Tackling LIBOR transition

FS NED virtual series *Staying connected*





Welcome

Presenters



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PwC | LIBOR and Reference Rate Reform

PwC has been at the forefront of the LIBOR Transition



Insights from industry and regulatory linkages

We're closely engaged with multiple trade associations and alternative reference rate working groups. As industry thought leaders, we've led multiple LIBOR forums and surveys. This session has been crafted from our insights and lessons learned on challenges, as well as opportunities these create on the road ahead. Our leadership participation includes:

- Industry groups such as SFA, ISDA, LSTA, SIFMA, AFME and LMA
- Subgroup members of the ARRC, WG on Sterling RFRs, WG on Euro RFRs, SORA WG in Singapore, Taiwan Bankers Association, the Indian Banking Association and invitees to the SARB MPG Working Group
- Engagement with SARB, FASB, SEC and IASB

LIBOR 101

What is LIBOR?

- Is an acronym for the London Interbank Offered Rate and has been called "the world's most important number"
- Is a "reference" (or benchmark) *interest rate*
- Was first published on January 1, 1986
- Is published daily at *approximately* 11:45 am (Greenwich Mean Time) by the ICC Benchmark Administration (IBA) ("the administrator")
- Is determined by Panel Banks based on the rate they would lend to one another - LIBOR is *not* entirely based on real transactions
- Is calculated by Panel Banks using a "waterfall" methodology
 - Level 1: Transaction Based
 - Level 2: Transaction-Derived
 - Level 3: Expert Judgment
- Is issued in five currencies and in seven different maturity dates
 - USD, EUR, JPY, GBP, and CHF
 - Overnight, 1 week, 1 month, 2 months, 3 months, 6 months, and 12 months
 - Combination of 5 currencies and 7 maturities means that 35 different LIBOR rates are calculated (which highlights the complexity of the effort)



From IBOR to Alternative Reference Rates

An overview of the preferred risk-free reference rate (RFR) for each jurisdiction.

	SOFR	SONIA	€STR	+ SARON	
Selected Alternative Rate	SOFR (Secured Overnight Financing Rate)	SONIA (Reformed Sterling Overnight Index Average)	€STR* (Euro Short-Term Rate)	SARON (Swiss Average Rate Overnight)	TONA* (Tokyo Overnight Average rate)
Working Group	Alternative Reference Rates Committee (ARRC)	Working Group on Sterling Risk-Free Rates	Working Group on Euro RFR	National Working Group on Swiss Franc reference rates (NWG)	Cross-Industry Committee on JPY Interest Rate Benchmarks
Administrator	Federal Reserve Bank of NY	Bank of England	European Central Bank	SIX Swiss Exchange	Bank of Japan
Data Source	Triparty repo from FICC, GCF from FICC bilateral	Form SMMD collected by BoE	MMSR	CHF interbank repo	
Nature	Secured	Unsecured	Unsecured	Secured	Unsecured
Methodology	Fully transaction- based	Fully transaction- based	Fully transaction- based	Transaction and binding quotes-based	Fully transaction- based
Overnight vs. Term	Overnight	Overnight	Overnight	Overnight	Overnight
Term Rate Availability	Targeted for 1H 2021, moved up from original target date of EOY 2021	Live since January 11, 2021	WG recommended OIS quotes based methodology for forward term rate	Use of compounded SARON recommended - robust term rate seen as unlikely	Planned: a vendor to calculate term rates has been selected and publication is expected by mid 2021
Go-Live Date	April 3, 2018	April 23, 2018	October 2, 2019	Published since 2009	Published since 1992

*Expected to co-exist with local IBOR in multi-rate environment

FICC: Fixed Income Clearing Corporation, GCF: General Collateral Financing, MMSR: Money Market Statistical reporting, SMMD: Sterling Money Market data collection reporting

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State of the market

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Different product categories face different paths to rate remediation and new product offerings

Level of Exposure (in USD Trillions)*	Level of Exposure (maturity >2021 in USD Trillions)*	Relative risk ranking of contract modification route for legacy products	New RFR Products
190	34	Bilateral negotiation IBOR Fallback Protocol	
3.4	0.6	Bilateral negotiation	
1.3	0.5	Unilateral (Lender Rights)	
3.1	0.3	Multilateral	
1.8	0.3	Multilateral	
	(in USD Trillions)* 190 3.4 1.3 3.1	(in USD Trillions)* (maturity >2021 in USD Trillions)* 190 34 3.4 0.6 1.3 0.5 3.1 0.3	Level of Exposure (in USD Trillions)*Level of Exposure (maturity >2021 in USD Trillions)*contract modification route for legacy products19034Bilateral negotiation IBOR Fallback Protocol3.40.6Bilateral negotiation IBOR Fallback Protocol1.30.5Unilateral (Lender Rights)3.10.3Multilateral

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Global IBOR Transition Programs At a Glance

The IBOR transition programs have different levels of maturity across the globe. Most of the banks in North America and Europe have already completed their impact assessment and started their remediation, while impact assessments are still ongoing or just initiated for banks in APAC.



Largest Banks

- Initiated programs
- Established governance
- Completed impact assessments •
- Begun remediation activities late in 2018 early 2019



United States

Majority FIs

- Initiated programs
- · Governance established
- Impact assessments complete
- · Initiated client outreach

Advanced FIs

- · Added contract fallback language to new LIBOR deals
- · Issued RFR-linked product
- · Half-way through remediation of models and IT systems

FED/OCC LIBOR discussions

SEC LIBOR Statement



- Dear CEO Letter (FCA) issued in February 2020 to asset management firms
- Dear CEO Letter (UK) issued in September 2018
- Established governance
- Completed impact assessments
- Inventoried impacted systems and models
- Inventoried impacted contracts
- Initiated RFR Trading capabilities .
- Dear CEO Letter (ECB) issued in July 2019



South Africa

SARB has recommended that a term-deposit

inter-bank transactions be considered as a near

benchmark be introduced and considered a possible

alternative to Jibar and ZARibor, based on overnight,

Initiated programs

risk-free rate

- Large domestic FIs and inbound banks have initiated programs,
- Established governance and completed/ ongoing impact assessment
- Launched remediation workstreams
- JSFA/ BOJ initiated survey in early 2020 and Dear CEO Letter in June 2020



- HKMA circular issued in March 2019
- Initiated programs
- Ongoing impact assessment
- MNCs banks more advanced than local banks
- 1st SOFR Loan issued by BOC HK to a corporate



Singapore

- MAS letter issued in March 2019
- Large local banks established programs
- Ongoing impact assessment
- New product development on RFRs
- Management of basis risks and ALM

Australia

- ASIC issued a LIBOR-focused dear CEO letter in May 2019 and another specific to large corporates in May 2020.
- Tier II FIs and local asset managers standing up programs
- Larger FIs well progressed in program
- Increasing response focus inc. BBSW

Source: PwC **PwC | LIBOR and Reference Rate Reform**

Brazil

- IR-Swaps)
- IR Swaps represent ~1% of Deriv. market
- 75% of swap contracts will expire by 2021
- Reconsidering existing RFRs
- Low trade volume of LIBOR-linked products (only

Market Update - South Africa

	Rate	Key Features	Administrator	Working Group
Proposed Alternative Rate	Reformed JIBAR (transitional)	Transaction based rate - comprising NCDs and NBFC deposits		
	Undefined Risk inclusive reference rate	Risk-inclusive reference rates - used for the pricing of unsecured on-balance sheet (Jibar-linked) items		
	Sabor Money Market (Reformed SABOR)	Eligible overnight unsecured funding from all banks, including funding obtained at the prevailing repo rate, but excluding overnight FX swaps		
	Term deposit benchmark (alternative to reformed JIBAR)	Leverage deposit data more exhaustively (interpolated benchmarking methodology) - considered a fall-back when there is insufficient data within std maturity buckets	SARB (Alternative Rates)	MPG (Reference Rates)
Proposed Risk Free Alternative Rate	ZARibor	Eligible overnight interbank transactions from all banks (considered to be near Risk Free)		
	South African Overnight Index Average (ZARONIA)	Unsecured overnight rate based on call deposits rate to be used for cash and derivative instruments.		
	South African Secured Financing Rate (ZASFR)	Secured rate calculated based on supplementary repos conducted with the SARB as well as o/n funding in the GB repo market.		
	Government Bond (GB) Repo	Overnīgnī rīsk īree rate		

LIBOR & Other Reference Rate Reform Timeline

	Jul 2014	Working Group	Administrator	
Jul 2017	FSB Benchmarks Report initiating changes	Working aroup	Actimited et el	
FCA Andrew Bailey speech	Dec 2017			
Feb 2018	Switzerland moves overnight rate from TOIS to SARON			
ISDA Roadmap released	Apr 2018			
Q2 2018	SOFR and reformed SONIA published			
SOFR & reformed SONIA futures	Jul 2018			
launch First issuance linked to SONIA (EIB) Sep / Oct 2018	First SOFR swaps clear on LCH First issuance linked to SOFR (FNMA) ISDA consultation on fallbacks			
Responses due for fallbacks & term	Consultation on term SONIA rates	•		
SONIA reference rates consultations CME offers SOFR discounting	Dec 2018		MPG	SARB
Dec 2018	COEP manufacture to a thread and		(Alternative	
ARRC guidelines on fallback language for		Rates) Rates)		
cash products	SARB publishes report on stakeholder feedback			
Oct/Nov 2019	on the reform of interest rate			
ESTER published	benchmarks in South Africa			
SARB Technical Paper and MPG timeline communication expected Q2 2021	EU Benchmark authorization			
CCPs change PAI to alternative o/n rate for cleared trades	Q4 2021			
	SOFR term rate published			
Dec 31, 2021	SOFA term rate published			
End of agreement with				
contributor banks to submit LIBOR				

Transition impacts

What makes the transition from LIBOR so difficult?

LIBOR transition is a structural **market / business change** - rather than a regulatory driven mandate. Many market participants fail to appropriately make this distinction.



Ubiquitous

Everyone, everywhere

- \$200 trillion of bonds, loans and derivatives indexed to USD LIBOR
- \$350+ trillion across USD, GBP, EUR, CHF, JPY
- All parts of the organization affected: business, operations, treasury, risk, etc.
- Impacts all forms of FS and non FS companies, social entities, governments

Uncertainty

High degree of uncertainty over short time frame

· Evolution of term rates

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- Different LIBOR currencies, products moving at different speeds
- Depth and breadth of liquidity
- Quality, timing of fallback language
- Existence and adoption of derivatives, other reference rates
- Role of regulators is evolving
- Capacity of industry to handle



Operationally Complex

Dynamic, operationally intensive and technical problem

- Functionally different curves that develop at different times
- Dynamic- dependencies on market evolution
- Dependencies on accounting, tax and regulatory relief, calculation of value transfer
- · Multijurisdictional

How are the new risk-free rate products different from an operational support perspective?

1 Term vs. overnight rates

LIBOR as forward starting term rates, bank credit risky; Reformed rates as overnight arrears setting secured rates

Publication time

LIBOR published 11am London on T; Reformed rates T+1 for prior day transactions at different times.

03 Reference rate linkage in contracts

LIBOR term rates directly referenced; Reformed rates payouts typically linked to averaged or compounded rates paid periodically

04 Accruals

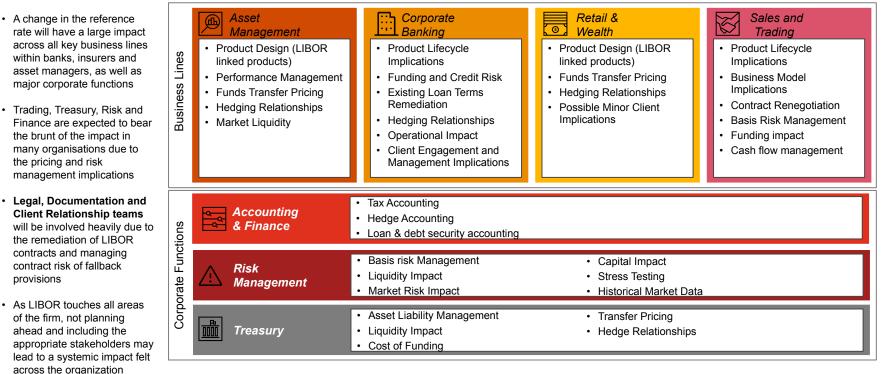
LIBOR term rates known at the start of the reset period; Accrual based on incurred to date, or pro-rata share of market implied forward

5 Evolving Market

LIBOR largely known; New markets have evolving term structure, product innovation, liquidity, supply & demand

How this will impact your entire organisation?

As your organisation begins to internalise the reference rate reform, it is important to understand the organisation-wide impact it will have – impacting business strategies, client management, operational processes and technology infrastructure across the board.



Market progress

Speed of transition is determined by the slowest movers

Firms' level of preparedness appears generally commensurate with their perceived level of LIBOR exposure.

Others will solve this

Corporates

- · Expect lenders to manage transition
- Recognize obvious implications, but may find it challenging to identify full impacts
- Limited understanding of value transfer impacts and cash and derivative instrument basis risks
- Typically fewer transactions per institution

Wait and see...

Small Banks, AMs, Insurers

- · Wide range of level of preparedness
- Some have yet to complete analyses...others waiting for industry standards to evolve
- Potentially more sanguine privately than publicly over replacement rates
- Range of exposures across LIBOR, Prime

Hurdles exist at every level

Evolving awareness of E2E impacts & interim milestones

- Continue to gain awareness and increase engagement
- Grasping all downstream impacts to systems, processes and executory contracts at times challenging
- Transition initially seen as "end of 2021" event interim milestones over the next 3-12 months coming into focus now

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Holding out for term rates & dynamic credit spread, face operational hurdles

- Reluctant to lend still hoping for term rates and dynamic credit component to link to existing strategies
- Assessing impacts to investment strategy
- Vendor capabilities not fully in place yet
- Require manual workarounds to support new RFRs
- Resources stretched amid Covid-19



In order to see LIBOR exposures reduced, increased engagement from a broader set of market participants is critical

On track - plan vs. mkt evolution

Large Banks

- · Strategy in place, "execution" well under way
- · Tend to be RFR WG members, dedicated resources

Progress slowed by lack of engagement from smaller market participants

- Need large corporates to be engaged in transitioning legacy contracts and participate in new RFR lending
- Increasing concern over the volume of transactions to transition in an increasingly compressed timeframe
- Many dependent on vendor platforms in core lending space and consequently time constrained

LIBOR Transition: What organizations are doing

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	Mobilise a LIBOR Transition program, governance structure, and workstreams. Draft overall transition roadmap and budgets. Define transition scenarios and develop risk mitigation strategies.	Program Structure, Governance and PMO
	Conduct qualitative and quantitative impact assessments across all business areas and functions. Develop process to monitor LIBOR exposure on an ongoing basis.	Impact Assessment
	Define business strategy for transitioning legacy products and developing new RFR products, including evaluation of economic impacts and new product approval processes.	New Benchmark Markets & Product Transition
	Identify, inventory, and digitize affected contracts. Develop contract remediation strategy for different types of contracts & re-negotiate as appropriate. Update contract language for new deals.	Contract Remediation
	Develop client strategy, including client segmentation, to take advantage of client and relationship opportunities. Manage internal and external outreach, education, and communications.	Client Strategy, Outreach and Communications
@ [®]	Define requirements for and implement changes to systems and processes, including vended solutions, market data feeds, and business processes to enable alternative RFR processing.	Systems & Process Changes
	Update and re-validate pricing and risk management models, including curve construction, discounting, and valuation.	Models & Risk Management
60	Update financial reporting and accounting processes in accordance with industry guidance. Evaluate tax impacts and update strategy to mitigate impacts.	Financial Reporting & Tax

PwC - How can we help you?

Moving away from LIBOR - The PwC advantage

We're the advisor of choice globally

We hold a market leading **position** supporting clients through their LIBOR transition programs. At PwC we're fully engaged with our sell-side and buy-side clients, as well as with central authorities. Our teams are working with organizations both on LIBOR transition programs and business program support and legal services. As a "one stop shop", we're recognized for the value we bring through relevant perspectives on all aspects of a LIBOR transition program.

Successful G-SIB and FS track record

The PwC network is well coordinated, with lead partners in the US, UK, EMEA, APAC and the rest of the world. We bring the firm's global thinking together to support LIBOR transition programs at G-SIBs and large financial institutions.

The right mix of technology and people

Clients benefit from both PwC's proprietary digital accelerators and tools offered via JBRs. This equips us to employ the right technology for the right use case, remain highly scalable and cost effective and adapt to regional differences.

Our industry and regulatory insights

We're closely engaged with trade associations and alternative reference rate working groups. As thought leaders, we've hosted multiple LIBOR transition events such as roundtables and webinars. Clients benefit from our insights on challenges as well as opportunities on the road ahead.

Capabilities of our global LIBOR transition practice

Our dedicated working group consists of experienced professionals with industry leading banking and financial instruments knowledge, enabled by customized technology. PwC's LIBOR transition specialists assist clients across multiple transition workstreams and dimensions, tackling change with limited organizational disruption.

Enablers across the project cycle Industry and regulatory engagement Industry groups such as ISDA, SFA, LSTA, SIFMA, AFME and LMA Al and NLP tools for contract discovery, digitization and analysis Subgroup members for the Alternative Reference Rate Committee, LIBOR Quantitative Analysis tool LIBOR Impact Assessment Question Library the WG on Sterling RFRs, the WG on Euro RFRs, SORA WG · Playbooks and digital tools for contract remediation, client 跷 in Singapore, Taiwan Bankers Association and outreach and communication Indian Banking Association **Clients Supported** Completed and ongoing Countries have PwC LIBOR 75+ 50 global engagements globally transition teams Our LIBOR transition footprint now, and growing... Leading BCM organizations 10+40 +**G-SIBs** supported

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served globally

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