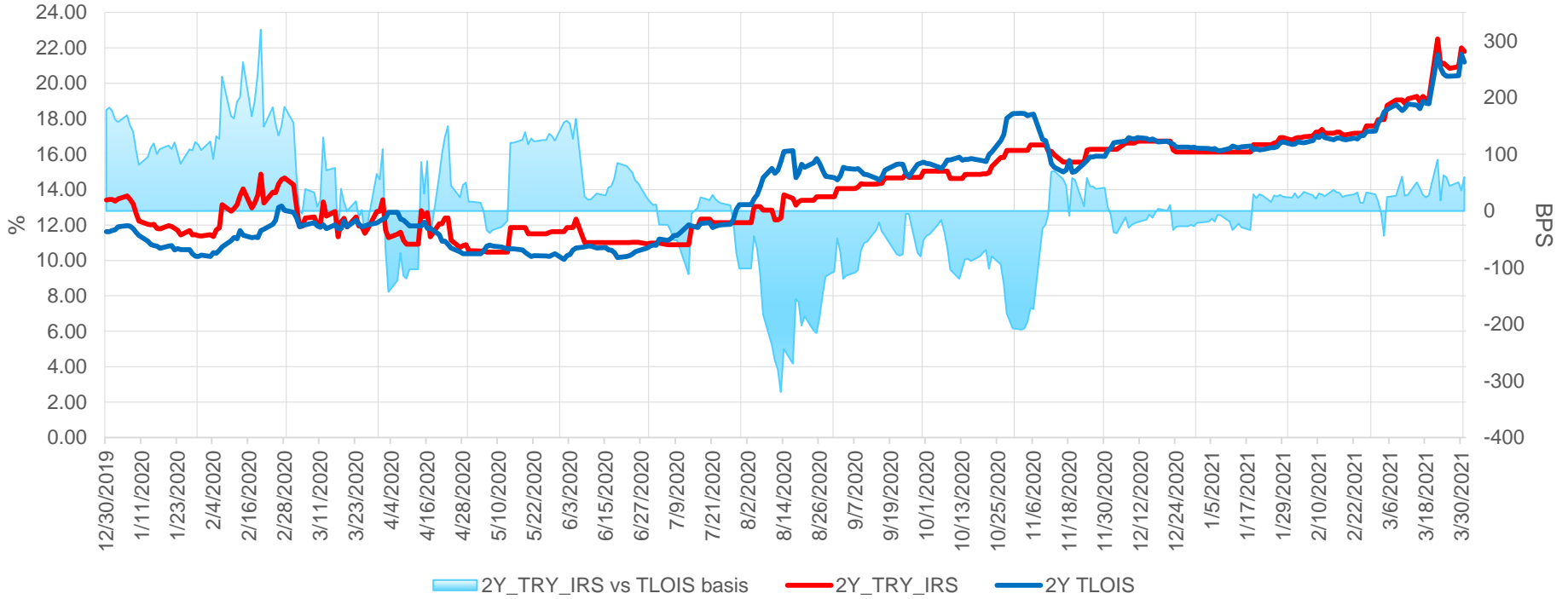


Yıllık bileşik faize ve
A/365 gün sayısına
göre hesaplanmıştır.



Min Basis -447 bps
Max Basis +383 bps
 σ 44 bps

2Y TRY_IRS vs 2Y TLOIS (A/365)



31.12.2019
31.03.2021

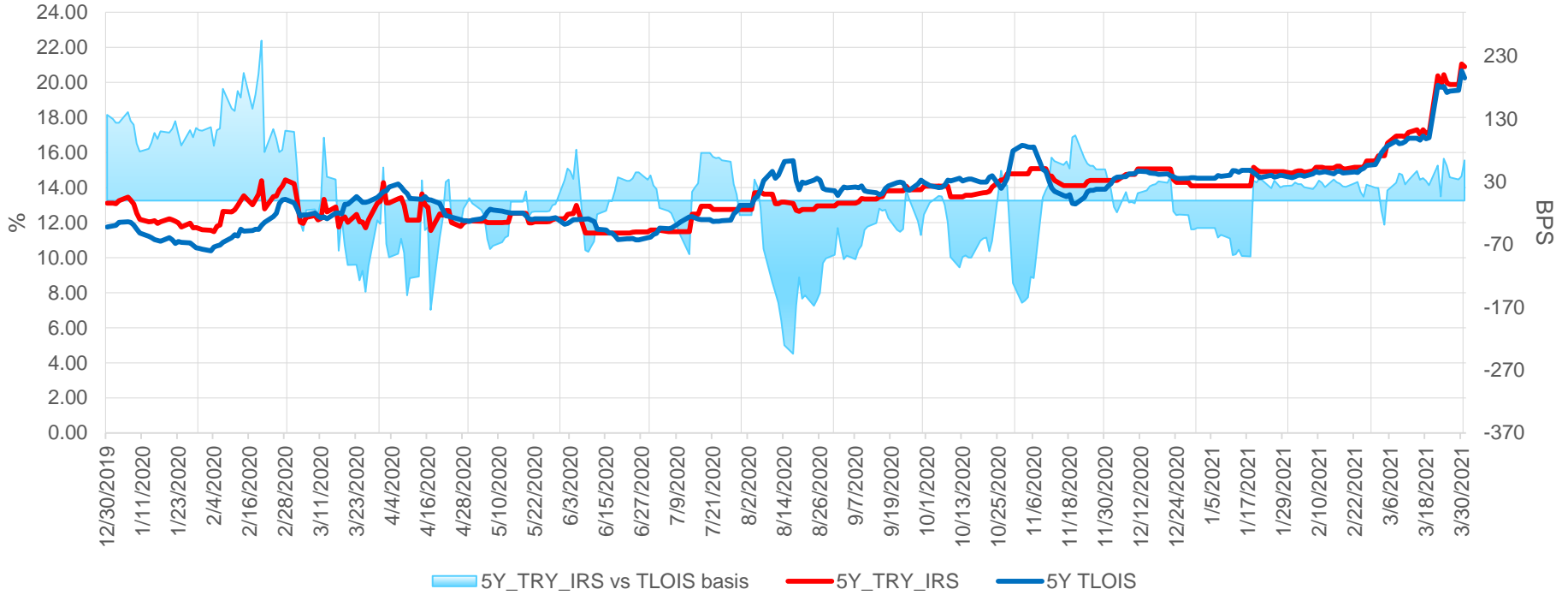


Yıllık bileşik faize ve
A/365 gün sayısına
göre hesaplanmıştır.



Min Basis -320 bps
Max Basis +319 bps
 σ 39 bps

5Y TRY_IRS vs 5Y TLOIS (A/365)



31.12.2019
31.03.2021



Yıllık bileşik faize ve
A/365 gün sayısına
göre hesaplanmıştır.



Min Basis -244 bps
Max Basis +254 bps
 σ 36 bps

Yasal Uyarı

Resmi mercilerin yönlendirme ve talimatlarıyla oluşturulan TBB Ulusal Çalışma Grubu (“UÇG”) ve alt çalışma gruplarının toplantıları sonucunda, TBB’ye ve UÇG’na danışmanlık hizmeti veren bağımsız firma tarafından, herhangi bir yönlendirme, öneri ve taahhüt içermeksizin, sadece üye bankalarımıza ve kamuoyuna, UÇG’nun konu hakkındaki faaliyetlerine ilişkin genel nitelikte bilgiler verilmesi ve bunların gerektiğinde resmi mercilerle paylaşılması amacıyla hazırlanmış olan sunumlardaki bilgi ve açıklamalar, konunun tamamını içermediği gibi, içerdikleri konularla ilgili danışmanlık veya tavsiye amacı da taşımamaktadır. Sunumlar sadece bilgilendirme amaçlı olarak yayınlanmakta olup, içeriklerine dair Birliğimizin ve danışmanlık hizmeti veren firmanın hiçbir sorumluluğu bulunmamaktadır. Birliğimizce, sunumlar içeriğindeki konulara ilişkin genel ya da özel nitelikte herhangi bir görüş beyan edilmemektedir. Sunumlarda yer alan bilgi ve açıklamalar Birliğimizin resmi görüşünü veya bu konularda alınmış ya da alınabilecek bir kararını yansıtmamaktadır. Yürürlükte olan rekabet hukuku kuralları çerçevesinde bütün teşebbüslerin ticari strateji ve kararlarını bağımsız bir şekilde belirlemeleri gerekmektedir. Sunumlarda yer alan hiçbir husus, bahse konu düzenlemelere aykırı şekilde yorumlanamaz. Birliğimizin bu metinlerde yer alan bilgileri güncelleme veya düzeltme yükümlülüğü bulunmamaktadır.