

Growing Asia's Markets

A LOCAL MARKET PERSPECTIVE THAILAND IBOR TRANSITION

(IN COLLABORATION WITH THAI BANKERS ASSOCIATION AND THAI BOND MARKET ASSOCIATION)

IBOR TRANSITION SERIES: A LOCAL MARKET PERSPECTIVE THAILAND IBOR TRANSITION

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TUESDAY, 24 NOVEMBER 2020 10:00AM – 12:45PM (ICT) / 11:00AM – 1:45PM (HKT/SGT)







Mark Austen CEO ASIFMA



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Agenda:

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Time (ICT)	Session
10:00-10:10am	 Welcome Remarks Mark Austen, CEO, ASIFMA Kobsak Duangdee, Secretary General, The Thai Bankers' Association Ariya Tiranaprakij, Executive Vice President, Thai Bond Market Association
10:10-10:30am	 Keynote Address Dr. Vachira Arromdee, Assistant Governor, Financial Markets Group, Bank of Thailand
10:30-10:35am	 ASIFMA Regional Update Philippe Dirckx, Managing Director – Head of Fixed Income, ASIFMA
10:35-10:50am	Impact of LIBOR Transition on Thai Banking Industry and Key Considerations for a Smooth Transition • Sinsiri Thangsombat, Assurance Leader, PwC Thailand
10:50-11:30am	 Product Presentations on Derivatives, Bonds and Loans Jing Gu, Head of Legal, Asia Pacific, ISDA Mushtaq Kapasi, Managing Director – Chief Representative Asia Pacific, ICMA Fergus Evans, Partner, Clifford Chance

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Organizer:

asifma

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Agenda:

Time (ICT) Session 11:30am-11:40am Data and Infrastructure Preparedness: Practical Challenges of IBOR Transition Weng Khong Wong, Market Specialist - Fixed Income & Fixed Income Derivatives, Bloomberg LP 11:40am-12:20pm **Banking Panel on Implementation/Conduct Issues** Varong Vongsinudom, First Vice President, Products Solutions and Market Innovation, **KrungThai Bank Prapairat Wotticharoenvong**, Senior Vice President, Market Risk Management Division, Siam Commercial Bank **Tiak-Peow Phua**, Executive Director, Libor Transition, Conduct, Financial Crime and Compliance, Standard Chartered **Ryan Page**, Proposition Specialist, **Refinitiv** (moderator) 12:20-12:30pm **Presentation on Local Implementation Use Case** Mongkol Poonlapmongkol, Customer Success Manager – Indochina, Refinitiv Thailand 12:30-12:35pm **Closing Remarks** Prut Sukcharoennukul, Account Director, Refinitiv Thailand 12:35-12:45pm Q&A

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Get involved by:



Asking a question anytime via the "Q&A" box on your tool bar



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Welcome Remarks:





Kobsak Duangdee Secretary General **The Thai Bankers' Association**



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Welcome Remarks:



Ariya Tiranaprakij Executive Vice President Thai Bond Market Association



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Keynote Address:





Dr. Vachira ArromdeeAssistant Governor, Financial Markets GroupBank of Thailand



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ASIFMA Regional Update:





Philippe Dirckx
Managing Director – Head of Fixed Income
ASIFMA



IN COLLABORATION WITH THAI BANKERS ASSOCIATION AND HAI BOND MARKET ASSOCIATION) TUESDAY, 24 NOVEMBER 2020 10:00AM – 12:45PM (ICT) / 11:00AM – 1:45PM (HKT/SGT)



Areas to cover:

 IBOR Transition Guide for Asia published by ASIFMA, ICMA, ISDA and APLMA, with contribution from Deloitte and Morgan Lewis.



- Survey of ASIFMA Members on external frictions yet to be resolved
- Regional education program: Singapore, Malaysia, Philippines, Thailand, Vietnam, Indonesia, and India



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Impact of LIBOR Transition on Thai Banking Industry and Key Considerations for a Smooth Transition:



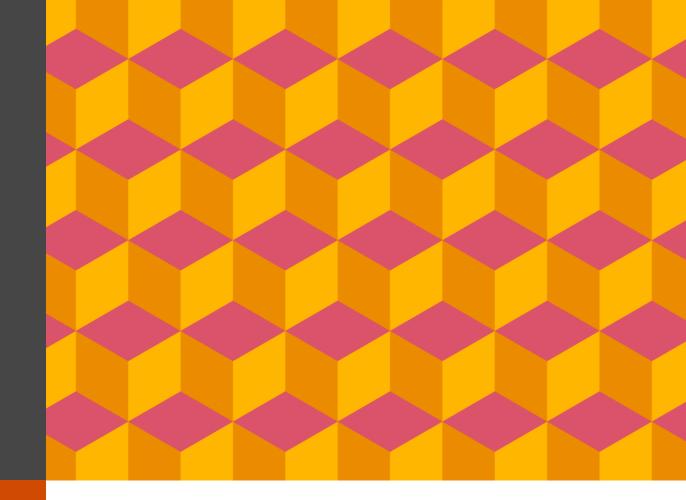
Sinsiri Thangsombat Assurance Leader PwC Thailand

Impacts of LIBOR phase out in Thailand

Sinsiri Thangsombat

Strictly private and confidential

November 2020





Benchmark reform



Development of Thai interest rate benchmark reform

- The majority of money market transactions are carried out in overnight markets, particularly private repurchase (PRP) transactions where:
 - the PRP market is highly liquid.
 - the PRP overnight rate reflects domestic money market conditions, moves correspondingly with the policy rate, and is not sensitive to USD liquidity constraints.
- So, the PRP market's overnight rate can be used to develop a reliable underlying interest rate.



Interest rate benchmarks in the Thai financial market

The characteristics of interest rate benchmarks in the Thai financial market are:

 - 1 year (Fallback THBFIX is only available for 1, 3, 6 month rates) - 1 year - 1 year - 1 year 		THBFIX BIBOR		THOR
Data collection methodTransaction-based (since 2019)Survey-basedTransaction-basedTerms- Overnight - 1 week - 1, 3, 6 months - 1 year (Fallback THBFIX is only available for 1, 3, 6 month rates)- Overnight 	Status	when LIBOR is discontinued	Unchanged	New
method- Overnight - 1 week - 1, 3, 6 months - 1 year (Fallback THBFIX is only available for 1, 3, 6 month rates)- Overnight - 0vernight - 1 week - 1/2/3/6 months - 1 year - 1 year - 1 year - 1 year - 1 yearOvernight overnight rate is used as a backward-looking term rate - 1 year - 1 yearCorrelation with the policy rate×✓✓	Underlying market	USDTHB Swap	USDTHB Swap Unsecured interbank	
 1 week 1, 3, 6 months 1 year 1 year (Fallback THBFIX is only available for 1, 3, 6 month rates) Correlation with the x 		Transaction-based (since 2019)	Survey-based	Transaction-based
policy rate	Terms	 1 week 1, 3, 6 months 1 year (Fallback THBFIX is only available for 1, 	- 1 week- 1/2/3/6 months	S (1
policy rate Impacted by USD liquidity Term rates do not reflect future rate expectations due to low transaction volume	policy rate		future rate expectations due	\checkmark

Thai Overnight Repurchase Rate (THOR)

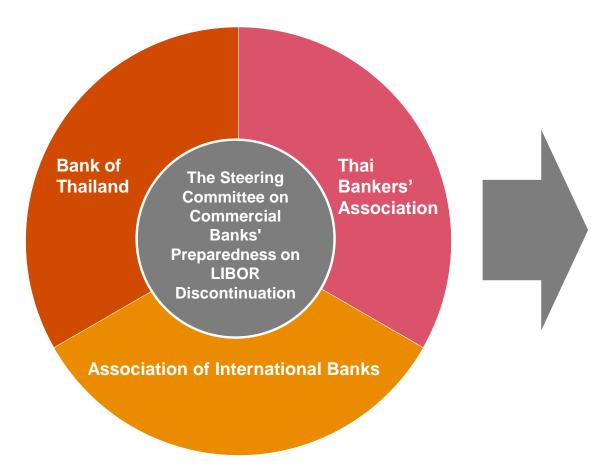


Thai Overnight Repurchase Rate (THOR)

- Thailand's underlying rate calculated from the PRP overnight rate is referred to as the 'Thai Overnight Repurchase Rate' (THOR)
 - Administrator: Bank of Thailand (BOT)
 - Calculation agent: the Thai Bond Market Association (ThaiBMA)
 - Published on BOT's and ThaiBMA's websites daily at 5pm

- BOT facilitates financial institutions who wish to use THOR as an underlying interest rate by providing the following information:
 - **THOR Index** represents the cumulative value of compounding THOR over time, with an initial value of 100 on April 1, 2020 (the first day of publication).
 - **THOR average** is the term rate obtained from compounding the daily values of THOR (compound setting in arrears method) for the tenors 1 month, 3 months, and 6 months.
 - THOR calculator is a tool for calculating the compounded THOR for a specified period, which is obtained from THOR Index.

Future developments for THOR



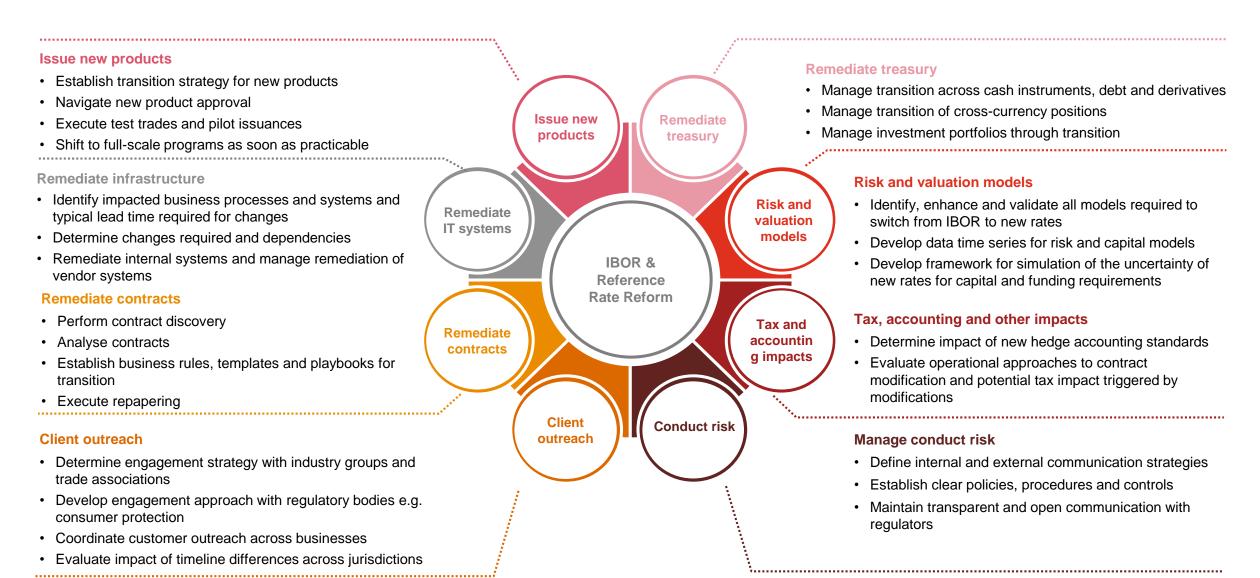
Key tasks

- 1. The amendment of financial contracts referencing LIBOR and THBFIX, including loan, notes and derivative contracts.
- 2. The preparation of commercial banks for LIBOR transition.
- 3. The development plan for an alternative Thai reference rate.

Regulatory expectations for key milestones

	Milestone	US – ARRC	UK - RFRWG	Japan - BOJ CIC	НК - НКМА	SG - ABS
1	LIBOR Sunset Stopping new LIBOR- referenced issuance (expiring/ maturing after 2021)*	Dec 2020: FRNs June 2021: Business loans, floating-rate securitizations (other than CLOs), and derivatives Sep 2021: CLOs	Q1 2021: Linear derivatives and cash products (other than risk management) Q2/Q3 2021: Non-linear/ CCY derivatives	Q2 2021 : Loans and bonds	Jun 2021: All products	April 2021: SOR Loans
2	Issue RFR products	Dec 2020: Dealers to make markets in nonlinear RFR derivatives March 2021: Dealers to change market convention for quoting USD derivatives from LIBOR to SOFR	-	-	Jan 2021: FIs ready to offer RFR products	Feb 2021: D-SIBs to issue a full suite of SORA products April 2021: All banks to offer full suite of SORA products
3	IT Readiness: IT Readiness to handle RFR average / compound average	Vendor readiness dates are as follows: June 2020: Floating rate notes Sept 2020: Business and consumer loans Dec 2020: Securitizations	Q3 2020 : Key infrastructure available from Treasury systems /loan vendors Q4 2020 : Operational readiness to support non-linear SONIA derivatives	Q4 2020: Manual workarounds to support new products Q1 2021: Systems/ operations for new RFR products	Jan 2021: FIs ready to offer RFR products and are allowed manual workarounds	
4	Remediate Contracts Hardwired fallbacks required	Include ARRC recommended fallbacks: June 2020: New FRNs, ARMs, and securitisations Sept 2020: New syndicated business/ student loans Oct 2020: New bilateral business loans	Q3 2020 : Include contractual mechanisms (Active Transition Clauses) in all new LIBOR- refinanced products	Q3 2020 : Publish the amended definitions and protocol	Jan 2021: Fallback to be included in all new LIBOR- linked contracts (type of fallback unspecified)	Q2 2021: Incorporate fallbacks for legacy cash products
5	Remediate contracts to reduce LIBOR exposure significantly on- / off- BS	Dec 2020: Dealers should amend interfirm CSAs	Q2/Q3 2021: Complete active conversion of cash products. Actively convert linear derivatives where viable.	Q3 2020: Start negotiations among contracting parties Q3 2021: Significantly reduce LIBOR loans and bonds	-	Q3 2021: Banks to reduce exposure to SOR derivatives by 80% (from level in May 2020)
6	Contract Remediation Sign ISDA protocol	Jan 2021 (3-4 months after publication)	Jan 2021 widespread sign up ahead of effective date		Jan 2021: HKMA advised to take early action to adhere	Sign up for the ISDA protocol for SOR derivatives

Eight transition areas



Thank you

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Product Presentations on Derivatives, Bonds and Loans



Jing Gu Head of Legal, Asia Pacific ISDA



Mushtaq Kapasi Managing Director – Chief Representative Asia Pacific ICMA



Fergus Evans Partner Clifford Chance



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Product Presentations on Derivatives



Jing Gu Head of Legal, Asia Pacific ISDA



November 24, 2020

Implementation of Fallbacks in Derivative Contracts

Jing Gu Head of Legal, Asia Pacific ISDA

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ISDA IBOR Fallback Update

Overview of alternative RFR identification

Working Groups in each jurisdiction have recommended robust, alternative RFRs to transition away from existing IBORs, the alternative RFR benchmarks are overnight, whereas the current use of IBORs is largely in term rates.

			Rate	Characteristics			Characteristics	
Jurisdiction	Working Group	Alternative RFR	administration	Secured vs. unsecured	Anticipated publication date	Description		
UK	Working Group on Sterling Risk-Free Reference Rates	Reformed Sterling Overnight Index Average (SONIA)	Bank of England	Unsecured	Currently being published	 Fully transaction-based Encompasses a robust underlying market Overnight, nearly risk-free reference rate Includes an expanded scope of transactions to incorporate overnight unsecured transactions negotiated bilaterally and those arranged with brokers Includes a volume-weighted trimmed mean 		
US	Alternative Reference Rates Committee	Secured Overnight Financing Rate (SOFR)	Federal Reserve Bank of New York	Secured	Currently being published	 Fully transaction-based Encompasses a robust underlying market Overnight, nearly risk-free reference rate that correlates closely with other money market rates Covers multiple repo market segments, allowing for future market evolution 		
Europe	Working Group on Risk- Free Reference Rates for the Euro Area	European Short Term Rate (€STR)	European Central Bank	Unsecured	Currently being published	 Fully transaction-based Encompasses a robust underlying market Overnight, nearly risk-free reference rate Includes a volume-weighted trimmed mean 		
Switzerland	The National Working Group on CHF Reference Rates	Swiss Average Rate Overnight (SARON)	SIX Swiss Exchange	Secured	Currently being published	 Became the reference interbank overnight repo on 25 August 2009 Secured rate that reflects interest paid on interbank overnight repo 		
Japan	Study Group on Risk-Free Reference Rates	Tokyo Overnight Average Rate (TONA)	Bank of Japan	Unsecured	Currently being published	 Fully transaction-based benchmark for the robust uncollateralized overnight call rate market The Bank of Japan calculates and publishes the rate on a daily basis, using information provided by money market brokers known as Tanshi As an average, weighted by the volume of transactions corresponding to the rate 		



ISDA IBOR Fallbacks Supplement and Protocol

- ISDA published the Protocol and finalised the Supplement to the 2006 ISDA Definitions (the Supplement) on 23 October 2020. <u>https://www.isda.org/2020/10/23/isda-launches-ibor-fallbacks-supplement-and-protocol/</u>
- The Protocol will be effective three months later on **25 January 2021** (the **Protocol Effective Date**) and the Supplement will be deemed published and effective on the same date.
- The Supplement updates the Rate Options set out in the 2006 ISDA Definitions for certain interbank offered rates (IBORs) to:
 - include new triggers and fallbacks in the event of a permanent cessation of those IBORs (and, for LIBOR Rate Option, in the event of a 'pre-cessation' of LIBOR Rate Option). Each Rate Option will first fall back to a term adjusted risk-free rate for the relevant currency plus a spread and then to further specific fallbacks for each currency;
 - include discontinued rates maturities provisions, which contemplate interpolation if one or more IBOR tenors are withdrawn or, in respect of LIBOR, become non-representative; and
 - provide specific adjustments for Calculation Periods to which 'Linear Interpolation' is specified to apply.
- New derivative contracts that incorporate the 2006 ISDA Definitions from 25 January 2021 onwards will incorporate the 2006 ISDA Definitions as amended by the Supplement.
- The Protocol allows parties to include the terms of the Supplement in their existing Protocol Covered Documents.



Rate Options amended by the Supplement

Currency	Relevant IBOR and Rate Options	Underlying Rate for Fallback Rate
GBP	Sterling LIBOR	Reformed SONIA
GBF	GBP-LIBOR-BBA; GBP-LIBOR-BBA-Bloomberg	
CHF	Swiss Franc LIBOR	SARON
СПР	CHF-LIBOR-BBA; CHF-LIBOR-BBA-Bloomberg	SARON
	U.S. Dollar LIBOR	COED
USD	USD-LIBOR-BBA; USD-LIBOR-BBA-Bloomberg	SOFR
EUR	EUR LIBOR and EURIBOR	CCTD.
EUK	EUR-LIBOR-BBA; EUR-LIBOR-BBA-Bloomberg; EUR-EURIBOR-Reuters	€STR
	JPY LIBOR, Yen TIBOR and Euroyen TIBOR	
JPY	JPY-LIBOR-FRASETT; JPY-LIBOR-BBA; JPY-LIBOR-BBA-Bloomberg; JPY-TIBOR-17097; JPY-TIBOR-TIBM (All Banks)- Bloomberg; JPY-TIBOR-ZTIBOR	TONA
AUD	BBSW	
AOD	AUD-BBR-AUBBSW; AUD-BBR-BBSW; AUD-BBR-BBSW-Bloomberg	AONIA
CAD	CDOR	CORRA
CAD	CAD-BA-CDOR; CAD-BA-CDOR-Bloomberg	CORRA
	HIBOR	HONIA
НКД	HKD-HIBOR-HKAB; HKD-HIBOR-HKAB-Bloomberg	ΠΟΝΙΑ
SGD	SOR	Fallback to be based on USD/SGD FX transactions and SOFR
	SGD-SOR-VWAP	railback to be based on 030/300 FX trailsactions and 30FR
ТНВ	THBFIX	Fallback to be based on USD/THB FX transactions and SOFR
	THB-THBFIX-Reuters	railback to be based on 03D/TED FX trailsactions and SUFK



³³ ISDA IBOR Fallback Update

IBOR Fallbacks: ISDA's Work – Fallback Rate

- A number of key Asian benchmarks are synthetic benchmarks derived by applying a forward FX curve to the USD LIBOR curve. When USD LIBOR is no longer available after the end of 2021, the sustainability of these benchmarks is in doubt:
- Key benchmarks are: SOR (Singapore); THBFIX (Thailand); MIFOR (India) and PHIREF (Philippines).
- Planning for the cessation of LIBOR is led by the respective administrators and regulators of these benchmarks. Some have replacement rates for new transactions identified and transition timelines in place (SOR and THBFIX), whereas others are yet to identify the replacement rates.
- ISDA IBOR Fallback Protocol and Supplement cover SOR and THBFIX
- Links to the National RFR Working Groups in the APAC region
 - <u>https://www.bot.or.th/Thai/FinancialMarkets/Pages/ReferenceInterestAndEndOfUseLIBOR.aspx</u>
 - <u>https://www.abs.org.sg/benchmark-rates/about-sora</u>
 - <u>https://www.tma.org.hk/en_market_LIBOR.aspx</u>
 - <u>https://afma.com.au/ibor_transformation_working_grouphttps://www.isda.org/2020/05/11/benchmark-reform-and-transition-from-libor/</u>
 - https://www.boj.or.jp/en/paym/market/jpy_cmte/index.htm/



Scope of the Supplement

- The Supplement is a Supplement to the 2006 ISDA Definitions that:
 - updates the Rate Options to include new triggers and fallbacks in the event of a permanent cessation and, for LIBOR Rate Options, non-representativeness of the relevant rate. Each Rate Option will first fall back to a published fallback rate calculated based on a term adjusted risk-free rate ("RFR") for the relevant currency plus a spread and then to further specific fallbacks if that published fallback rate is discontinued. The Supplement amends the following Sections in the 2006 ISDA Definitions:
 - 7.1(w)(i) ("GBP-LIBOR-BBA"); 7.1(w)(ii) ("GBP-LIBOR-BBA-Bloomberg"); 7.1(y)(i) ("CHF-LIBOR-BBA"); 7.1(y)(ii) ("CHF-LIBOR-BBA-Bloomberg"); 7.1(ab)(xxii) ("USD-LIBOR-BBA"); 7.1(ab)(xxii) ("USD-LIBOR-BBA-Bloomberg"); 7.1(f)(v) ("EUR-LIBOR-BBA"); 7.1(f)(vi) ("EUR-LIBOR-BBA-Bloomberg"); 7.1(f)(i) ("EUR-EURIBOR-Reuters"); 7.1(l)(iii) ("JPY-LIBOR-FRASETT"); 7.1(l)(iv) ("JPY-LIBOR-BBA"); 7.1(l)(v) ("JPY-LIBOR-BBA-Bloomberg"); 7.1(l)(xviii) ("JPY-TIBOR-17097"); 7.1(l)(viii) ("JPY-TIBOR-TIBM (All Banks)-Bloomberg"); 7.1(l)(ix) ("JPY-TIBOR-ZTIBOR"); 7.1(a)(iii) ("AUD-BBR-AUBBSW"); 7.1(a)(iv) ("AUD-BBR-BBSW-Bloomberg"); 7.1(b)(i) ("CAD-BA-CDOR"); 7.1(b)(ii) ("CAD-BA-CDOR-Bloomberg"); 7.1(g)(iii) ("HKD-HIBOR-HKAB"); 7.1(g)(iv) ("HKD-HIBOR-HKAB"); 7.1(g)(iv) ("HKD-HIBOR-HKAB"); 7.1(g)(iv) ("HKD-HIBOR-HKAB-Bloomberg"); 7.1(t)(iii) ("SGD-SOR-VWAP"); and 7.1(aa)(i) ("THB-THBFIX-Reuters").
 - a statement identifying the objective triggers that would activate the selected fallbacks (the trigger defined as 'Index Cessation Event'). The fallbacks will not apply until the actual discontinuation of the relevant IBOR (if that is after the announcement date). This date is defined as the "Index Cessation Effective Date".
 - a description of the fallbacks that would apply upon the occurrence of that trigger, which will be:
 - i. the relevant RFR adjusted using methodologies to account for (A) the fact that the RFR is an overnight rate and (B) the various premia included within the IBOR; and
 - ii. if the relevant RFR is permanently discontinued, one or more further fallbacks.



How the new fallbacks work in practice

- The RFRs for each currency are adjusted (1) to reflect the fact that the interbank offered rate ("**IBOR**") is a term rate and (2) to factor in the bank credit risk premia and other factors embedded in the IBOR.
 - The RFRs are term-adjusted using the compounded setting in arrears rate approach and the spread adjustment is calculated using the five-year historical median approach.
 - The compounded setting in arrears rate is the RFR observed over a period (generally equivalent to the relevant IBOR tenor) and compounded daily. The period over which the RFR is observed is backward-shifted to allow for the rate to generally be known prior to the relevant payment date.
 - The five-year historical median approach to the spread adjustment is based on the median of the differences between the IBOR and the compounded RFR for that tenor calculated over a static lookback period of five years prior to the Index Cessation Event. The spread adjustment will be added to the compounded setting in arrears rate (but will not be compounded itself).
- Bloomberg Index Services Limited ("BISL") is producing and publishing the compounded setting in arrears rate, the spread adjustment and the "all in" fallback rate (i.e. the compounded setting in arrears rate plus the spread adjustment) for all relevant IBORs except for SOR and THBFIX. BISL currently publishes this information on an "indicative" basis and will continue to publish the information on an ongoing basis after a trigger event occurs (although the spread adjustment will be frozen after that date). The fallbacks for SOR and THBFIX are published by ABS and Bank of Thailand respectively.



SOR and TBHFIX Fallbacks

SOR and **THBFIX** Rate Options are also updated pursuant to the Supplement. USD LIBOR is a component in the calculation of SOR and THBFIX and therefore a permanent cessation or non-representativeness of USD LIBOR will impact the calculation of these Rate Options. The new fallbacks for these rates are based on actual transactions in the USD/SGD or USD/THB FX swap market and a USD interest rate calculated by reference to the fallback rate produced for USD LIBOR, i.e., . Fallback Rate (SOFR)

- each is a "LIBOR Rate Option" as defined in the Supplement
 - Index Cessation Event (Permanent cessation and pre-cessation of USD LIBOR) and Index Cessation Event Effective Date (i.e., the first date on which SOR/THBFIX is no longer provided)
- Fallback Rate (SOR) is published by ABS and Fallback Rate (THBFIX) is published by Bank of Thailand
- Fallback to Fallback Rate (THBFIX) BOT Recommended Rate
- a new Section 7.10 and 7.11 are added for SOR and THBFIX
- Section 8.5 (Application of Discontinued Rates Maturities Provisions) is disapplied for SOR and THBFIX

"Fallback Rate (THBFIX)" means the rate based on actual transactions in the U.S. Dollar/Thai Baht foreign exchange swap market and a U.S. Dollar interest rate calculated by reference to "Fallback Rate (SOFR)" (as set out in the definition of "USD-LIBORBBA") including any fallback rate that may apply pursuant to that definition for a period of the Designated Maturity provided by the Bank of Thailand (or a successor provider), as the provider of Fallback Rate (THBFIX), on the Fallback Rate (THBFIX) Screen (or by other means) or provided to, and published by, authorized distributors. provider)



What documents are within the scope of the Protocol?

- The <u>amendments</u> contemplated by the Protocol are actually made to Protocol Covered Documents on the later of the (i) the Implementation Date and (ii) the Protocol Effective Date (January 25, 2021).
- The Protocol enables parties to introduce the new fallbacks included in the Supplement in existing ISDA Master Agreements, ISDA Credit Support Documents and Confirmations, provided they are **Protocol Covered Documents**. Protocol Covered Documents are documents which fulfil the below criteria for Protocol Covered Master Agreements, Protocol Covered Credit Support Documents or Protocol Covered Confirmations.
- The Protocol also applies to certain non-ISDA master agreements and non-ISDA credit support documents between adhering parties, provided they
 satisfy the criteria in the definition of Protocol Covered Documents. Such documents are listed in the Protocol as Additional Master Agreements
 and Additional Credit Support Documents.

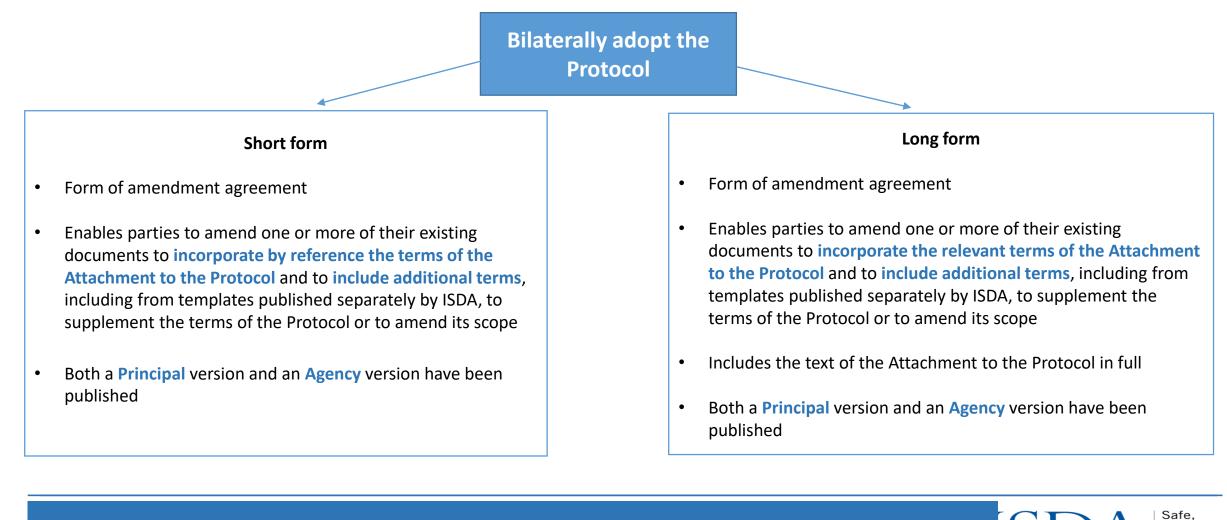
Protocol Covered Master Agreement	Protocol Covered Credit Support Document	Protocol Covered Confirmation
 An ISDA Master Agreement or Additional Master Agreement entered into by adhering parties that is dated before the Protocol Effective Date or, if later, the date of acceptance by ISDA of an Adherence Letter from the later of the two adhering parties to adhere, that: 1) incorporates a Covered ISDA Definitions Booklet (e.g. the 2006 ISDA Definitions); 2) references an IBOR "as defined" in or otherwise provides that the IBOR has the meaning given in a Covered ISDA Definitions Booklet (e.g. GBP-LIBOR-BBA, as defined in the 2000 ISDA Definitions); and/or 3) references an IBOR howsoever defined (e.g. LIBOR). 	 An ISDA Credit Support Document or Additional Credit Support Document entered into by adhering parties that is dated before the Protocol Effective Date or, if later, the date of acceptance by ISDA of an Adherence Letter from the later of the two adhering parties to adhere, that: 1) incorporates a Covered ISDA Definitions Booklet; 2) references an IBOR "as defined" in, or otherwise provides that the IBOR has the meaning given in, a Covered ISDA Definitions Booklet; and/or 3) references an IBOR howsoever defined. 	 A confirmation entered into by adhering parties that is dated before the Protocol Effective Date or, if later, the date of acceptance by ISDA of an Adherence Letter from the later of the two adhering parties to adhere, that: 1) supplements, forms part of and is subject to, or is otherwise governed by, a Master Agreement and incorporates a Covered ISDA Definitions Booklet; 2) supplements, forms part of and is subject to, or otherwise governed by a Master Agreement and references an IBOR "as defined" in, or otherwise provides that the IBOR has the meaning given in, a Covered ISDA Definitions Booklet; and/or 3) supplements, forms part of and is subject to, or is otherwise governed by, a Master Agreement and references an IBOR howsoever defined.



Bilateral Templates

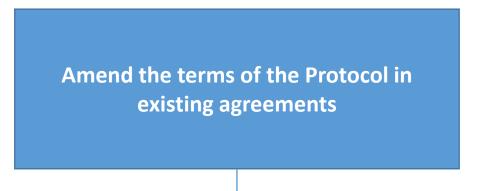
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ISDA has published the following templates relating to the application of the Protocol, which allow parties to:



Efficient

Bilateral Templates (cont.)



• Form of amendment agreement

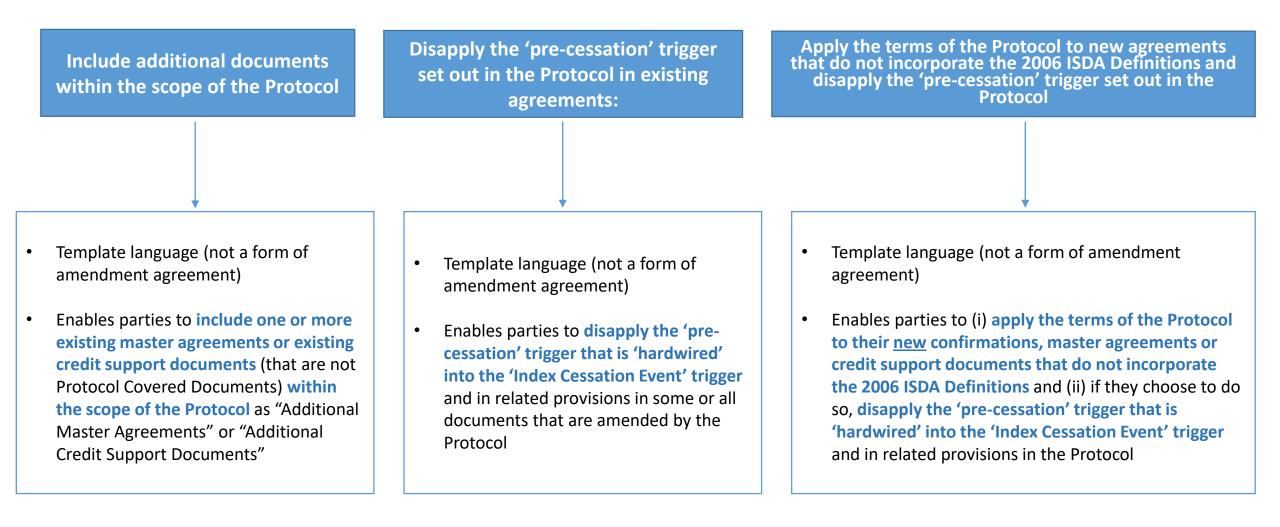
40

- Enables parties who have adhered to the Protocol to amend the scope and terms of the Protocol in relation to one or more existing confirmations, existing master agreements or existing credit support documents that are Protocol Covered Documents by including additional template language published separately by ISDA in the form of amendment agreement
- Both a Principal version and an Agency version have been published

ISDA Virtual Conference: Understanding the New IBOR Fallbacks



Bilateral Templates (cont.)



Safe.

Efficient

Markets

IBOR Fallbacks: Additional Information

- ISDA/Bloomberg/Linklaters IBOR Fallbacks Fact Sheet
- Understanding IBOR Benchmark Fallbacks
- Benchmark Reform at a Glance
- IBOR Transition Guide for Asia co-published by ISDA, ASIFMA, ICMA and APLMA

All of these materials, as well as additional information about ISDA's work to implement IBOR fallbacks and other benchmark reform initiatives, are available on the **ISDA Benchmark Reform and Transition from LIBOR webpage** at <u>https://www.isda.org/2020/05/11/benchmark-reform-and-transition-fromlibor/</u>



IBOR TRANSITION SERIES:



Growing Asia's Markets

A LOCAL MARKET PERSPECTIVE THAILAND IBOR TRANSITION

(IN COLLABORATION WITH THAI BANKERS ASSOCIATION AND THAI BOND MARKET ASSOCIATION)

Co-hosts



(IN COLLABORATION WITH THAI BANKERS ASSOCIATION AND THAI BOND MARKET ASSOCIATION)

TUESDAY, 24 NOVEMBER 2020 10:00AM – 12:45PM (ICT) / 11:00AM – 1:45PM (HKT/SGT)



Product Presentations on Bonds



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Mushtaq Kapasi Managing Director – Chief Representative Asia Pacific ICMA



International Capital Market Association



A lot of progress has already been made with the adoption of new RFRs in bond markets:

US Dollar:

- Over US\$650 billion of SOFR-linked FRNs
- Mainly SSAs, financial institutions
- Conventions are evolving
- SOFR Index now available

UK Sterling:

- Approx. 190 SONIA-linked FRNs and securitisations totalling approx. £90 billion
- Mainly SSAs, banks and building societies, with a broadening base of investors
- Same market conventions so far "lag" approach to weighting, also favoured by the loan market
- SONIA Index made available in early August but only compatible with "shift" approach to weighting
- Work still to be done on conventions

The official sector in the US and the UK encourage use of risk-free rates instead of LIBOR in new bond issuance:

- If this is not possible, any *new contracts* referencing LIBOR and maturing beyond 2021 should contain robust fallbacks to risk-free rates
- For new USD LIBOR FRN contracts, the ARRC (*Alternative Reference Rates Committee*) in the US has produced a hardwired waterfall of fallbacks
- In the UK, fallbacks which address a permanent cessation or pre-cessation of IBORs have been used since mid-2017. These are typically benchmark and currency agnostic
- GBP LIBOR-referencing FRN and securitisation transactions have all but ceased

"Legacy Bonds" are bonds which reference LIBOR and are due to mature beyond the end of 2021, when LIBOR may no longer be available:

- It has been estimated that the *global total* of Legacy Bonds is more than US\$800 billion equivalent
- Around 80% of that total references USD LIBOR
- In the UK market, estimates suggest around 700 ISINs for GBP LIBOR Legacy Bonds across approx. 430 deals
- If LIBOR is discontinued, many Legacy Bonds will fall back to a fixed rate, in accordance with the fallbacks drafted into the documentation at a time when permanent discontinuation of the rate would not have been anticipated
- This may be commercially unpalatable

The official sector in the US and the UK have continually stressed the increasing importance of transitioning Legacy Bonds away from LIBOR:

- Unlike derivatives, bonds are contracts between multiple parties and are freely tradeable, meaning the identity of the parties can change
- Bonds cannot be amended by way of adherence to an industry protocol
- Bonds usually contain provisions allowing the terms of the contract to be amended this requires consent from bondholders by way of *consent solicitation*
- Depending on the governing law of the bond, the consent threshold required for amendments of interest rate provisions may be high (e.g. 75% under English law, and 100% under NY law)
- Amending bonds by way of consent solicitation is a voluntary process, with no guarantee of success. It is also time-consuming and administratively burdensome for issuers and bondholders
- But in the UK, a number of consent solicitations have been successfully undertaken by financial and corporate issuers

Some Legacy Bonds may fall into a 'tough legacy' bucket (i.e. cannot remove their reliance on LIBOR ahead of its anticipated discontinuation):

- The UK Government put forward draft legislation in October 2020
- The FCA would be empowered to direct LIBOR's administrator to change the methodology for LIBOR in certain circumstances (so-called "synthetic LIBOR")
- There would be a general prohibition on the use of "synthetic LIBOR" by UK supervised entities, subject to specific exemptions granted by the FCA
- Some details still unknown, including what "synthetic LIBOR" will be and how long "synthetic LIBOR" will continue to exist
- There is no guarantee that the FCA can or will exercise these powers, or that they will suit all Legacy Bonds. So the FCA and Bank of England are urging parties to continue with "active transition" in order to retain control of the economic outcome

Options for Legacy Bonds - Possible US legislative proposal

In the US, where consent solicitation is more problematic, the ARRC has set out a proposal for possible NY state legislation for USD-LIBOR contracts:

- For contracts with no fallbacks, ARRC-recommended SOFR fallback rate + spread adjustment would apply
- For contracts which fall back to a LIBOR-based rate, ARRC-recommended SOFR fallback rate + spread adjustment would apply
- For contracts where an agent has discretion to choose the new benchmark rate, the agent would have protection under a "safe harbour" if the ARRC-recommended SOFR fallback rate + spread adjustment is chosen
- Counterparties making conforming changes to documentation to accommodate the transition would also benefit from the safe harbour
- Parties would be able to mutually opt out
- It is not yet clear whether or when this will be enacted in NY law and how this would interact in practice with the UK 'tough legacy' proposals and EU proposals

The European Commission has proposed amendments to the EU Benchmark Regulation to address the phasing out of benchmark rates:

- The proposal will empower the European Commission to designate a statutory replacement rate (taking account of
 relevant industry working group recommendations) to ensure that when a widely used reference rate (such as
 LIBOR) is phased out, it does not cause disruption to the economy or harm financial stability in the EU
- The statutory replacement rate will apply as a matter of law, thereby avoiding contractual conflicts
- The statutory replacement rate will only be available for financial contracts that reference the benchmark at the time this benchmark ceases to be published
- At the same time, market participants are encouraged to agree on a permanent replacement rate for all new contracts whenever feasible
- The proposal is being considered by the EU co-legislators
- More clarity should emerge on its scope and interaction with the US and UK proposals in due course

Other options for Legacy Bonds include:

- Buy-backs, exchange offers or other liability management exercises
- Allowing existing fallbacks to operate without amendment (as a result of which, many FRNs will become fixed rate unless the FCA is given, and exercises, powers to amend LIBOR methodology, as outlined above)

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Product Presentations on Loans



111

Fergus Evans Partner Clifford Chance

C L I F F O R D C H A N C E

IBOR TRANSITION - LOANS

FERGUS EVANS – CLIFFORD CHANCE 24 NOVEMBER 2020

DEVELOPMENTS IN ASIA LARGELY GUIDED BY DEVELOPMENTS IN THE US, UK AND EUROPE

"CLARITY ON THE EXACT TIMING AND NATURE OF THE LIBOR STOP IS STILL TO COME, BUT THE REGULATOR OF LIBOR HAS SAID THAT IT IS A MATTER OF HOW LIBOR WILL END RATHER THAN IF IT WILL END, AND IT IS HARD TO SEE HOW ONE COULD BE CLEARER THAN THAT."

– RANDAL QUARLES VICE CHAIR FOR SUPERVISION, THE FED



Key transitional challenges faced across Asia:

- Market adoption of ARRs:
 - "Low" awareness of LIBOR discontinuation and acceptance of ARRs
 - Market players tend to follow global standards and adopt a "wait and see" approach
 - Different ARRs will likely require different margins, which makes transition across Asia difficult due to variety of currencies

- Calculation methodology for RFRs:

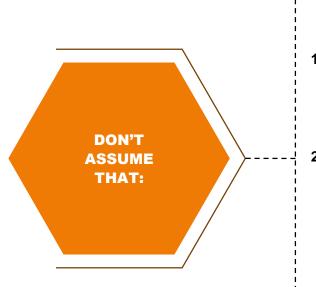
High exposure of local banks to LIBOR

- Legal issues (including legacy contracts):

- Lack of consistent amendment protocols across loan, derivatives and bond markets
- Uncertainty as to determination of substitution rates

DON'T RELY SOLELY ON A LEGISLATIVE OR INDUSTRY SOLUTION

Avoid these common misconceptions:

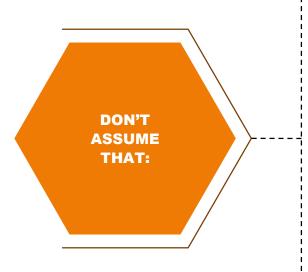


 IBORs will be extended by regulatory fiat: The FCA has said that perhaps a "zombie" LIBOR could be extended for legacy contracts that are unable to be amended (but not for new business).

2. Industry working groups will provide a solution in time: All market participants are hoping for recommendations from the industry working groups. But financial institutions need to plan their own strategy, in case the solutions don't materialise in time. Banks may also need to bilaterally vary individual contracts.

DON'T RELY SOLELY ON A LEGISLATIVE OR INDUSTRY SOLUTION

Avoid these common misconceptions:



3. The solutions for different products or across jurisdictions will align: The method of amendment depends on the product in question. Counterparties may have different, related products which presently utilise the same IBOR rate. Or multicurrency products. Aligning the replacement rates across product, across currency, may be a challenge and give rise to exposures for banks and/or its counterparties (e.g. basis risk).

4. You can postpone any decision making: Regulators are focused on banks' exposures and scenario planning. Operational processes (whether involving people or systems) take time to change and embed. Repapering exercises are likely to be large in scale and scope. We recommend action now, and the potential use of technology and third parties to assist.

MARKET DEVELOPMENTS

LMA / APLMA EXPOSURE DRAFTS (INCLUDING NEW RATE SWITCH (WITHOUT OBSERVATIONAL SHIFT) RCF)



- Transactions in the market based on LMA/APLMA recommended forms but – not Recommended Forms
- Why?
 - Move to RFRs requires creation and structuring of a new lending product
 - RFR a backward looking calculation of intertest rather than forward looking IBOR
 - Forward looking term rates being developed but may not be available or used as a market standard in time for all currencies
 - RFR more robust as determined on the basis of actual transactions
 - Structuring issues for the market, not the LMA/APLMA

- Purpose?
 - Facilitate consideration of issues
 - Framework for documenting RFR deals.
- Issues identified in the CC/LMA/APLMA Commentary
 - Lag Period (VS observational shift approach)
 - Adjustment Spread
 - Compounding / non-Business Days / rounding
 - Fallbacks
 - Break Costs
 - Market Disruption
- Some issues are commercial for borrowers to consider as a priority and some issues will be more market led

- Timeline for amendments to be agreed
- **IBOR TRANSITION LOANS**

only)

to occur

agree?

LOANS

Legislative approach

use a waterfall of fallbacks?

approach to fallbacks

approach to fallbacks

LEGACY CONTRACTS

Contractual fallbacks

• Divergence of contractual approaches that

• Use of "Hard Wiring" approach - ARRC

• Amendment approach - LMA / APLMA

Consider what are the triggers for a change

• If agreement needed then who needs to

- LMA Screen Rate Replacement clause -

recommended form includes a provision

to allow amendments to be made with a

lower consent threshold (majority lenders

Timing of amendments

- Multicurrency facilities coordination across currencies
- Synchronization with any related hedging.
- Operational capabilities. Majority v all lender?
- LMA revised "Replacement of Screen Rate" language aims to build in greater flexibility
- Spread adjustment possibility of value transfer

- RFR-referencing transactions
 - Bilateral SORA loans
 - Bilateral SOFR loans
 - SONIA facilities in the asset-backed loan market

Market precedents

- SONIA-referenced alternatives to LIBOR loans
- USD10b facility for Royal Dutch Shell, one of the first and largest credit facilities linked to SOFR
- Transactions with reference rate change language
 - UK market precedents which are initially written off LIBOR with a "switch" mechanic allowing the transactions to move to risk free rates
 GBP 6b facility for British American Tobacco

KEY CONTACTS

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CLIFFORD CHANCE

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Data and Infrastructure Preparedness: Practical Challenges of IBOR Transition:



Weng Khong Wong Market Specialist – Fixed Income & Fixed Income Derivatives Bloomberg LP Bloomberg

Data and Infrastructure Preparedness: Practical Challenges of IBOR Transition

Wong Weng Khong Fixed Income and Fixed Income Derivatives Workflow Specialist ASEAN, Bloomberg L.P. wwong436@bloomberg.net

24th November, 2020

Impact across firms' workflows - the LIBOR transition lifecycle

After LIBOR cessation 4

- All fallbacks triggered, fallback calculations needed
- Flexible rate calculation
- Pricing, execution, valuation, and risk for new rates supported for business as usual activity
- All securities fallback, use fallback data to manage and track



Transition phase 3

- Fallbacks may be triggered, fallback calculations needed
- Understand actual and potential risk/valuation impacts as transition scenarios crystallise
- Securities may fallback, use fallback data to manage and track



Interest calculations, product pricing, valuation and scenarios

New rates curves fully embedded, flexibility to support portfolio calculation and analytics

Market information and trade execution



Pricing, liquidity (and other relevant up-to-date info), and execution capability



Understand alternative rates, analyse and prepare

- For many bond/loan securities, varied fallback, need to understand fallback data
- Understand and analyse current and future exposure, apply transition scenarios



2 Trade / manage new products

- Pricing, execution, valuation, risk and scenarios supported through the eco-system
 - Compounding methodologies can vary, flexible bespoke calculation tools may be needed



Bloomberg

Fallback calculations



Market reliance on the calculations

Fallback data

Large universe of existing securities for which clear understanding of fallback required

Identify Overall Requirements for Cash Transition

Data-sets specific questions

• How and where to locate information on fallback provisions for cash products?

Assess readiness by considering

- For legacy Libor trades: if you don't get covered by the protocol then do you need bilateral negotiations? How will a supplement to the protocol help ?
- By when do I need to be ready with a "Fair Value Analysis"?
- Is my Core Banking System ready to book new "IBOR/RFR based Loans" ?
- Market participants should identify susceptible fallback provisions as they will likely change in the future. They should also proactively monitor fallback languages incorporated in similar bond issuance for references.

Bloomberg

Identify Overall Requirements for Derivatives Transition

Data-sets specific questions

- What new data sets are required as we transition to the new RFRs?
- How will RFR data evolve as liquidity shifts?
- Will term rates be available and what if not? How do I build curves?

Assess data in systems readiness by testing the following:

- Updated analytical models and scenario analysis across enterprise systems
- For trades referencing the new RFRs: capture all necessary attributes related to the new RFRs (e.g. compounding conventions, index lag / lockout) and ensuring all pricing, risk and valuation models work correctly.
- Front Office, Finance, Risk, Operations and Admin.

Planning for Transition

1. Business and Front Office

- Position/product inventory
- New curve construction & risk management change
- Repapering legacy contracts

Other considerations:

- Identify business lines in scope
- Economic sensitivities
- Client outreach and communications

2. Operations

- Collateralization/ management
- PAI
- Settlement/ cash flow
- Confirmations

- 3. Contracts
- Identification of all contracts
- Fall-back provisions

Other considerations:

- Renegotiating/ rewriting legacy contracts
- Legal consent & legal/ statutory obligations
- Standard documentation (e.g. ISDA and FIA)

4. Compliance

 Different regulatory requirements/ treatment of RFRs across jurisdictions

Other considerations:

 Regulatory tracking and impact

Bloomberg

Impact Assessment – Where to Begin

5. Treasury

- ALM Internal funding
- Changes to issuance and hedging programs
- Transfer pricing implications

6. Valuations and Market Risk

- Valuation impacts

 (e.g. term structure
 curves/ market value/
 secured vs unsecured)
- Risk management (hedging)
- Models' review & market risk sensitives.
- Price testing

Other considerations:

 Assurance & QA of risk systems

7. Accounting and Finance

- Hedge accounting/ effectiveness
- Forecast transactions
- Impact on discounting

Other considerations:

- Differences in tax treatment/ payments due
- Modification accounting

8. IT and Infrastructure

 Adjusting relevant support systems

 (e.g. trade capture, payment systems & inter-company funding arrangements)

Other considerations:

- Technology enhancements
- Infrastructure impact mapping

Data and Infrastructure - Quantify Valuation Impact in Libor Transition

Preparation required across all asset classes: cash, derivatives, and loans

Data		Infrastructure	
ISDA	Fallback Language	Risk Systems	Country Updates
 ISDA Rule Book & Technical notes 	 Daily refreshed fallback language Data for 154,000 cash securities 	 CCP PAI from Fed Funds to SOFR (Oct 2020) Migration of Bilateral CSA LIBOR Transition analysis Derivative Structuring 	Risk Free Rate Solutions
			Analytics
Fallback	• Loans		 Derivative Structuring of RFR Instruments
 ISDA-BISL Fallback, Spread Adjustments and Adjusted Rates 	Data		
	 Reference Data RFR Benchmark Data RFR Interest Rate Curves Where is LIBOR used 	New Calculations	Electronic Trading
		RFR Loans Calculator	Electronic Execution for RFR Derivatives
			RFR Adoption
			FRN IssuanceLoans IssuanceRFR OTC Traded

Bloomberg

Available Today: ISDA Fallback Data

200<G0> to view in CTNU Efficient For access to the latest Adjusted Reference Rates, Spread Adjustments and 'all-in' Fallback Rates, including the Calculation Date for these rates, click {DOCS #2094350 <GO>} for the linked ISDA IBOR Fallbacks Excel Workbook. For prior day rates, select the Rate Type from the list below, select the relevant tenor, and run <HP> <GO>. For information about the Bloomberg methodology used in these calculations and a full list of tickers, please see $\{ISDA \langle GO \rangle\}$. Official ISDA Fallback Rates 1) Official ISDA Fallback Rates AUD BBSW CAD CDOR CHF LIBOR Official Adjusted Reference Rates Official Spread Adjustments between Adjusted Reference Rates and IBOR Rates 15) Technical Guidance Note 6) IBOR Fallbacks Excel Workbook

• Standardized fallback language developed by ISDA for derivatives contracts is a positive step, offering the industry certainty.

 Official ISDA IBOR Fallback Rates, calculated by Bloomberg Index Services Limited. Visit FBAK<GO> or <u>https://www.bloomberg.com/professional/solution/libor-transition/</u>

97) Settings	• 98) Output •	200) Show in L	aunchpad	Page 1/1 ISDA Fallback Rate
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ISDA Fallback Ra	tes -> Official ISDA Fallba	ck Rates -> USD	LIBOR (GDC0 9004 1	1)
Tenor	Original IBOR Rat	e Record Day	Fallback Rate	Calculation Date - see Excel Workb
1) O/N		09/08/20	0.10890	
2) 1W		09/01/20	0.13407	9 September 2020
3) 1M		08/07/20	0.19917	
4) 2M		07/08/20	0.27411	
5) <u>3M</u>		06/08/20	0.34654	
6) 6M		03/06/20	0.45974	
7) 12M		09/06/19	1.41787	

Bloomberg Analytics for IBOR Transition

Deal Level Analysis

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D Main 4 Details Deal 6 CCP 6 Swap Leg 1:Fixed • Notional Currency Effective	9) Curves 6) Cashflo Fixed vs SOFR 0TC OTC • 10MIM USD USD • 8D 03/17/2020	w) Resets () S Counterparty Leg 2:Float • Notional Currency Effective	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears Pay • 10MM USD • 8D 03/17/2020<	Trade • CCP • Matrix * + Ticker / SWAP 20 Propertie Trade Date 03/15/2020 • Valuation Settings Curve Date 03/09/2020 Valuation 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020	es E
3 Main 4 Details Deal F CCP Swap Leg 1:Fixed - Notional Currency Effective Maturity	3) Curves 6) Cashflo Fixed vs S0FR 0TC OTC • Receive • 10HM USD USD • 8D 03/17/2020 5Y 03/17/2025	w 7) Resets 9) 9 Counterparty Leg 2:Float • Notional Currency Effective Maturity	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears • Pay • 10/M USD W 03/17/2020 PV 03/17/2020	Trade • CCP • Matrix * + Ticker / SWAP 20 Propertie Trade Date 03/15/2020 • Valuation Settings Curve Date 03/09/2020 Valuation 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020	es E
A Hain A Details Deal CCP Swap Leg 1:Fixed - Notional Currency Effective Maturity Coupon Pay Freq	9 Curves	w) Resets 9,9 Counterparty Leg 2:Float • Notional Currency Effective Naturity Index Spread	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears • Pay • 101MH • USD • 80 03/17/2020 • • 10 SOFRRATE	Trade • CCP • Matrix * + Ticker / SWAP 20 Propertie Trade Date 03/15/2020 • Valuation Settings Curve Date 03/09/2020 Valuation 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020	es E
2 Main 4 Details Deal F CCP Swap Leg 1:Fixed - Notional Currency Effective Maturity Coupon Pay Freq Day Count	9 Curves	w 7) Resets 9, 9 Counterparty Leg 2:Float • Notional Currency Effective Maturity Index Spread Leverage	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears Pay • 10MM USD • 8D 03/17/2020 = 10 SOFRRATE 24.202 bp 1.00000	Trade • CCP • Matrix * + Ticker / SWAP 20 Propertie Trade Date 03/15/2020 • Valuation Settings Curve Date 03/09/2020 Valuation 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020	es E
A Hain A Details Deal CCP Swap Leg 1:Fixed - Notional Currency Effective Maturity Coupon Pay Freq	9 Curves	w 7) Resets 9, 9 Counterparty Leg 2:Float • Notional Currency Effective Maturity Index Spread Leverage Latest Index	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears • Pay • 101M • US • 03/17/2020 • EV • 24,202 • 10 SOFRRATE 24,202 • 10.0000 • 0.98362 •	Trade • CCP • Matrix * + Ticker / SWAP 20 Propertie Trade Date 03/15/2020 • Valuation Settings Curve Date 03/09/2020 Valuation 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020	es E
2 Main 4 Details Deal F CCP Swap Leg 1:Fixed - Notional Currency Effective Maturity Coupon Pay Freq Day Count	9 Curves	w) Resets 9 9 Counterparty Leg 2:Float • Notional Currency Effective Maturity Index Spread Leverage Latest Index Reset Freq	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears Pay • 10/HM USD • 8D 03/17/2020 PV 65/17/2020 PV 65/17/2020 PV 65/17/2020 PV 62/17/2020 PV 63/137/2020 PV 70/137/2020 PV 70/137/2020 PV 70/137/137/1	Trade • CCP • Matrix * + Ticker / SWAP 20 Propertie Trade Date 03/15/2020 • Valuation Settings Curve Date 03/09/2020 Valuation 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020	es E
2 Main 4 Details Deal F CCP Swap Leg 1:Fixed - Notional Currency Effective Maturity Coupon Pay Freq Day Count	9 Curves	w 7) Resets 9, 9 Counterparty Leg 2:Float • Notional Currency Effective Maturity Index Spread Leverage Latest Index Reset Freq Pay Freq	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears Pay • 10MM USD • 8D 03/17/2020 = PC 52/7/2020 = 1D SOFRRATE 24.202 bp 1.00000 0.98362 bp 2.00000 0.98362 bally Quarterly •	Trade • CCP • Matrix * + Ticker / SWAP 20 Propertie Trade Date 03/15/2020 • Valuation Settings Curve Date 03/09/2020 Valuation 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020	es E
Abin 4 Details Deal CCP Swap Leg 1:Fixed Notional Currency Effective Maturity Coupon Pay Freq Day Count Calc Basis	9 Curves	w) Resets 9 9 Counterparty Leg 2:Float • Notional Currency Effective Maturity Index Spread Leverage Latest Index Reset Freq	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears Pay • 10/HM USD • 8D 03/17/2020 PV 65/17/2020 PV 65/17/2020 PV 65/17/2020 PV 62/17/2020 PV 63/137/2020 PV 70/137/2020 PV 70/137/2020 PV 70/137/137/1	Trade • CCP • Matrix * + Ticker / SWAP 20 Propertie Trade Date 03/15/2020 • Valuation Settings Curve Date 03/09/2020 Valuation 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020	es E
A Main A Details Deal CCP Swap Leg 1:Fixed Notional Currency Effective Maturity Coupon Pay Freq Day Count Calc Basis Market A	⑨ Curves ଈ Cashflo Fixed vs SOFR OTC OTC • Receive • 10HH USD VSD • 8D 03/17/2020 5Y 03/17/2025 2.000000 ♣ SemiAnnual • 301/360 • Money Mkt •	w 7) Resets 9, 9 Counterparty Leg 2:Float • Notional Currency Effective Maturity Index Spread Leverage Latest Index Reset Freq Pay Freq Day Count	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears Pay • 10MM USD • 8D 03/17/2020 = PC 52/7/2020 = 1D SOFRRATE 24.202 bp 1.00000 0.98362 bp 2.00000 0.98362 bally Quarterly •	Trade • CCP • Matrix * + Ticker / SWAP 20 Propertie Trade Date 03/15/2020 • Valuation Settings Curve Date 03/09/2020 Valuation 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020	es E
Abin 4 Details Deal CcP Swap Leg 1:Fixed • Notional Currency Effective Maturity Coupon Pay Freq Day Count Calc Basis	⑨ Curves ଈ Cashflo Fixed vs SOFR OTC OTC • Receive • 10HH USD VSD • 8D 03/17/2020 5Y 03/17/2025 2.000000 ♣ SemiAnnual • 301/360 • Money Mkt •	w 7) Resets 9, 9 Counterparty Leg 2:Float • Notional Currency Effective Maturity Index Spread Leverage Latest Index Reset Freq Pay Freq Day Count	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears Pay • 10MM USD • 8D 03/17/2020 = PC 52/7/2020 = 1D SOFRRATE 24.202 bp 1.00000 0.98362 bp 2.00000 0.98362 bally Quarterly •	Trade • CCP • Matrix * + Ticker / SWAP 20 Propertie Trade Date 03/15/2020 • Valuation Settings Curve Date 03/09/2020 Valuation 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020	es E
A Main A Details Deal CCP Swap Leg 1:Fixed Notional Currency Effective Maturity Coupon Pay Freq Day Count Calc Basis Market A	⑨ Curves ଈ Cashflo Fixed vs SOFR OTC OTC • Receive • 10HH USD VSD • 8D 03/17/2020 5Y 03/17/2025 2.000000 ♣ SemiAnnual • 301/360 • Money Mkt •	w 7) Resets 9, 9 Counterparty Leg 2:Float • Notional Currency Effective Maturity Index Spread Leverage Latest Index Reset Freq Pay Freq Day Count	Scenario 10 Risk 12 SWAP_CNTRPARTY • Arrears • Pay • 101MH • BD 03/17/2020 FH 02/17/2020 FH 02/17/2020 FH 02/17/2020 FH 02/17/2020 FH 02/107/2020 D SOFRRATE 24.202 Dp 1.00000 0.98362 Daily Quarterly ACT/360 •	Trade • CCP • Matrix * + Ticker / SWAP 20 Propertie Trade Date 03/15/2020 • Valuation Settings Curve Date 03/09/2020 Valuation 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020	es E
A Main A Details Deal CCP Swap Leg 1:Fixed Notional Currency Effective Maturity Coupon Pay Freq Day Count Calc Basis Market A	⑨ Curves ଈ Cashflo Fixed vs SOFR OTC OTC • Receive • 10HH USD VSD • 8D 03/17/2020 5Y 03/17/2025 2.000000 ♣ SemiAnnual • 301/360 • Money Mkt •	w 7) Resets 9, 9 Counterparty Leg 2:Float • Notional Currency Effective Maturity Index Spread Leverage Latest Index Reset Freq Pay Freq Day Count Dscnt 42 • M	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears • Pay • 10MM • USD • 8D 03/17/2020 FV 03/17/2020 24.202 bp 1.00000 • 0.98362 Daily Quarterly • ACT/360 •	Trade • CCP • Matrix * + Ticker / SWAP 20 Propertie Trade Date 03/15/2020 • Valuation Settings Curve Date 03/09/2020 Valuation 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020 Cate 03/09/2020	es E
Abin 4 Details Deal CCP Swap Leg 1:Fixed • Notional Currency Effective Maturity Coupon Pay Freq Day Count Calc Basis Market Dscnt 42 • M	⑨ Curves ଈ Cashflo Fixed vs SOFR OTC OTC • Receive • 10HH USD VSD • 8D 03/17/2020 5Y 03/17/2025 2.000000 ♣ SemiAnnual • 301/360 • Money Mkt •	w 7) Resets 9, 9 Counterparty Leg 2:Float • Notional Currency Effective Maturity Index Spread Leverage Latest Index Reset Freq Pay Freq Day Count Dscnt 42 • M	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears • Pay • 10MM • USD • 8D 03/17/2020 FV 03/17/2020 24.202 bp 1.00000 • 0.98362 Daily Quarterly • ACT/360 •	Trade • CCP • Matrix + Ticker / SWAP 20 Propertie Trade Date 03/15/2020 c Valuation Settings Curve Date 03/09/2020 c Valuation 03/09/2020 c CSA Coll Ccy USD • © OIS DC Stripping	es E
Abin 4 Details Deal CcP Swap Leg 1:Fixed Notional Currency Effective Maturity Coupon Pay Freq Day Count Calc Basis Market Scott Scott 42 • M Svaluation Results	9 Curves 	w 7) Resets 9, 9 Counterparty Leg 2:Float • Notional Currency Effective Maturity Index Spread Leverage Latest Index Reset Freq Pay Freq Day Count Dscnt 422 • M Fwd 490 • M	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears • Pay • 101M • BD 03/17/2020 FY • 24/202 • 10 SOFRRATE 24/202 • 0.98362 • Daily • Quarterly • 4CT/360 • USD OIS (ICVS I USD SOFR (vs. Fix) •	Trade • CCP • Matrix + Ticker / SWAP 20 Propertie Trade Date 03/15/2020 c Valuation Settings Curve Date 03/09/2020 c Valuation 03/09/2020 c CA Coll Ccy USD • © OIS DC Stripping	es 11 11
2 Main 4 Details Deal CCP Swap Leg 1:Fixed • Notional Currency Effective Maturity Coupon Pay Freq Day Count Calc Basis Market Socnt 42 • M Valuation Results Par Cpn	9 Curves 	W 7) Resets 9, 9 Counterparty Leg 2:Float • Notional Currency Effective Maturity Index Spread Leverage Latest Index Reset Freq Pay Freq Day Count Dscnt 422 • M Fwd 490 • H	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears Pay • 10MM USD • 8D 03/17/2020 = 1D SOFRRATE 24.202 bp 1.00000 0.98362 bp 1.00000 0.98362 bp 1.00000 0.98362 bp 0.98362 bp 1.00000 0.98362 bp 1.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.000000 0.00000000	Trade CCP • Matrix Ticker / SWAP 20 Propertie Trade Date 03/15/2020 c Valuation Settings Curve Date Curve Date 03/09/2020 c Valuation 03/09/2020 c CSA Coll Ccy USD © OIS DC Stripping	es 1 1 1
Abin 4 Details Deal CCP Swap Leg 1:Fixed Notional Currency Effective Maturity Coupon Pay Freq Day Count Calc Basis Market Dscnt 42 M Valuation Results Par Cpn Principal	9 Curves 	W 7) Resets 9, 9 Counterparty Leg 2:Float • Notional Currency Effective Maturity Index Spread Leverage Latest Index Reset Freq Pay Freq Day Count Dscnt 42 • M Fwd 490 • M	Scenario 10 Risk 12 SWAP CNTRPARTY • Arrears • Pay • 101M • BD 03/17/2020 FY • 24/202 • 10 SOFRRATE 24/202 • 0.98362 • Daily • Quarterly • 4CT/360 • USD OIS (ICVS I USD SOFR (vs. Fix) •	Trade • CCP • Matrix + Ticker / SWAP Z0 Propertie Trade Date 03/15/2020 c Valuation Settings Curve Date 03/09/2020 c Valuation 03/09/2020 c CSA Coll Ccy USD I OIS DC Stripping	es 5 5 7 1
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Portfolio Level Analysis



RFR TRANSITION SCENARIO ANALYSIS

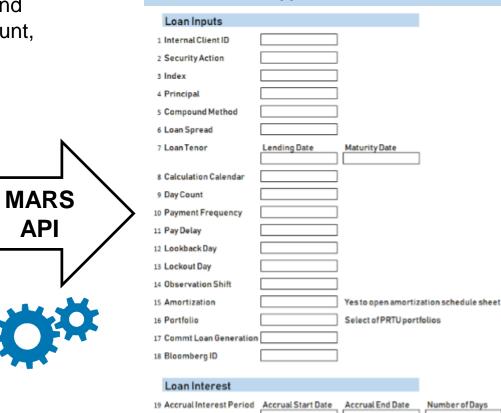
	Context	Workflow:							
Client	Corporate A	1) Salesperson e	enters client, portfoli	o and what if sce	enario details in "Contex	t".			
Portfolio Name	Portfolio 1	2) Calculate out	puts today's Market	Value, and Mark	et Value of the portfolio	at projected trans	ition date, fo	or a given sprea	ad assump
Valuation Date	1/6/2020	3) Generate rep	ort produces a time :	stamped report	of all possible scenarios,	which can be shar	ed with clier	nt.	
Currency	USD				1				
Transition Date	3m	Calculate	Ge	nerate Report					
Spread at Date (Bp)	40				1				
Deal ID	Asset Type	Notional Deal Currency	Maturity		Market Value What If			DV01 What If	
SL325A6Z Corp	OIS Swap	10,000,000 USD	4/12/2021	-202,258.02	-202,281.09	-23.07	-1,648.66	-1,649.04	-0.38
SL325A6W Corp	US 6M Libor	25,000,000 USD	4/2/2030	327,981.52	328,059.03	77.52	181.31	181.39	0.08
SL325A6T Corp	US 1M Libor	10,000,000 USD	4/2/2025	9,843.39	9,842.34	-1.05	-0.06	-0.06	-0.00
SLM4038G Corp	Rec Fix/Pay Flt	20,000,000 USD	15/7/2039	5,636,479.17	5,603,500.53	-32,978.65	42,579.15	42,366.49	-212.66
SLM4038P Corp	Pay Fix/Rec Flt	10,000,000 USD	10/9/2026	-710,200.83	-710,318.78	-117.95	-6,719.85	-6,721.49	-1.63
SLM40384 Corp	Pay Fix/Rec Flt	25,000,000 USD	24/5/2048	-14,622,023.40	-14,388,044.85	233,978.55	-86,804.12	-85,887.59	916.53
SLM4038J Corp	Rec Fix/Pay Flt	20,000,000 USD	19/7/2022	801,229.51	801,308.22	78.71	4,611.01	4,612.14	1.13
SLM4038M Corp	Pay Fix/Rec Flt	10,000,000 USD	19/8/2024	-652,215.40	-652,330.37	-114.97	-4,660.15	-4,661.51	-1.36
SLM4038D Corp	Pay Fix/Rec Flt	15,000,000 USD	15/3/2024	-790,332.62	-790,464.08	-131.46	-6,172.37	-6,174.10	-1.73
SLM40381 Corp	Pay Fix/Rec Flt	25,000,000 USD	17/7/2025	-2,592,985.77	-2,593,501.26	-515.49	-13,868.86	-13,873.63	-4.77
SLM4037V Corp	Rec Fix/Pay Flt	10,000,000 USD	17/7/2029	1,157,412.99	1,157,608.10	195.11	9,699.68	9,701.49	1.81
SLM4038A Corp	Pay Fix/Rec Flt	15,000,000 USD	15/1/2027	-1,700,958.70	-1,701,207.07	-248.37	-10,677.75	-10,680.28	-2.54
SLM40387 Corp	Rec Fix/Pay Flt	25,000,000 USD	24/2/2033	5,589,010.25	5,585,697.34	-3,312.91	35,603.41	35,591.26	-12.15
Totals		220,000,000 USD		-7,749,017.91	-7,552,131.93	196,885.98	-37,877.26	-37,194.92	682.34
As Percentage						-2.54%			-1.80%

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MARS API Use Case: Floating Rate Loans

Floating rate loans on new RFR indices such as SOFR, ESTR and EONIA pose challenges for analytics such as accrued interest and effective rate computations due to the complex nature of day count, compounding method and observation shifts.

					Index	Compoundin	a Calculator
					Index	Compounding	
			ured Overnight F				how Graph
Dates		Day	Date	Rate Date	Rate	Eff Rate	Factor +
Start 02/05/2020		THU	02/13/2020	02/13/2020	1.57000	1.57000	1.000043611
End 03/06/2020	🛱 FRI	FRI	02/14/2020	02/14/2020	1.58000	1.58000	1.000175556
Inclusive No -		SAT	02/15/2020			1.58000	1.000000000
Number of Days 30		SUN	02/16/2020			1.58000	1.000000000
Day Count ACT/360	•	MON	02/17/2020			1.58000	1.000000000
Curve		TUE	02/18/2020	02/18/2020	1.60000	1.60000	1.000044444
Curve # 490 Currency	y USD	WED	02/19/2020	02/19/2020	1.59000	1.59000	1.000044167
USD SOFR Swap Curve		THU	02/20/2020	02/20/2020	1.60000	1.60000	1.000044444
Other Inputs		FRI	02/21/2020	02/21/2020	1.58000	1.58000	1.000131667
Comp/Avge Uniform	•	SAT	02/22/2020			1.58000	1.000000000
Spread (BP)		SUN	02/23/2020			1.58000	1.000000000
Spread Use At End	•	MON	02/24/2020	02/24/2020	1.58000	1.58000	1.000043889
Index Lag	0	TUE	02/25/2020	02/25/2020	1.59000	1.59000	1.000044167
Lockout	0	WED	02/26/2020	02/26/2020	1.58000	1.58000	1.000043889
Fixing Prior	•	THU	02/27/2020	02/27/2020	1.58000	1.58000	1.000043889
		FRI	02/28/2020	02/28/2020	1.60000	1.60000	1.000133333
Outputs		SAT	02/29/2020			1.60000	1.000000000
Factor 10	0.13002	SUN	03/01/2020			1.60000	1.000000000
Effective Rate	1.56028	MON	03/02/2020	03/02/2020	1.59000	1.59000	1.000044167
Last Obs Date 03/0	6/2020	TUE	03/03/2020	03/03/2020	1.64000	1.64000	1.000045556
		WED	03/04/2020	03/04/2020	1.23000	1.23000	1.000034167
		THU	03/05/2020	03/05/2020	1.12000	1.12000	1.000031111

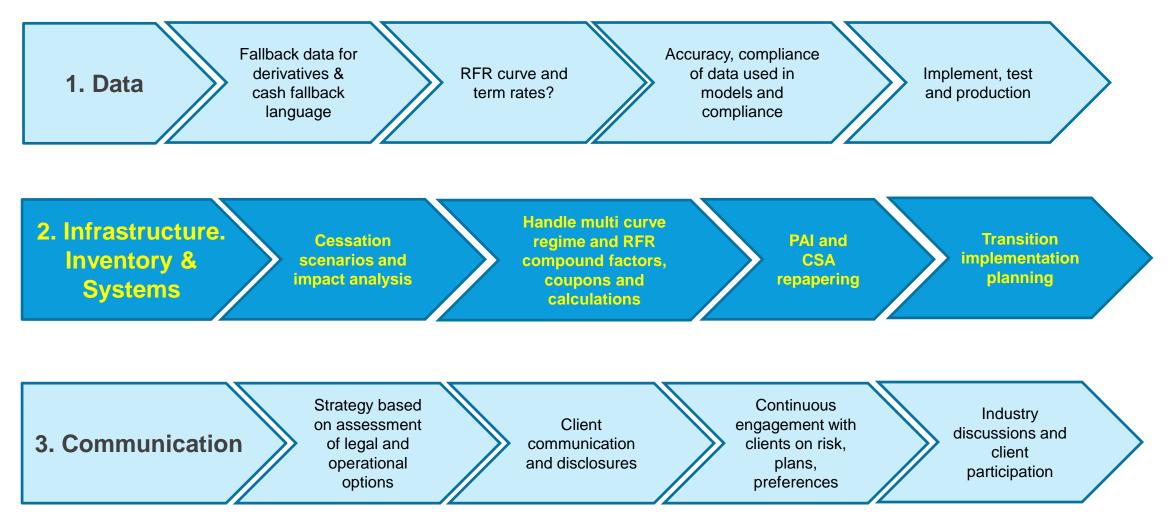


Custom Loans Application



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Summary: Benchmark Transition



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Thank You

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(IN COLLABORATION WITH THAI BANKERS ASSOCIATION AND THAI BOND MARKET ASSOCIATION)

TUESDAY, 24 NOVEMBER 2020 10:00AM – 12:45PM (ICT) / 11:00AM – 1:45PM (HKT/SGT)



Banking Panel on Implementation/Conduct Issues:



Varong Vongsinudom, First Vice President, Products Solutions and Market Innovation KrungThai Bank



Prapairat Wotticharoenvong Senior Vice President, Market Risk Management Division **Siam Commercial Bank**



Tiak-Peow Phua Executive Director, Libor Transition, Conduct, Financial Crime and Compliance **Standard Chartered**



Ryan Page Proposition Specialist **Refinitiv** (moderator) **IBOR TRANSITION SERIES:**



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TUESDAY, 24 NOVEMBER 2020 10:00AM – 12:45PM (ICT) / 11:00AM – 1:45PM (HKT/SGT)



Presentation on Local Implementation Use Case:





Mongkol Poonlapmongkol Customer Success Manager – Indochina Refinitiv Thailand

IBOR TRANSITION LOCAL IMPLEMENTATION

REFINITIV

ASIFMA Virtual Event:

Thailand IBOR Transition (in collaboration with Thai Bankers Association and Thai Bond Market Association)

24 November 2020

Mongkol Poonlapmongkol



IBOR REFORM

IBOR Reform and the transition into Risk-Free Rates (RFRs).

Problems for our customers and how we can solve these challenges.

While much of the market is expected to adopt these overnight RFRs administered by central banks, pockets of demand for term rate benchmarks based on RFRs for loans and other cash products remain.

Refinitiv is committed to provide the data and benchmarks clients need to adjust operating models across front, middle, and back offices.

To create new financial products and ensuring we meet the high regulatory standards required for benchmarks.





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<u>"ICE LIBOR</u> also known as LIBOR, the London Interbank Offered Rate, is representative of the rates at which large, leading internationally active banks with access to the wholesale, unsecured funding market could fund themselves in such market in selected currencies for certain tenors."

- LIBOR is currently produced in 7 tenors (overnight/spot next, one week, one month, two months, three months, six months and 12 months) across 5 currencies.
- It is based on submissions provided by a panel of 20 banks. These submissions are intended to reflect the interest rate at which banks could borrow money on unsecured terms in wholesale markets.

LIBOR=

LIBOR			ICE LIB	OR	LINK	ED DIS	PLAYS		
USD	230CT20	GBP	230CT20	CHF	230CT20	JPY	230CT20	EUR	230CT20
IBA	LON	IBA	LON	IBA	LON	IBA	LON	IBA	LON
ON	0.08138	ON	0.05113	SN	-0.7988	SN	-0.11667	ON	-0.583
SW	0.10275	SW	0.04213	SW	-0.8238	SW	-0.105	SW	-0.57457
1M	0.15625	1M	0.04638	1M	-0.7984	1M	-0.08233	1M	-0.56471
2M	0.188	2M	0.04775	2M	-0.771	2M	-0.06817	2M	-0.53529
3M	0.2165	3M	0.04513	3M	-0.7658	3M	-0.0995	ЗM	-0.52686
6M	0.24938	6M	0.06538	6M	-0.727	6M	-0.06	6M	-0.50757
1Y	0.33663	1Y	0.13213	1Y	-0.6176	1Y	0.04717	1Y	-0.45871

IBOR Reform



Jurisdiction	Existing IBOR	RFR	RFR Announced	RFR Administrator	Description
USA	USD LIBOR	SOFR	April 2018	Federal Reserve Bank of New York	Overnight US Treasury repo (new)
UK	GBP LIBOR	SONIA	April 2018	Bank of England	Overnight unsecured deposit (enhanced)
Euro zone	EURIBOR	€STR	October 2019	ECB	Overnight unsecured deposit (new)
Switzerland	CHF LIBOR	SARON	October 2017	SIX Swiss Exchange	Overnight repo transactions (existing)
Japan	TIBOR	TONA	December 2016	Bank of Japan	Overnight unsecured call rate (existing)
Australia	BBSW	Cash Rate (AONIA)	2017	Reserve Bank of Australia	Overnight unsecured fund (existing)
Canada	CDOR	Enhanced CORRA	November 2018	Bank of Canada	Overnight repo transactions (enhanced)
Singapore	SIBOR	SORA	August 2019	Monetary Authority of Singapore	Overnight unsecured transactions
Hong Kong	HIBOR	HONIA	April 2019	Treasury Markets Association	Overnight unsecured transactions
Thailand	THBFIX	THOR	April 2020	Bank of Thailand	Overnight private repo transactions

Challenges

Main Char	acteristics
RFRs	IBORs
Overnight Deposits	Interbank Offered Rates Overnight to 1Year
Backward looking	Forward Looking
Risk Free or Nearly Risk Free	Incorporates Credit Risk
Transaction Based	Submission, or Partly Transaction Based

IBOR Application on EIKON (WORKSPACE)

α

THBREPO=BKTH

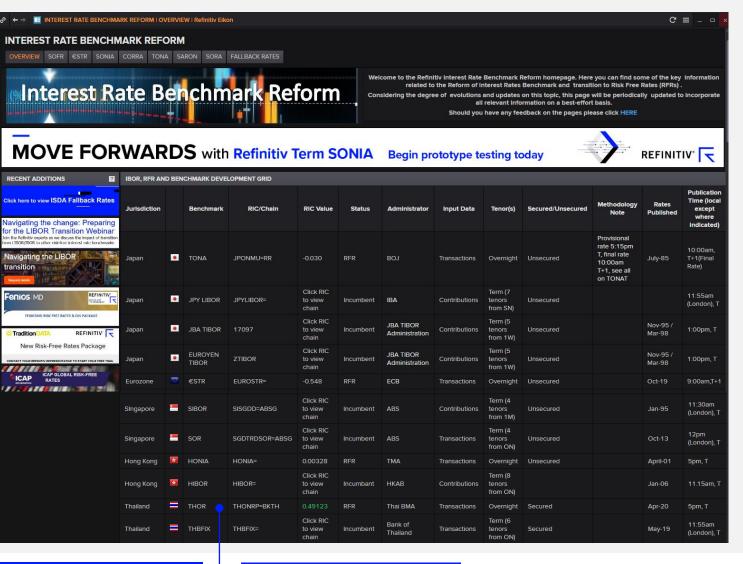
.THOR (THOR Index)

Access all new RFRs data, news, and analytics

Type **IBOR**

- E IBOR
- The IBOR Transition application keeps you up to date with global changes to interest rate benchmarks.
- Provides news and values on a variety of rates:
- Risk-free reference rates (RFRs)
- IBORs
- Brokers RFRs derivatived content (Fixing, OIS, Basis Swaps, FRAs...)
- Derived Analytics data: Term Rates, Compounded Index, Zero Curves





Click THOR to access data



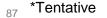
THBFIX → **FALLBACK RATE** (**THBFIX**)

*Calculation and publication of Fallback Rate (THBFIX)

BANK OF T	HAILAND THB	FIX REF	
THBFIX Bank of T	hailand Transactions- USDTHB Spot as o USDTHB Spot	f 13 NOV 2020	ponents
Announcement:			
	USDTHB Forward Po	ints as of 13 NOV 20	20
	ON SW 1M 3M 6M 1Y 20 - ^ indicates the		o lack of valid
trade for calculatio	n. Please refer to f	allback procedure	
Thai Ba	ht Interest Rate Fixi	ng (THBFIX) as of 13	NOV 2020
Teno ON SW 1M 3M 6M 1Y	r Day Count 3 7 30 92 181 365	THBFIX 0.51713 0.51150^ 0.446033 0.44484 0.41787 0.51009	
the underlying compo	hat the calculation o nents which could be e impacted THBFIX ten	fallback rates. The	remark "^" will be
current day is a Lon	based on current day don holiday, the prev Please refer to <lib< td=""><td>ious day USD LIBOR r</td><td></td></lib<>	ious day USD LIBOR r	

FIX)	FB	KTHBF	IX					FBKTH	IBFIX1N IBFIX3N IBFIX6N	1	
HBFIX						FBKTHBFI		-+			
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			9/14/2020	200912						201013	0.2
	-		9/11/2020	200911						201012	0.2
X 🗄 Exc			9/10/2020	200910						201008	0.3
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			9/2/2020	200902						201007	
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	ICAP	3M 0	.50000	0.53000	KASIKORN BK	BKK 12	2NOV20 11:0	2		0.594912	0.9911020	08:0
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Clear All Thai Baht 6 Month Overnight Index Swap US Dollar/Thai Baht Trade Base	ed 6 Month FX Fixing			0.63000	KASIKORN BK		2NOV20 11:0	21		0.684945	0.9813437	08:0
	THB							31		0.715680	0.9787570	08:0
THBTRD6MF=BKTH ■ ∨ × 0.50 THBTRD6MF=BKTH 0.41787 -0.0049 -1.15% ✓ 🏛				0.73000	KASIKORN BK		2NOV20 11:0			0.748839	0.9759157	08:0
0.48 Add Instrument		4Y 0	.80000	0.85000	KASIKORN BK	ВКК 12	2NOV20 11:0	5		0.779052	0.9731527	08:0
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Overlay Percent Change 0.38	0.492	10Y 1	.39000	1.47000	KASIKORN BK		2NOV20 11:0			0.865178	0.9598104	08:0
a 3M V Rolling Periods 0.36	0.490	— —		1.52000	KASIKORN BK		2NOV20 11:0	EV	(0.874567	0.9573048	08:0
0.34	V 0.488	l –						5Y	/3M	0.885393	0.9546725	08:0
032-007TIONS	0.486			1.55000	KASIKORN BK			51	/6M	0.897271	0.9519760	08:0
		20Y <mark>1</mark>	.48000	1.58000	KASIKORN BK	ВКК 12	2NOV20 11:0	3 5Y		0.911044	0.9491119	08:0
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		30Y 1	.48000	1.58000	KASIKORN BK	ВКК 12	2NOV20 11:0	<		0.944431	0.9428336	08:0
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SWAP CALCULATIONS

Type **"SWPR**" to open the Swap Pricer calculator

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NEW	Risk Free Rates:	ESTER, SARON, S	ofr, Sonia,	SORA and TONA	R are alrea	ady supported ur	nder Swap Type "(OIS". More cu	rrencies will get	added shortly.	
- -	THB PAY THAI	BAHT FIXED 10M SE	MI-ANNUAL BO	ND ACT/365 RE	CEIVE THA	BAHT FLOAT 10M	SEMI-ANNUAL MM	ACT/365 IN AD	VAN		
тнв	C 🔬 U			Swap Type	e Vanilla:	Fixed - Float		\sim	Start Date	Nov 17, 2020	
				Structure	e Thailan	d Semi-Annual B	ond Basis vs 6-M	ont 🗸	Tenor	5Y	
				Leg 1 Notiona	10,000	,000.00 Leg 2	2 Notional 10,000),000.00			
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3D	Nov 16, 2020	0.5026	0.5026	0.9999589	3D	Nov 16, 2020	0.5026	0.5026	0.9999589		
4D	Nov 17, 2020	0.5026	0.5026	0.9999452	3W	Dec 1, 2020	0.4952	0.4952	0.9997571		
6M	May 17, 2021	0.4249	0.4249	0.9978534	1M	Dec 17, 2020	0.4942	0.4942	0.9995421		
1Y	Nov 17, 2021	0.4263	0.4263	0.9957089	2M	Jan 18, 2021	0.4929	0.4929	0.9991138		
2Y	Nov 17, 2022	0.4859	0.4859	0.9903007	ЗМ	Feb 17, 2021	0.5017	0.5017	0.9986882		
3Y	Nov 17, 2023	0.5914	0.5914	0.9824036	6M	May 17, 2021	0.5010	0.5010	0.9974704		
4Y	Nov 18, 2024	0.7178	0.7178	0.9717005	9M	Aug 17, 2021	0.4995	0.4995	0.9962258		
5Y	Nov 17, 2025	0.8151	0.8151	0.9601356	1Y	Nov 17, 2021	0.5531	0.5531	0.9944396		DEEINIT



FALLBACK SOFR

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			FED FUNDS			USONFFE=		0#FF:		
			SOFR - 1M COMF	POUND INDEX		SOFR1MAVG=				
			SOFR - 3M COMF	POUND INDEX		SOFR3MAVG=				
BROKER CON	ITENT									
SUPPLIER	ois	OIS (FOMC)	SOFR/1M LIBOR	SOFR/3M LIBOR	SOFR/3M LIBOR (IMM)	SOFR/FED FUNDS	SOFR/FED F (IMM)	UNDS	FRA/OIS SPREADS	FRA IRS IMM (IMM DATE)
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RCM 19901	USDSROIS=RCM			USDSR3LBS=RCM	USDSR3LBSIM=RCM	USDSRFFBS=RCM	USDSRFFBS	IM=RCM		
SWAPPX	USDSROIS=SX			USDSR3LBS=SX		USDSRFFBS=TRDL USDSRFF		IM=SX		
TRADEWEB	USDSROIS=TWEB			USDSR3LBS=TWEB		USDSRFFBS=TWEB	В			
TRADITION	USDSROIS=TRDL		USDSR1LBS=TRDL	USDSR3LBS=TRDL		USDSRFFBS=TRDL	SDSRFFBS=TRDL			
TULLETT PREBON	USDSROIS=TPSR	USDSROIS=TPSR		USDSR3LBS=TPSR		USDSRFFBS=TPSR			USIMOFSRSP=TPSR	
	ALLBACK RATES	Fallback			Spread				Adjus	sted Reference
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1M	USD1MFSRF	=ISDA	12-Oct	-2020	USD1MFSRS=ISD/	A	1:	2-Nov-202	20	USDSOFR1M=ISDA
2M	USD2MFSRF	=ISDA	11-Sep	-2020	USD2MFSRS=ISD/		1:	2-Nov-202	20	USDSOFR2M=ISDA
зм	USD3MFSRF	=ISDA	12-Aug	j-2020	USD3MFSRS=ISD/		1:	2-Nov-202	20	USDSOFR3M=ISDA
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12-Nov-2020

12-Nov-2019



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TERM SONIA

Refinitiv, IBA, and FTSE-Russell for administer a forward looking GBP LIBOR alternative

Refinitiv	IBA	FTSE-Russell	IHS Markit	Perspectives	
\checkmark	\checkmark	\checkmark	×		
• 1M, 3M, 6M,12M	• 1M, 3M, 6M	• 1M, 3M, 6M, 12M	• 1M, 2M, 3M, 4M, 5M, 6M, 12M	 Refinitiv, IB/ designed ra 	
OIS committed quotes TD IOAD iOuron	OIS committed quotes TD ICAD Stream	OIS committed	Spot starting and forward starting	consistent v recommend	
•	1 7	•	0	recomment	
		•		 Refinitiv have 	
				_ peers	
OIS last look quotes	 SONIA-linked futures 	• N/A	 Futures data 	– 12M teno	
Tradeweb	 settlement prices¹ ICE Futures 			Trade Fin	
• SONIA	• N/A	• N/A	• SONIA	– – Superior I	
• 40 snaps in 30 second	24 snaps in 5 minute	• 30 snaps in 20 second	 Not specified 	vs. IBA ar	
intervals	intervals	intervals		means m	
• 10:50-11:10UK	• 2-hour	• 10:55-11:05UK	• 24-hours	-	
• 11:50UK	• 11:56UK	Not specified	 Not specified 	_	
	 IM, 3M, 6M,12M OIS committed quotes TP ICAP iSwap & Tradition Trad-X OIS last look quotes Tradeweb SONIA 40 snaps in 30 second intervals 10:50-11:10UK 	 IM, 3M, 6M, 12M IM, 3M, 6M, 12M OIS committed quotes TP ICAP iSwap & Tradition Trad-X OIS last look quotes Tradeweb SONIA ICE Futures ICE Futures SONIA N/A 40 snaps in 30 second intervals 10:50-11:10UK 2-hour 	 M, 3M, 6M, 12M 1M, 3M, 6M 1M, 3M, 6M 1M, 3M, 6M 1M, 3M, 6M 1M, 3M, 6M, 12M OIS committed quotes TP ICAP iSwap & Tradition Trad-X OIS committed quotes TP ICAP iSwap & Tradition Trad-X OIS last look quotes SONIA-linked futures settlement prices¹ ICE Futures SONIA N/A N/A A0 snaps in 30 second intervals 10:50-11:10UK 2-hour 10:55-11:05UK 	Image: Mark Source of the system of the s	

Withdrew intention to administer term reference rates

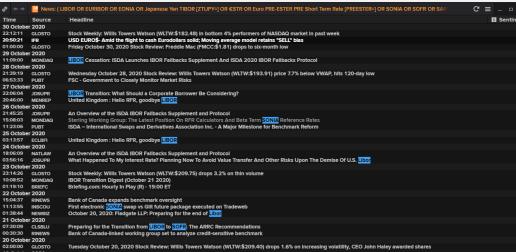
- Refinitiv, IBA and FTSE Russell designed rates that are consistent with Working Group recommendations²
- Refinitiv have differentiated vs. peers
 - 12M tenor aids adoption in Trade Finance market vs. IBA
 - Superior back up data source vs. IBA and FTSE-Russell means more robust

EXCLUSIVE LIBOR TRANSITION NEWS

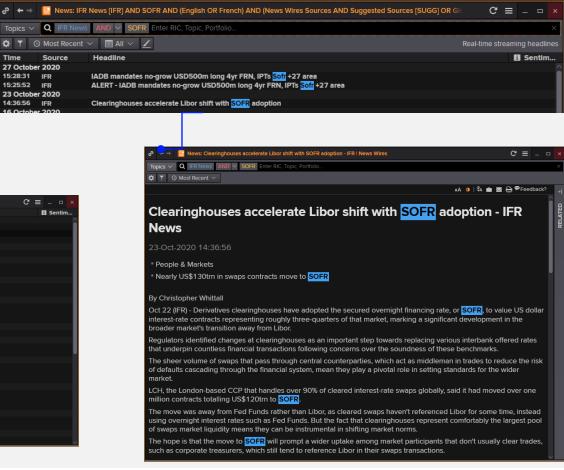
Browse Reuters News and IFR to find the latest information on LIBOR transition and new RFRs

Click **Pop Up from the IBOR App** to see the News, set up an Alert, save it to your Workspace...

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Articles and analysis from IFR, enter IFR AND "SOFR"





Time

International Financing Review (IFR) Leading FI, capital markets, investment banking news and commentary



Operational Infrastructure

- Existing infrastructure includes a lot of legacy software that are based on forward looking cashflows
- Usage of overnight rates –Transaction parties do not know the accrued amount on loans/derivative products AHEAD of time
- Current infrastructure in banks and financial institutions are not equipped to seamlessly transition to churning out computations.
- Need changes to two types of financial infrastructure Loans + Derivatives operational infrastructure
- How does one make changes to the existing loan machinery, that is geared towards volume and consistency ?

Conventions and Complexities

- Usage of the rates that are published by different authorities at different times. When to synchronize the rates ?
- Portfolio will comprise LIBOR linked and RFR linked products. It raises the bar to efficiently compute metrics quickly.
- Terminology is evolving + Various combinations of features are being evaluated by practitioners
- Systems Impacted across Treasury, Loans, Finance, Billing, Accounting, Tax

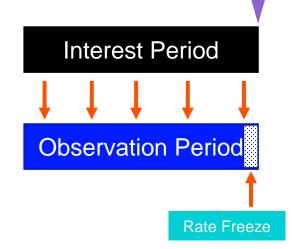
COMPOUNDING APPROACHES

What are the three common approaches ?

- Based on the type of cash product or derivative, there could be multiple ways to put in a payment structure
- Key Decision variables : What is the Observation Period ? What is the Interest Period ? What is the lag / lockout ?

Payment Delay with Lockout

- Interest Rate value frozen a few days before the payment date
- Floating Rate Notes (2-5 days)
- SOFR-referenced Floating Notes



Lookback

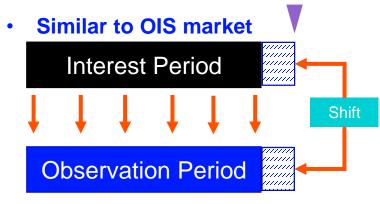
- Interest Rate value lagged by a certain number of business days
- Standard Lag is 5 business days
- SONIA/SORA-referenced Floating Notes

Interest Period
Observation Period

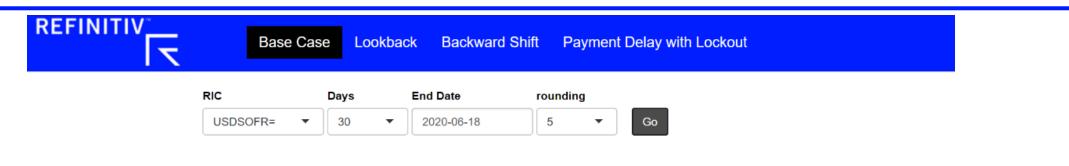
Lag

Backward Shift

- Interest Rate values and Interest Period is shifted backwards
- Standard Shift is 5 business days



COMPOUNDED RATES CALCULATIONS



Compounding Factor in % = 0.064

Underlying Data and Computations

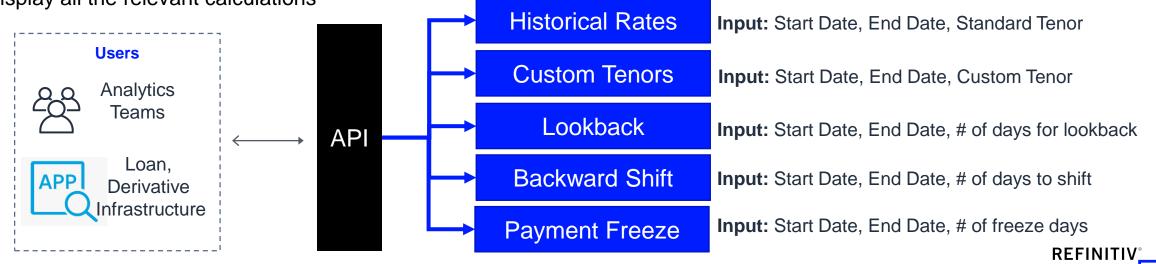
#	Day	Date	Rate Date	Effective Rate(%)	Days	Weight(Days/N)	Compounding Factor
1	Wed	2020-05-20	2020-05-20	0.01	1	0.002777778	1.000000
2	Thu	2020-05-21	2020-05-21	0.02	1	0.002777778	1.000001
3	Fri	2020-05-22	2020-05-22	0.04	4	0.01111111	1.000004
4	Sat	2020-05-23	2020-05-22				
5	Sun	2020-05-24	2020-05-22				
6	Mon	2020-05-25	2020-05-22				
7	Tue	2020-05-26	2020-05-26	0.06	1	0.002777778	1.000002



CENTRALIZING ACCESS, API

Addressing the challenge at the Enterprise level

- Unified analytics so that firms can access these analytics via API or FTP based flat-file download option
- Market data providers have access to all the underlying data needed and can provide reliable and robust capabilities
- Cloud delivery provides a unified API into existing infrastructure with no additional hardware footprint
- Retrieve historical RFR averages published for standard tenors
- Retrieve RFR compounding factors for flexible compounding periods to price non-standard interest cycles
- Retrieve RFR compounding factors for Lookback, Payment Freeze and Observation Shift methods
- Display all the relevant calculations

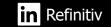


THANK YOU

Refinitiv is one of the world's largest providers of financial markets data and infrastructure, serving over 40,000 institutions in over 190 countries. It provides leading data and insights, trading platforms, and open data and technology platforms that connect a thriving global financial markets community – driving performance in trading, investment, wealth management, regulatory compliance, market data management, enterprise risk and fighting financial crime.









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Growing Asia's Markets

A LOCAL MARKET PERSPECTIVE THAILAND IBOR TRANSITION

(IN COLLABORATION WITH THAI BANKERS ASSOCIATION AND THAI BOND MARKET ASSOCIATION)

Co-hosts



(IN COLLABORATION WITH THAI BANKERS ASSOCIATION AND THAI BOND MARKET ASSOCIATION)

TUESDAY, 24 NOVEMBER 2020 10:00AM – 12:45PM (ICT) / 11:00AM – 1:45PM (HKT/SGT)



Closing Remarks:



Prut Sukcharoennukul Account Director Refinitiv Thailand **IBOR TRANSITION SERIES:**



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Q&A





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Thank you for attending!

Please stay tuned for updates on our other virtual events.



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