THE INVESTMENT ASSOCIATION

OLIVER WYMAN

LIBOR TRANSITION ROADMAP FOR INVESTMENT MANAGERS

February 2019

The Investment Association (the "**Association**") has made available to its members the LIBOR Transition Roadmap for Investment Managers (the "**Guidance**"). The Guidance has been made available for information purposes only.

The Guidance does not constitute professional advice of any kind and should not be treated as professional advice of any kind. Firms should not act upon the information contained in the Guidance without obtaining specific professional advice. The Association accepts no duty of care to any person in relation to this Guidance and accepts no liability for your reliance on the Guidance.

All the information contained in this Guidance was compiled with reasonable professional diligence, however, the information in this Guidance has not been audited or verified by any third party and is subject to change at any time, without notice and may be updated from time to time without notice. The Association nor any of its respective directors, officers, employees, partners, shareholders, affiliates, associates, members or agents ("**IA Party**") do not accept any responsibility or liability for the truth, accuracy or completeness of the information provided, and do not make any representation or warranty, express or implied, as to the truth, accuracy or completeness of the information in the Guidance.

No IA Party is responsible or liable for any consequences of you or anyone else acting, or refraining to act, in reliance on this Guidance or for any decision based on it, including anyone who received the information in this Guidance from any source and at any time including any recipients of any onward transmissions of this Guidance. Certain information contained within this Guidance may be based on or obtained or derived from data published or prepared by third parties. While such sources are believed to be reliable, no IA Party assumes any responsibility or liability for the accuracy of any information obtained or derived from data published or prepared by third parties.

The Investment Association
Camomile Court, 23 Camomile Street, London, EC3A 7LL

www.theinvestmentassociation.org

@InvAssoc

February 2019

© The Investment Association (2019). All rights reserved.

No reproduction without permission of The Investment Association.

CONTENTS

Executive Summary 04

Section 1: The Impacts And Challenges For Investment Managers 06

Section 2: Planning For The Transition 14

Section 3: Recommended Timeline 17

Appendix: A: Glossary And Definitions 18

B: Background And Context To LIBOR Transition 19

C: Detailed Transition Plans And Current Status Of Investment Managers 23

EXECUTIVE SUMMARY

BACKGROUND AND CONTEXT TO THE LIBOR TRANSITION

In 2017, the FCA announced plans to stop compelling banks to submit to LIBOR by the end of 2021. Since then, regulators and market participants around the world have come together to develop comprehensive transition plans.

Global coordination across jurisdictions, currencies and asset classes is critical to the success of this process. US regulators have indeed stated that firms should prepare for discontinuation, and in the UK, in September 2018, the PRA and FCA sent "Dear CEO" letters to large banks and insurers asking for board-approved plans for the transition away from LIBOR to the new selected risk-free rate SONIA. In the Eurozone, new European Benchmark regulation also threatens to limit the usage of EONIA and potentially Euribor, possibly as early as at the end of 2019. The pressure from regulators and clients to shift away from LIBOR and similar rates will only increase over the next few years.

Transition is going to be complex. Over USD 240 TN[1] in notional volumes currently reference LIBOR, including derivatives, bonds, securitised products, corporate & syndicated loans, and even some residential mortgages. New alternative rates to LIBOR have been identified – SOFR, SONIA, SARON, TONAR, and ESTER – but are structurally different. Existing fallback language to be used if LIBOR is unavailable was intended for short term use and is not suitable for complete cessation. Unless derivatives, Floating Rate Notes and other financial instruments are proactively transitioned to other reference rates, there will be value transfer, and as a result there will be winners and losers from the transition, as contracts move to new reference rates.

IMPACT ON INVESTMENT MANAGERS

Investment managers currently use LIBOR in three main ways, each of which will need to be carefully managed through the transition.

First and foremost, managers hold LIBOR based products in their portfolios. 80% of respondents to a recent survey of IA members stated that they use LIBOR based derivatives for hedging. Many firms will also hold LIBOR-based Floating Rate Notes, securitisations, or private debt. Transition of the investment portfolio will need to be carefully overseen to ensure no client value is lost.

Second, managers use LIBOR as a benchmark or performance target for their funds or mandates, particularly in alternatives, asset allocation/ absolute return funds, and fixed income funds. 90% of respondents to the IA survey stated that they use LIBOR as a benchmark for at least one fund. The benchmarks and targets will need to be transitioned while avoiding the appearance of inflating measured performance.

Finally, investment managers use LIBOR as an input into various calculations, systems, and models for operations and administration. Many valuation models, risk models, and pricing models will need to be updated, working with third party providers where needed.

Investment managers therefore face a number of LIBOR transition risks, including economic risk from poor handling of their client portfolios, operational risks, and conduct and legal risk with clients and counterparties.

[1] Source:Oliver Wyman analysis, data as available as of December 2017

PLANNING FOR THE TRANSITION

Many investment managers have a critical and difficult body of work ahead of them over the next few years to manage and reduce transition risks. Not all of this work can be started now – much will depend on the development of market conventions and liquidity over the coming years. For example, liquidity will need to develop in relevant cash and derivative markets, and market solutions will need to emerge for how bonds are transitioned. However, given the size and risk of the work, investment managers should urgently be initiating programmes, and starting work on the areas that can be addressed, including:

- Mobilising a project with dedicated resources to address transition
- Building an inventory of exposures, and understanding of the economic impact and operational impact
- Beginning transition of investment activity where there is sufficient liquidity (e.g. GBP derivatives)
- Internal and external communications and awareness-raising, including engagement with working groups and industry bodies as well as clients

PURPOSE OF THIS DOCUMENT

This document serves as a guide for IA members to prepare for LIBOR transition and has been developed in collaboration with Oliver Wyman.

The findings are based on a survey of IA members, interviews with a selected investment management firms, and content developed as part of Oliver Wyman's Global LIBOR transition platform.

SECTION 1
IMPACTS AND CHALLENGES FOR INVESTMENT MANAGERS

Transition will impact investment managers in three main areas: **investment portfolio, fund benchmarks, and operations**.

The large majority of investment managers hold LIBOR-based products in their investment portfolios. 80% of respondents to the IA survey stated that they use LIBOR for hedging. A large number will also use LIBOR for floating rate cash products like FRNs, ABS, and syndicated loans. Investment managers still depend on these LIBOR-based products; there is not yet sufficient liquidity in many markets to switch to new rates. SONIA swap markets are starting to be liquid enough to transition swap activity away from LIBOR, but in other products (e.g. bonds) and currencies (e.g. USD), the liquidity and transaction volumes still lag far behind LIBOR. For example, as of February 2019 there have only been a handful of SONIA or SOFR FRN issuances.

These exposures present a problem because when LIBOR ends, the economics and value of these products will change. Currently there are a range of different terms ("fallbacks") which trigger if LIBOR becomes unavailable, used in different products and contracts. These fallbacks were generally designed for short-term interruptions, not for situations where LIBOR would be permanently discontinued. They can create large changes to the economic value (e.g. by switching from a floating to a fixed rate) or create operationally untenable situations (e.g. polling brokers for every settling contract).

Outside of the investment portfolio, a large share of investment funds and mandates also use LIBOR or other related benchmarks as a performance benchmark or target. For example, 20% of alternatives funds and 10% of money market funds use LIBOR, EONIA (which is also likely to be discontinued) or EURIBOR as a benchmark.[2] Managers will need to transition these fund/mandate benchmarks to new rates before the end of LIBOR, and manage any implications on performance fees and compensation. This transition will require finding an appropriate equivalent level for spreads, given the structural difference between rates.

In addition, investment managers use LIBOR across a wide range of operational processes, including front office calculations and models, finance systems and risk systems. Third parties that investment managers rely on, like custodians or fund administrators, also use LIBOR as a key input to the services they provide. Managers will need to go through a careful exercise of inventorying and updating models and systems to make sure that when LIBOR ceases, operational processes do not break down.

As a result of these uses, transition creates a wide spectrum of risks for investment managers. These include economic risks, such as the risk of transfer of value from clients to counterparties through inappropriate fallback language. Managers also face operational risks, such as the risk of systems being unprepared to trade new overnight-rate-based FRN products. Finally, there are important conduct and legal risks, such as the risk of counterparties suing over fallback terms, or clients claiming they were not informed of risks of transition.

[2] Source: Morningstar, Oliver Wyman analysis

INVESTMENT MANAGERS CURRENTLY USE LIBOR IN THREE WAYS, EACH OF WHICH WILL NEED TO BE CAREFULLY MANAGED THROUGH THE TRANSITION

TYPE OF USE	DESCRIPTION & EXAMPLES	KEY INSIGHTS FROM IA MEMBER SURVEY[3]
1 **Investments:** Managers hold LIBOR-based products	• Floating-rate investments often use LIBOR to determine interest payments – Floating rate notes – RMBS and other ABS – Syndicated loans • Swaps and other interest rate hedging derivatives are typically also LIBOR-based	**80%** of respondents to a survey of Investment Association members use LIBOR for hedging
2 **Benchmark:** Managers use LIBOR as a target or benchmark for funds and mandates	• Benchmarks and performance targets often reference LIBOR, particularly for Fixed Income, Alternative, Allocation, and Money Market strategies[4] • Even benchmarks that do not directly reference LIBOR, may reference indices based on LIBOR	**90%** of survey respondents use LIBOR as a benchmark in at least one fund or mandate **5%** of funds[5] by AUM use LIBOR, EURIBOR, or EONIA as a benchmark in their prospectus, including: – **20%** of alternative funds – **10%** of money market funds
3 **Operations & Admin:** Managers use LIBOR as a input into various calculations, systems, and models for operations & administration	• A wide range of models, systems and calculations use LIBOR-based curves as an interest rate benchmark, e.g: – Valuation curves for accounting purposes – Risk measurement – Pricing and asset allocation models • Contracts with service providers & infrastructure may also utilise LIBOR (e.g. late payment in broker contracts • Use of LIBOR is often mandated by technical standards of regulations	**15%** of survey respondents state that they have a critical dependency on LIBOR for accounting standards We expect that all investment managers use LIBOR to some extent for valuations, risk measurement, and pricing

[3] Survey responses included 20 IA members covering ~65% of IA assets;
[4] For example, an Absolute Return Strategies Fund includes in its prospectus: "Benchmark of 6 Month GBP LIBOR", and "Target of 6 Month GBP LIBOR+5% p.a. over rolling 3 year periods, gross of fees".
[5] Sourced from morningstar fund database – includes open and closed ended funds and insurance sub-accounts

1.1 INVESTMENTS:
MANAGERS REMAIN HIGHLY DEPENDENT ON LIBOR-BASED PRODUCTS, ALTHOUGH A GRADUAL SHIFT TO SONIA HAS STARTED IN GBP

MANAGERS CURRENTLY STILL DEPENDENT ON LIBOR-BASED PRODUCTS

40% of respondents to the IA survey state that client LIBOR exposures **increased** in 2018[6]

Managers generally perceive alternative rate markets to still be significantly less liquid than LIBOR, with some exceptions (e.g. short dated SONIA swaps)

Key investment types relying on LIBOR include:

– Long dated rates derivatives

– Floating rate notes

– Securitised products

– Private debt (e.g. syndicated loans)

HOWEVER MEMBERS HAVE ALSO STARTED TO PARTICIPATE IN ALTERNATIVE RATE PRODUCTS, PARTICULARLY SONIA

72% of respondents have invested in SONIA instruments in 2018[6]

45% of respondents state that client LIBOR exposures decreased in 2018[6]

SOFR activity has generally been significantly lower given that it has only been available since April 2018

Floating rate note activity is growing but remains small, with less than 20 SOFR or SONIA based floating rate note issuances as of November 2018

Value (and #) of SONIA and SOFR FRN issuance as of year end 2018

USD BN; Source: Dealogic

	SONIA	SOFR
Private issuer	$4.7 BN (6 issuances)	$2.8 BN (3 issuances)
Public issuer	$3.8 BN (3 issuances)	$5.6 BN (5 issuances)
Total	**$8.5 BN (9 issuances)**	**$8.4 BN (8 issuances)**

[6] Survey responses included 20 IA members covering ~65% of IA assets

1.2 INVESTMENTS: UNDER CURRENT CONTRACTS, EXISTING POSITIONS WILL GENERALLY "FALL BACK" TO NEW RATES THAT ARE NOT ECONOMICALLY EQUIVALENT

EXAMPLE LEGACY FALLBACK LANGUAGE BY PRODUCT

Product	From LIBOR to...:
Loans	**Prime rate** or **alternative base rate**, such as Federal funds effective rate
Floating rate notes	**Fixed** at the last available LIBOR
Securitisations	Average of quotes obtained by **polling banks** **US Agency RMBS: Fannie or Freddie** may be asked to name successor rate **Other securitisations: Fixed** at last LIBOR
Derivatives	Mean of **rates quoted by major banks** in New York City[7]
Other consumer	**Noteholder** names successor rate[8]

COMMENTS

- Different contracts have different terms for what happens if LIBOR becomes unavailable ("fallbacks")
- These terms were generally designed for short-term interruptions, not for situations where LIBOR would be permanently discontinued and shifted to an alternative rate
- They often are either operationally infeasible (e.g. polling different banks for every contract) or imply large value shifts (e.g. fixing at the last available LIBOR date)
- New fallbacks are in the process of emerging via industry consultations (e.g. ISDA); however no final "decisions" have been reached and it remains unclear whether fallback language will be consistent across different products

[7] ISDA is developing new fallback language that will be proposed as a change to definitions used for ISDA Master Agreements
[8] "The New Landscape," David Bowman, Special Advisor, New York Federal Reserve Board of Governors, 2017

1.3 INVESTMENTS:
WHILE FOCUS SO FAR HAS BEEN ON DERIVATIVE MARKETS, FRNs WILL ALSO PRESENT A CHALLENGE FOR LIBOR TRANSITION

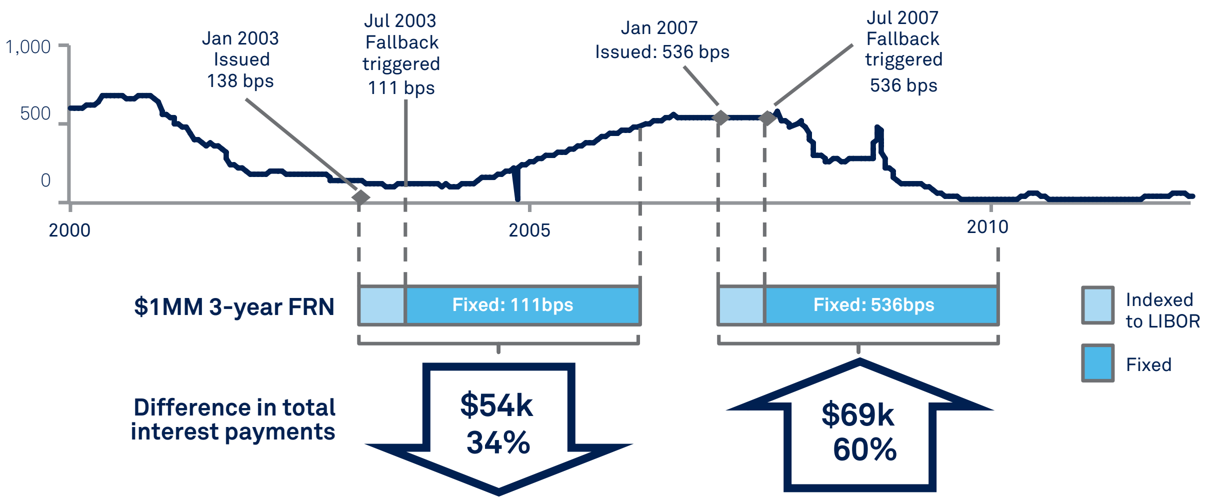
ILLUSTRATIVE FLOATING RATE NOTE IMPACT

Typical fallback language

> *LIBOR for that interest accrual period will be the same as LIBOR as determined for the previous floating-rate interest period.* 3 year FRN (2016)

Illustrative hypothetical historic impact on $1MM 3-year FRNs

USD 3M LIBOR



Source: Oliver Wyman and Davis Polk, "LIBOR Fallbacks in Focus"

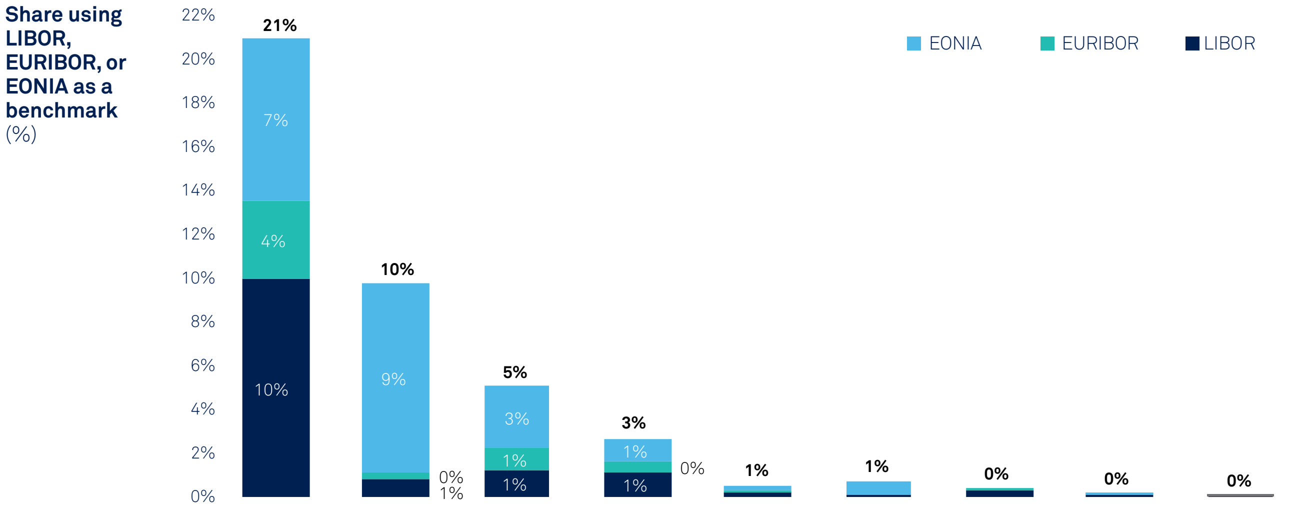
COMMENTS

- Cash securities present a particular challenge because amendment typically requires unanimous consent from noteholders;
- Floating rate notes usually specify that the rates should fall back to quotes from a panel of banks or when that is not available, the rate from the previous interest period;
- This "previous period" fallback could easily convert the notes into fixed rate instruments after transition;
- The Sterling Risk Free Rate Working Group and the US ARRC have published guidance on fallbacks for new issuance, but little guidance exists yet for legacy notes;
- For existing notes, there are some options which issuers can consider – issuers could consider exchange offers, although these are often difficult and costly, and may not be accepted by investors;
- The most likely outcome seems to be that there will be some significant amount of outstanding securities that contain legacy fallback language that become fixed rate instruments.

2.1 BENCHMARKS:
MANAGERS ALSO USE LIBOR AS A BENCHMARK OR PERFORMANCE TARGET FOR THEIR FUNDS OR MANDATES

GLOBAL FUND AUM WITH RELEVANT REFERENCE RATES IN PROSPECTUS BENCHMARKS

INCLUDES OPEN AND CLOSED ENDED FUNDS, ETFS, AND INSURANCE SUB-ACCOUNTS



Strategy category	Alternative	Money Market	Allocation[1]	Fixed Income	Misc.	Convertibles	Property	Equity	Commodities
Total AUM in strategy category (USD BN)	840	4,335	3,645	8,530	785	90	170	3,555	70

Source: Morningstar data & Oliver Wyman Analysis;

[1] As per Morningstar definitions – "a one-stop mutual fund that divides your money among stocks, bonds, and cash"

COMMENTS

- Funds frequently use LIBOR and other interest rates for benchmarks and performance targets particularly for:
  - Alternatives funds
  - Money market funds (Typically overnight rates, like EONIA or SONIA)
  - Allocation funds[1]
- These fund benchmarks will need to be updated before rates are discontinued (e.g. LIBOR benchmarks updated by end of 2021)
- New benchmark definition and communication will need to be carefully managed to avoid any perception of artificially inflated performance
- Interviews suggest many funds will aim to switch to similar benchmarks (e.g. from GBP LIBOR to SONIA plus some spread), but the methodology for determining the spread is not yet defined, while consistency across the industry is desirable

3.1 OPERATIONS AND ADMIN:
SEPARATE FROM ITS USE IN PRODUCTS, MANAGERS ALSO USE LIBOR AS AN INTEREST BENCHMARK ACROSS THEIR OPERATIONS

Area	Typical LIBOR usage
Front office	• LIBOR rates are built into a wide range of front office models, spreadsheets, and calculations used for allocation and pricing
	• LIBOR discounting is also generally built into front office systems (e.g. OMS, trading platforms)
Finance	• LIBOR-based curves are used for discounting and valuation of assets and liabilities
	• As a result, finance systems generally use LIBOR and will require updating (e.g. accrual calculators, pricing systems, etc)
	• LIBOR usage required by regulator/ supervisor accounting standards in some areas (e.g. solvency II liability discounting, GAAP hedge accounting)
	• 92% of IA survey respondents stated that regulations require them to use LIBOR
	• EIOPA and FASB will need to provide updated technical standards before 2021
	• Enterprise data systems used for preparing statutory or management accounts often also employ LIBOR to create P&L and balance sheet figures
Risk	• Market risk calculations generally use LIBOR as an interest rate factor for measuring historical stresses and correlations
	• Risk calculation systems are therefore likely to be affected and require updating
3rd parties (e.g. Custody & Fund admin)	• Contracts with service providers and brokers often reference LIBOR in provisions for late payment
	• Fund administrators and custodians will make extensive use of LIBOR for valuations, discounting, and risk assessment
	• Other third parties (e.g. TCA providers) also employ LIBOR in their offerings

RISKS:

EACH OF THESE USES CREATES A NUMBER OF IMPORTANT TRANSITION RISKS FOR MANAGERS

Use type	Risk type	Example risks
1 Investments	Economic	• Value transferred between counterparties during transition from LIBOR to alternative rates • Basis risk created due to divergence in transition timing across markets and/or asset classes • Fallback provisions are inappropriate and lead to changes to product economics (e.g. a floating rate note has a fallback of the last available LIBOR rate and thus becomes a fixed rate product) • Firms are left with a volume of LIBOR positions that are difficult / costly to exit • Hedge accounting treatment breaks down, causing negative NAV or P&L impacts
	Conduct	• Products / funds with LIBOR assets are sold to customers who do not understand the risks of transition • Traders / market participants attempt to influence pricing of new alternative reference rates
	Operational	• Contracts cannot be valued properly due to LIBOR unavailability
	Regulatory	• Regulators (e.g. EIOPA) may not update technical standards in time to allow discounting and valuations to function without LIBOR
	Legal	• Counterparties pursue litigation over transition terms for existing products without adequate fallback language
2 Benchmark	Economic	• Performance targets & benchmarks are transitioned in such a way that performance fees decrease • Client outreach over benchmark changes causes clients to reduce AUM, due to perceived changes in performance or standards
	Conduct	• Performance targets are transitioned in such a way that clients perceive an improper benefit to the manager • Customers / funds are treated inconsistently during the transition
	Operational	• Benchmark cannot be calculated after LIBOR discontinues
	Regulatory	• Regulators set new standards for disclosures or process for LIBOR benchmark transition
	Legal	• Investors pursue litigation over performance fees after changes in targets
3 Operations & admin	Economic	• Investment and allocation model accuracy decreases due to lack of historical data
	Operational	• Systems, processes, or models are not prepared to support alternative rate products • Systems and models (e.g. for valuation) are not updated in time to support transition to alternative rates
	Regulatory	• Regulators create new or increased requirements for LIBOR transition (e.g. disclosures)

SECTION 2
PLANNING FOR THE TRANSITION

The task of managing the transition and mitigating the risks will be complex. Not all of this work can be started immediately. There are some critical uncertainties and dependencies that will need to be built into plans.

Investment managers will need to form some level of consensus or standards to resolve a number of these uncertainties – for example standards for what spreads to use in replacement rates for LIBOR fund performance benchmarks. Other uncertainties can only be resolved by actions from the broader market – for example processes or protocols for how FRNs and loans will be transitioned to new rates.

Investment managers should therefore build uncertainty into their planning. Programmes should include a framework to monitor industry progress and adjust timelines and actions.

ASSET MANAGERS WILL NEED TO ACTIVELY MANAGE TRANSITION FOR EACH OF THE WAYS THEY USE LIBOR

Type of use	Key action required	Description
1 **Investments**	**A. Shift existing investment exposures towards new rates** **B. Minimise value transfer** away from clients **C. Communicate to clients** on nature and pace of changes	• All investments referencing LIBOR will need to be shifted to new rates, either through updates to "fallback language" that can be used when LIBOR becomes unavailable, or through active trading of exposures • Asset managers will need to carefully manage and time this process to avoid any loss for clients, e.g. from clients being stuck in illiquid products after LIBOR transition, or from transition to fallbacks that diverge from the economic value of existing products • In many cases, managers will need to work with clients to raise awareness and lead them through the process– level of communication will differ significantly depending on the type of mandate/fund and the type of client
2 **Benchmark**	**A. Shift benchmarks** and performance targets **B. Ensure clients are treated fairly** **C. Communicate** & provide notice of changes to clients	• Asset managers will need to identify all funds and mandates that use rates impacted by LIBOR transition as a benchmark or performance target • These benchmarks will need to be updated to new rates in a way that is comparable to existing benchmarks • Managers should work with the broader industry to align on new rates to avoid the perception of inflated performance figures • Managers will also need to determine if there are any impacts on their performance fees, and update frameworks as necessary
3 **Operations & Admin**	**A. Identify and update** all systems, models, curves, and calculations that rely on LIBOR **B. Ensure no loss of accuracy or compliance** of models and calculations	• Managers will need to determine the whole list of systems, models, and calculations that currently use LIBOR and other impacted benchmarks • All of these will then need to be refreshed or updated to use new rates • In some cases this may require working with third parties, e.g. custodians, fund administrators, and market data providers • Managers will also need to be careful to ensure that their operations and systems can accommodate new products (e.g. overnight-rate FRNs)

MORE GRANULAR LOOK AT THE ACTIONS REQUIRED

INVESTMENTS

Trade new products

- Engage with key clients to agree approach to transition
- Monitor liquidity in alternative rate markets
- Actively shift exposure to new rates
- Assess fallback language for all new floating rate investments, and incorporate into investment decisions

Transition existing contracts

- Build inventory of LIBOR exposure across the portfolio
- Conduct due diligence on existing contracts (e.g. fallback language, amendment terms)
- Agree strategy and approach to transition with clients (e.g. when to use fallbacks)
- Repaper / rebook positions

BENCHMARKS

Develop benchmarks and targets for new funds

- Develop new alternative-rate based funds/ mandates where client appetite is present
- Ensure all new funds or mandates use new reference rate targets and benchmarks

Transition existing benchmarks and targets

- Identify which funds/ mandates use LIBOR for benchmarks and targets
- Engage with clients and consultants on replacements
- Design new benchmark formulas/ methodologies
- Switch benchmarks & targets
- Update performance fee methodology if needed

OPERATIONS & ADMIN

Finance, Risk, and model transition

- Build inventory of impacted models, calculations, and reports (e.g. risk models, discounting etc)
- Develop plan for model updates and validation through 2021
- Source new rates and build new curves as available
- Implement changes, testing and production

Operations, IT, and service providers

- Build inventory of processes, systems that use LIBOR
- Update systems as required (may require IT change programmes)
- Update processes as required
- Work with fund administrators and custodians to ensure all operational updates are completed

COMMS & ENGAGEMENT

Client communications & disclosures

- Start investor education process (e.g. need for change, potential impact)
- Update fund disclosures to include discussion of risks associated with LIBOR transition
- Continuous engagement with clients on risks, plans, and preferences

Market engagement & monitoring

- Monitor industry, particularly for emerging standards on e.g.
  - Fallbacks for cash and derivative products
  - Loan language
  - Term rates
  - Standards for benchmarks
- Engage in industry discussions and encourage client participation where appropriate

Programme mobilisation & management

- Set up LIBOR programme (workstreams, prioritisation, resourcing, timelines, etc.) and ramp up resourcing as required over time
- Detail “house view” of LIBOR transition scenarios to inform planning and ongoing transition management

PLANS WILL NEED TO TAKE INTO ACCOUNT A NUMBER OF REMAINING OPEN QUESTIONS, AND DEPENDENCIES OUTSIDE OF THE ASSET MANAGEMENT INDUSTRY

Type of use	Questions the asset management industry will need to answer	Strategies for resolution	Dependencies outside of the asset management industry
1 **Investments**	• What is the client demand / willingness to transition to alternative rates? How will this change over time? • What will be the standard methodology for transition of relevant derivatives and cash products? • To what extent should funds rely on fallback language vs. proactive transition ahead of 2021?	• *Engage with clients to understand appetite* • *Monitor and provide input into industry consultations (E.g. ISDA, LMA, ARRC)* • *Each firm will need to decide strategy based on assessment of legal and operational options and market liquidity*	• Will term rate structures be available and used for the new reference rates? And if so, when? • When will the "tipping point" for transition be? Will this be different between currencies and asset classes? • Will there be convergence on updated fallback language for derivatives and cash products? • Will Solvency II be adapted to allow use of non-LIBOR swaps for insurance products?
2 **Benchmark**	• Will there be a market standard approach to transition of LIBOR benchmarks and performance fees?	• *Observe market and align on standards through relevant industry bodies (e.g. the IA)*	• Will term rate structures be available and used for the new reference rates?
3 **Operations & admin**	• Which models, systems and processes are impacted by the transition? • What is the level of effort to update for the alternative rates?	• Each firm will need to carefully asses its own impacts and remediation effort	• How will historical proxies for the alternative rates be constructed– will standard data sets be produced and sold? • Will fund administrators and custodians be able to meet investment manager requirements in time for transition?

PLANS WILL NEED TO BE CAREFULLY SEQUENCED TO AVOID ACTING BEFORE UNCERTAINTIES BECOME CLEAR

SECTION 3
RECOMMENDED TIMELINE

Despite the remaining uncertainty, there are many tasks to complete to ensure a seamless transition and thus the transition work must start now. While the end of 2021 may seem distant, managers will want to avoid being caught out by client inquiries, regulators, or sudden market shifts in liquidity to new reference rates.

With the right planning and foresight, firms can minimise the downside risks and manage the operational challenges without a crisis. With a well-executed programme, firms could even realise benefits – by removing the bank credit risk component of LIBOR from their portfolios, and by demonstrating foresight and competence to clients.

RECOMMENDED ACTIONS ON A TIMELINE

HIGH LEVEL EXAMPLE ROADMAP FOR LIBOR TRANSITION *(SEE APPENDIX C FOR DETAILED PLAN)*

H1 2019

- **Internal education** to ensure awareness of LIBOR transition
- **Assess** the organisation's exposure to LIBOR
- **Mobilise** and plan transition activities
- **Begin the transition** of investments with sufficient alternative rate liquidity

2020

- **Start to repaper and update fallback language** where needed
- **Transition benchmarks** and targets
- Execute **model, process and system updates**
- **Continue transition** of investment portfolio to alternative rates

H2 2019

- Planned **client outreach** on need for change and impacts
- **Design new benchmarks**, and start to update fund targets where possible
- **Plan operational updates**
- **Continue transition** of investment portfolio

2021

- **Finish repapering / updating fallback language**
- Shift **all remaining exposure to new rates**
- **Review benchmarks**/ targets to ensure consistency with peers
- **Hedging or divestment** of any remaining "stubborn" exposures
- **Complete model, process and system updates**

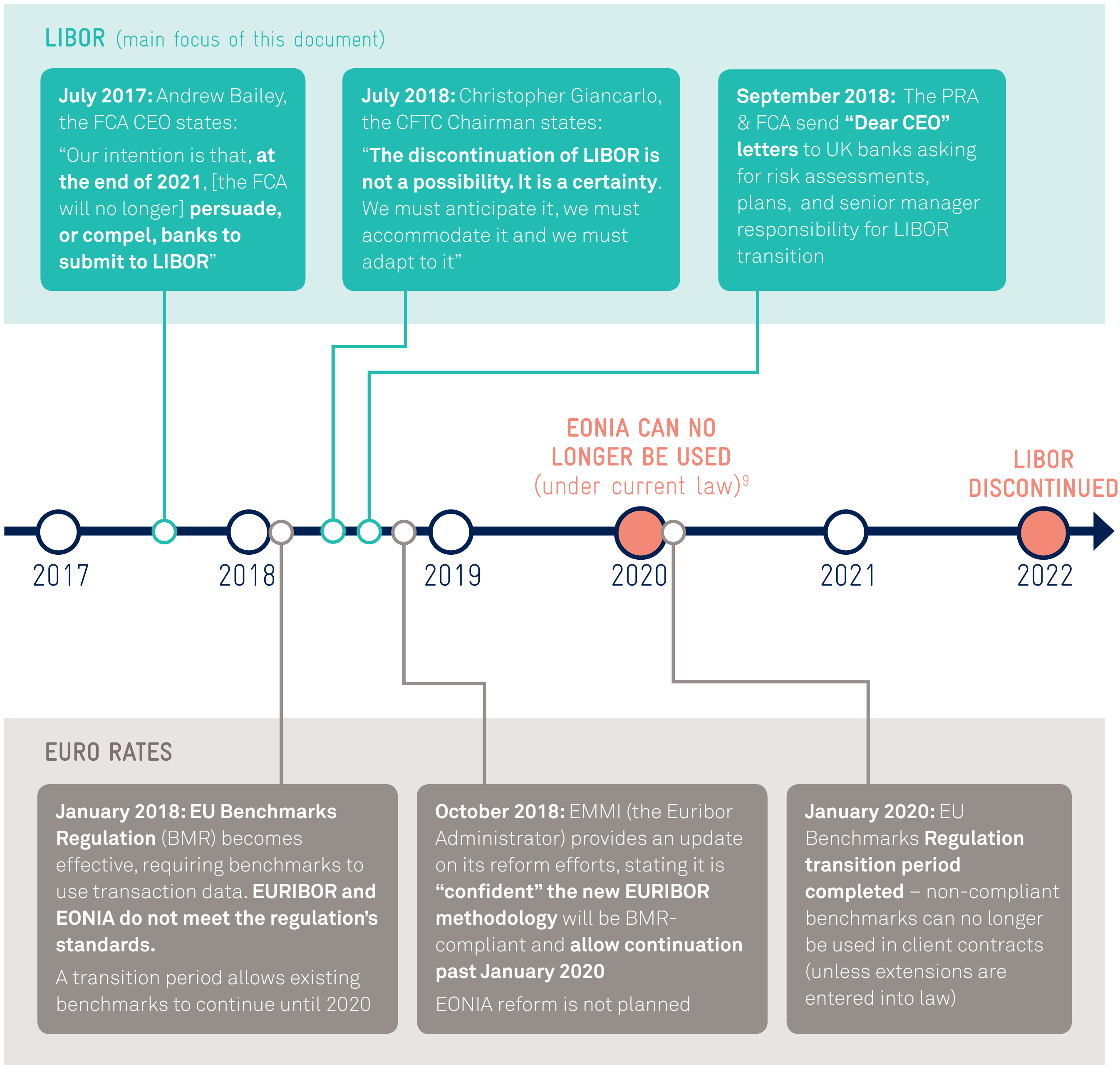
APPENDIX A
GLOSSARY

TERM	DEFINITION
ABS	Asset backed Securities
ARRC	Alternative Reference Rates Committee – the Fed working group on alternative reference rates
AUM	Assets under management
CFTC	Commodities Futures Trading Commission
CLO	Collateralised loan obligation
EIOPA	European Insurance and Occupational Pensions Authority
EONIA	Euro overnight index average – existing EUR overnight reference rate
ESTER	Euro short term rate – planned new EUR overnight reference rate
EURIBOR	EURO Interbank Offered Rate
FASB	Financial Accounting Standards Board
FCA	Financial Conduct Authority
FRN	Floating rate note
GAAP	Generally Accepted Accounting Principles
IA	Investment Association
ISDA	The International Swaps and Derivatives Association
(L)IBOR	(London) Inter Bank Offered Rate
LMA	Loan Markets Association
NAV	Net Asset Value
OMS	Order management system
P&L	Profit & Loss
PM	Portfolio Manager
PRA	Prudential Regulation Authority
RFR	Risk free rate
RMBS	Residential mortgage backed security
SARON	Swiss Average Rate Overnight – CHF overnight rate
SOFR	Secured Overnight Financing Rate – new USD alternative reference rate
Solvency II	The Solvency II Directive (2009/138/EC) – an EU directive harmonising insurance regulation
SONIA	Sterling Overnight Index Average – GBP unsecured overnight reference rate
TCA	Transaction Cost Analytics
TONAR	Tokyo Overnight Average Rate – JPY overnight reference rate

APPENDIX B
BACKGROUND AND CONTEXT TO LIBOR TRANSITION

IN 2017, THE FCA ANNOUNCED LIBOR DISCONTINUATION WILL TAKE PLACE BY THE END OF 2021; TRANSITION FROM EONIA AND POSSIBLY EURIBOR WILL ALSO BE REQUIRED

TIMELINE OF KEY DEVELOPMENTS ON LIBOR AND EURO RATE DISCONTINUATION



See appendix C for further detail on timelines & alternative rates.

[9] Possible extensions of deadlines or changes to methodology are being considered

LIBOR IS REFERENCED IN OVER USD 240TN NOTIONAL ACROSS SECURITIES, DERIVATIVES, AND LOANS WITH EONIA AND EURIBOR ACCOUNTING FOR A FURTHER USD 170 TN

NOTIONAL VOLUMES BY REFERENCE RATES AND INDICATIVE CONCENTRATIONS

ORDER OF MAGNITUDE – (USD TN)

		GBP-LIBOR	USD-LIBOR	JPY-LIBOR	CHF-LIBOR	EURO-LIBOR	Euribor	EONIA
Notional volume		30	175-185	30	5	< 2	135-145	25
By asset class								
Derivatives	Interest rate swaps	High	High	High	High	Low	High	High
	Floating rate agreements	High	High	Low	High	Low	High	Low
	Interest rate options	High	High	Medium	Low	Low	High	Low
	Cross-currency swaps	High	High	High	Medium	Low	High	Low
	Interest rate futures	High	High	Medium	Medium	Low	High	Low
Securities	Floating rate notes	Medium	High	Medium	Low	Low	High	Low
	Securitised products (MBS, ABS, & CLO)	Medium	High	Low	Low	Low	Medium	Low
Money markets & repo	Repo/ reverse repo	Low	Low	Low	Low	Low	Low	Low
	Money market instruments	Low	Low	Low	Low	Low	Low	Low
Loans	Syndicated loans	Medium	High	Medium	High	Low	High	Low
	Bilateral corporate loans	Medium	Medium	Medium	High	Low	High	Low
	CRE/Commercial mortgages	Low	High	Low	Low	Low	Low	Low
	Retail mortgages	Low	High	Low	Medium	Low	Medium	Low
Deposits	Deposits	Low	Low	Low	Low	Low	Medium	Low
Prevalent term			1/3M	3/6M	3/6M	3/6M	3/6M	

Key: High **>$1trn** Medium **>$100bn<x<$1 trn** Low **<$100bn**

Source: Oliver Wyman analysis, data as available as of December 2017

KEY PRODUCTS FOR ASSET MANAGERS

- Rates derivatives will be almost universally impacted in notional terms by transition of LIBOR and similar rates
- Many cash products will also be affected e.g.:
  - Floating rate notes
  - Private debt (e.g. syndicated loans, leveraged finance)
  - Some EONIA-linked repos and money market instruments
- Borrowing from or deposits with banks may also be impacted

ALTERNATIVE RATES FOR A POST-LIBOR WORLD HAVE BEEN DEFINED, HOWEVER THEY HAVE A NUMBER OF STRUCTURAL DIFFERENCES FROM LIBOR

ALTERNATIVE RATES, AND DELTA WITH LIBOR

Currency LIBOR	Alt. rate	Nature	Term	Delta with 3M (L)IBOR[15] Max (bp)	Avg. (bp)
	Reformed SONIA[12]	Unsecured	O/n	398	31
	SOFR[10]	Secured	O/n	460[16]	36
	SARON[13]	Secured	O/n	292	25
	TONAR[14]	Unsecured	O/n	83	14
	ESTER[11]	Unsecured	O/n	n/a	n/a

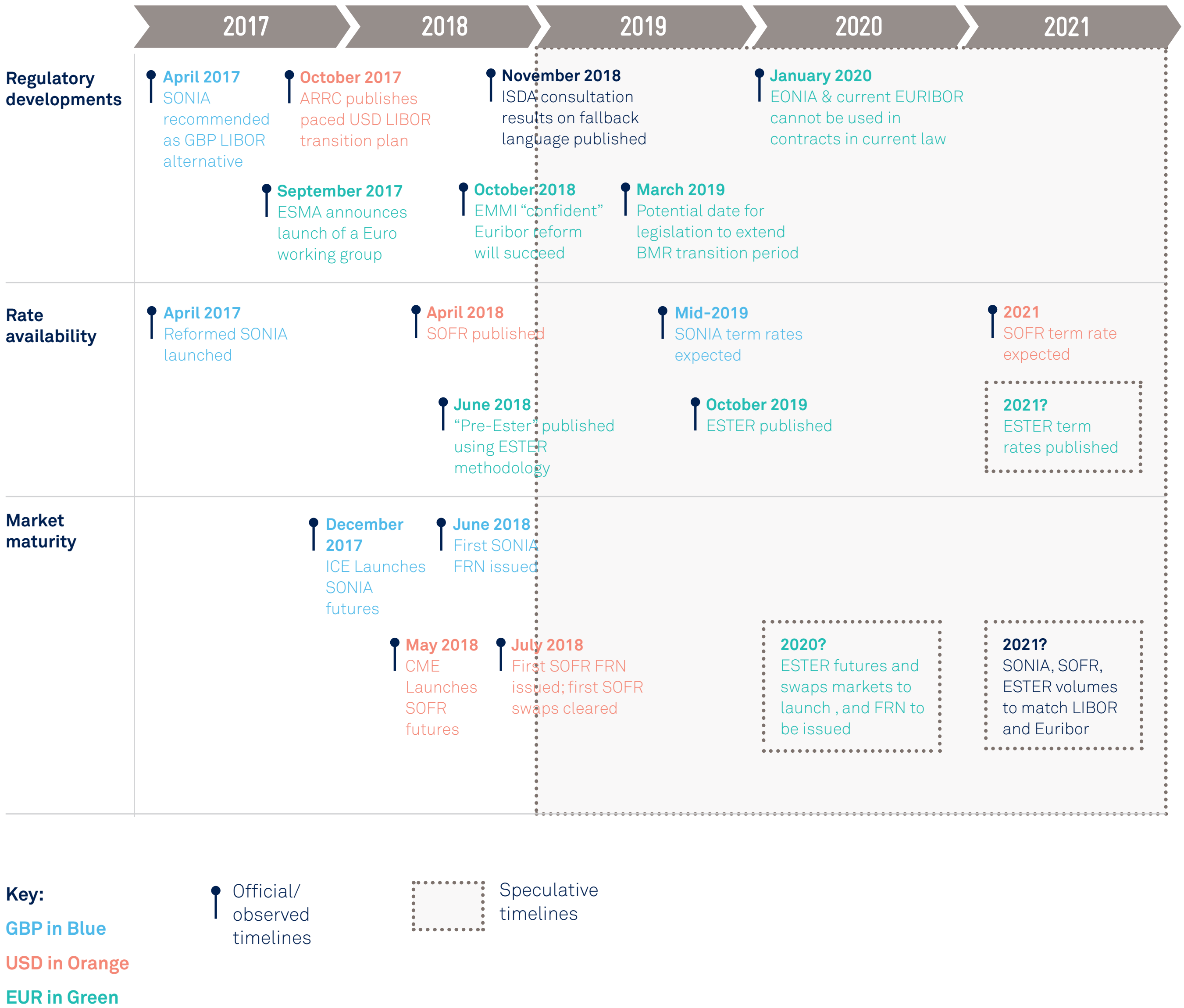
STRUCTURAL DIFFERENCES BETWEEN LIBOR AND ALT. RATES

Consistency between currencies	• Alternative rates reference different underlyings: repos (SOFR and SARON) and unsecured lending (SONIA, TONAR) • Alternative rates will be available to the market at different times • Particular challenge for cross-currency swaps, multi-currency facilities etc
Term / tenor	• Most commonly used LIBOR tenors are 1, 3 and 6 months • Proposed alternative rates are all overnight • Term structures under consideration
Bank credit risk component	• LIBOR embeds a bank credit risk spread within its term structure • Alternative rates are nearly risk free • Issue is more pronounced with secured rates (SOFR, SARON) than unsecured rates (SONIA, ESTER, TONAR)

[10] Secured Overnight Financing Rate;
[11] ESTER: Euro Short-Term Rate
[12] Sterling Overnight Index Average;
[13] Swiss Average Rate Overnight;
[14] Tokyo Overnight Average Rate;
[15] 3M forward looking alternative rates were calculated based on geometric average of the overnight rate over a 90 day period on a forward looking basis from 2000 to 2017;
[16] 3M Treasury repo rate (a component of SOFR) used as proxy
Source: Working Groups, Oliver Wyman analysis

ALTERNATIVE RATE MARKETS ARE STILL MATURING; SIGNIFICANT FURTHER WORK IS NEEDED BY REGULATORS AND PARTICIPANTS TO ACHIEVE TRANSITION BY 2022

KEY OBSERVED AND EXPECTED DEVELOPMENTS IN GBP, USD, AND EUR RATE TRANSITION



APPENDIX C

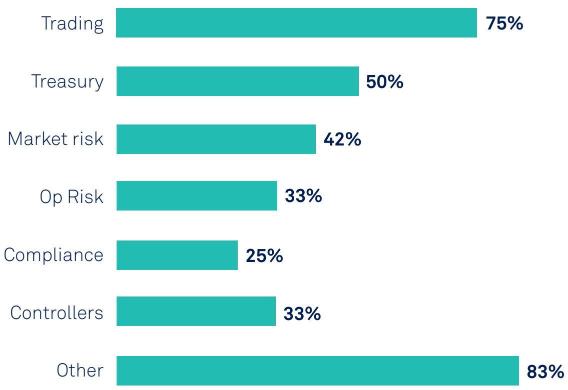
CURRENT STATUS OF MANAGERS ON TRANSITION, AND EXAMPLE OF DETAILED IMPLEMENTATION PLANS

INVESTMENT ASSOCIATION SURVEY FINDINGS ON PROJECT STATUS[17]

65%

of survey respondents have initiated a LIBOR transition programme

DEPARTMENTS INVOLVED IN INTERNAL GOVERNANCE FOR LIBOR TRANSITION:



OBSERVATIONS FROM INTERVIEWS

- All interviewed members have initiated a transition programme
- Work to date has primarily been led by the portfolio management side and focused on the investment side
- Key area of activity has been derivative transition
  - Most interviewees were satisfied with the recent ISDA consultations
  - Most are actively transitioning some SONIA swap activity, although targeting varying levels of completeness at this stage
- Cash product transition is generally perceived to be moving at a slower pace, with some interviewees expressing concerns or questions over the outcomes
- Operational and benchmark transition has generally been a less urgent focus than the investment portfolio
  - Most members interviewed are now appointing project managers for operational and benchmark transition
  - Some interviewees were waiting on industry standards to emerge for new benchmark levels

[17] 13 members responded to survey questions on project status and readiness

PROGRAMMES SHOULD BUILD OUT DETAILED PLANS STARTING FROM H1 2019

MORE DETAILED EXAMPLE ROADMAP

	H1 2019	H2 2019	2020	2021
Key dates	**March**: Bills potentially passed in EU Parliament to postpone EONIA deadline	**October:** Ester published **H2:** SONIA term reference rate potentially available	**January:** EONIA can no longer be used in contracts under current law	**2021:** SOFR term rates available
Investments	Build inventory of exposures Conduct legal diligence into fallback language Begin transitioning GBP derivatives (front and back book) to SONIA, as preferred by clients Ensure traders & PMs are aware of changes and assessing fallback language in all new relevant deals	Hold structured client outreach and communication on options and approaches Communicate with issuers & counterparties on cash product fallback language Continue active transition to new RFR products where liquidity is available	Re-paper/ update all fallback language for more “bespoke” products (e.g. loans) Begin transitioning USD deriv activity to SOFR as liquidity becomes available Begin transitioning GBP cash activity to SONIA-based issuances as liquidity shifts	Shift all remaining front-book activity (e.g. USD cash products) onto alternative rates Actively transition as much back book activity as possible before relying on fallbacks Actively manage risk for remaining products with unclear fallbacks (e.g. hedging or divestment)
Benchmarks	Determine which funds/ mandates use LIBOR for benchmarks and targets Engage with clients and consultants on preferred replacements and timelines Ensure all new funs or mandates use new reference rate targets and benchmarks	Design new benchmark formulas, based on historical averages and market practice Update benchmarks where preferred by clients (or where currently using EONIA) Pass all benchmark and performance target changes through appropriate governance	Transition benchmarks for all remaining funds/ mandates to new alternative rates for start of 2021, unless otherwise preferred by clients or consultants Develop new alternative-rate based funds/ mandates where client appetite is present	Transition any remaining LIBOR benchmarks to alternative rates Review benchmarks and performance targets vs peers to ensure approaches are consistent with market practice
Ops & admin	Build inventory of impacted models & curves Map usage of reference data across all systems	Develop plan and strategy for model and system updates Communicate requirements to administrators and custodians	Add new rates to systems and update Finance and Risk rates, curves, and models Begin IT change programme if needed	Validation & governance of model updates
Client Comms	Investigate the need to update fund disclosures to include a statement of LIBOR risk	Start broad investor education process on need for change and potential impacts	Continuously engage with clients and consultants on risks, plans, and preferences	
Market engagement	Monitor industry, particularly for emerging standards on falbacks for cash and derivative products, loan language, term rates, and standards for benchmarks and performance targets Engage in industry discussions and encourage client participation where appropriate			
Programme management	Mobilise programme Set up baseline scenario assumptions Plan out project	Ongoing coordination and challenge of workstream Regular monitoring of LIBOR exposures Support for strategic choices and development of high level principles for transition		

AUTHORS

INVESTMENT ASSOCIATION:

Ross Barrett
ross.barrett@theia.org

Irene Rey
irene.rey@theia.org

OLIVER WYMAN:

Julia Hobart
Julia.Hobart@oliverwyman.com

Jennifer Tsim
Jennifer.Tsim@oliverwyman.com

Robert Rogers
Robert.Rogers@oliverwyman.com

NOTES

NOTES

The Investment Association
Camomile Court, 23 Camomile Street, London, EC3A 7LL

www.theinvestmentassociation.org
@InvAssoc

February 2019

© The Investment Association (2019). All rights reserved.
No reproduction without permission of The Investment Association.