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Perspectives Paper

# *IBOR Reform: A Valuation Guide*

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# IBOR Reform:

# A Valuation Guide

The IVSC issues Perspectives Papers from time to time, which focus on pertinent valuation topics and emerging issues. Perspectives Papers serve a number of purposes: they initiate and foster debate on valuation topics as they relate to the International Valuation Standards (IVS); they provide contextual information on a topic from the perspective of the standard setter; and they support the valuation community in their application of IVS through guidance and case studies.

Perspectives Papers are complementary to the IVS and do not replace or supersede the standards. Valuers have a responsibility to read and follow the standards when carrying out valuations.

By: The IBOR Working Group under the [IVSC Financial Instruments Board](#)



*The IVSC has issued this Perspectives Paper to initiate discussion and debate on the topic of IBOR changes and the impact on valuation. Share your feedback and thoughts with us through [LinkedIn](#).*

## Abstract

*IBOR (interbank offer rates for e.g. LIBOR) cessation requires the transition to alternative reference rates (ARRs), and consideration of the differences in the*

*nature of ARRs compared to IBORs. This move away from IBOR will change the pricing, valuation, and risk management practices, notably in the financial services sector but also for any entity that uses financial instruments.*

*IBOR transition is an ongoing, continuous and rapidly evolving process and not some future "big bang" event. It has already impacted valuations today (for example: CCP changes to Price Alignment Interest Cleared derivative valuations, albeit with a centralized compensation mechanism).*

*While there are many complexities around the transition, valuation challenges that the industry will need to navigate are interrelated and can be grouped under three broad headings:*

- 1) **Valuation impact of terms in existing IBOR inventory** - which will survive IBOR cessation and will require consideration of the applicable "fallback" methodology and any potential compensation mechanism;*
- 2) **Valuation impacts of evolving market liquidity** – in new products utilizing the ARR as the market develops, as well as ongoing impacts on existing exposures;*
- 3) **Valuation impacts of new risks** – including basis risks, tail risks and model risk as portfolios combine IBOR and non-IBOR indexed risks.*

## Introduction

IBOR has been the reference rate or benchmark interest rate for financial markets for decades and it is changing. A change of such significance inevitably creates challenges for the valuation of financial instruments and impacts all entities that use financial instruments.

The aim of this Perspectives Paper is to outline the key challenges that arise for valuation professionals from the cessation of IBOR. It outlines the changes in Governance, Data Management and Model Risk Management that entities need to consider to effectively manage the transition. The paper also outlines the areas that can contribute to 'Valuation Uncertainty' and thereby increase Valuation Risk in valuations of financial instruments arising from the cessation of IBOR<sup>1</sup>.

## Background

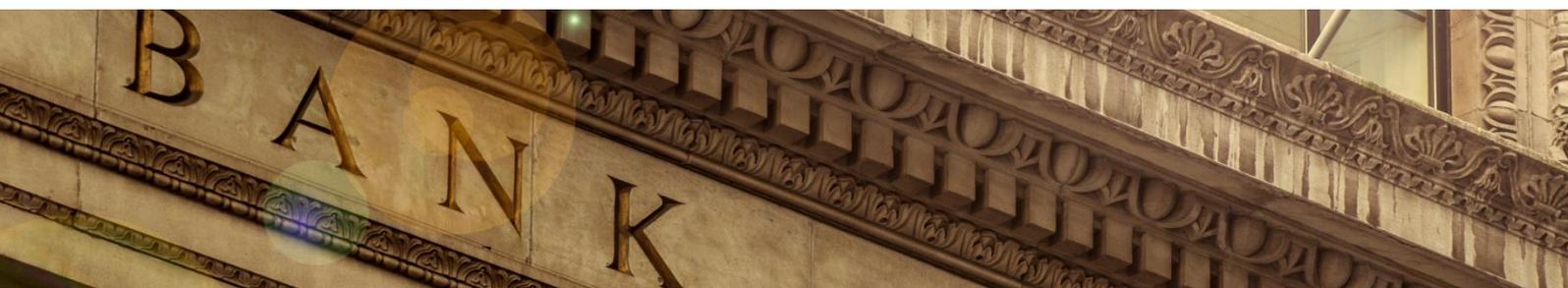
The UK's Financial Conduct Authority (FCA) announced in July 2017 that it will not compel or persuade panel banks to make LIBOR submissions after the end of 2021. Global regulators have committed

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<sup>1</sup> For details on Governance Frameworks, Data Management, Valuation Uncertainty and Valuation risk see proposed changes to [IVS 500 Financial Instruments](#)

to the strengthening of benchmark rates by anchoring the index setting on observable transactional data to the greatest extent possible. IBOR, constructed substantially on survey data rather than observed transactions, does not fit this model and will be phased out as the FCA remove their governance and support.

The impact of the COVID-19 pandemic on global economies and the disruption it has caused to global markets has not changed this path. In March 2020, the FCA reiterated this deadline in a joint statement with the Bank of England by stating that their expectation that LIBOR will not be published after the end of 2021 “has not changed”, an expectation reinforced by similar comments from other global regulatory and industry bodies.



There are extensive materials available to valuation practitioners on IBOR transition. These include material on the basis for selection of the ARRs, the financial services’ industry working groups materials and prudential regulatory body guidance on the transition process. It is important to understand the implications of industry, regulatory and legislative developments such as ISDA protocols, regulatory reporting requirements, and legislative proposals (NY State, US Federal and European Parliament for example). Given that existing information, and the constantly evolving nature of the

transition and currencies involved, this paper focuses on three broad groupings of valuation impacts, and seeks to provide a constructive framework to support the valuation professional through the IBOR transition.

### Valuation impact of terms in existing IBOR inventory

The contractual means for existing IBOR indexed Financial Instruments to transition to replacement rates will depend on a combination of legal documentation,

legislative solutions, negotiation, industry protocols, arbitration, multilateral agreement and litigation. For example:

- Contracts may contain “switch” language that provides for the floating rate to be re-indexed to an ARR at a known future date.
- Contracts may contain “hardwired” language that provides for the floating rate to be re-indexed to an ARR at a future date contingent on triggers such as the cessation of IBOR, with a waterfall structure to define how such ARR rates will be used in the contract.
- Contracts may be subject to industry rulebooks or standard templates such as for cleared derivatives or transactions subject to ISDA transition protocols.
- Contracts may contain “amendment” language that provides for the floating rate index to be re-negotiated between the parties in the event of IBOR cessation.
- Contracts may contain language that provides for the floating rate to be re-indexed to an ARR at the sole discretion of one of the parties to the transaction in the event of IBOR cessation.
- Contracts may contain language that provides for the floating rate to be re-indexed to another (non-ARR) reference rate at terms that may or

may not be equitable to all parties e.g. falling back to PRIME (typically significantly higher than LIBOR) or to the last available rate (effectively turning the instrument into a fixed rate instrument).

- Contracts may not contain language that contemplates the permanent cessation of IBOR, leaving the remaining cash flows on the contract uncertain. Or the contractual term may not be legally enforceable.

It can clearly be seen that the range of contractual features may result in different contracts that have consistent floating rate cash flows in the current market transitioning to different sets of cash flows in the event of IBOR cessation.



Market observations indicate that, while fallback approaches develop, investors are sensitive to the clarity of fallback procedures in the governing documentation. There is some evidence that investors are applying a valuation basis to contracts with well-documented fallback over contracts with unclear or no fallback language.

There is an additional challenge where the presumptive fallback approach would be to rely on a contractual term which states that, where there is no IBOR fixing, the parties should use the last IBOR fixing. This scenario was designed to accommodate an interruption to IBOR publication. There is ongoing discussion as to whether it would sustain a legal challenge if applied as a permanent fallback, given the profound impact of changing a floating rate instrument into a fixed rate instrument.

Valuation professionals need to consider the impact of such terms on valuations, including:

- The degree of certainty and timing of transition for each of the instruments in the current portfolio.
- Where there are adjustments embedded in the transition agreements that would seek to normalize the cash flows before and

after transition (e.g. ISDA protocol credit spread adjustment).

- What exact methodology will be applied to determine periodic cash flows (e.g. monthly or quarterly) from ARRs that are typically overnight indices – for example, will cash flows be derived based on simple interest, compounding in advance of the accrual period, compounding in arrears over the accrual period etc.
- Whether indirect adjustments will be made to address changes to risks on transition – for example, compensation for changes in terms of deliverable swaps under swaption products.
- Whether industry standard solutions (e.g. ISDA protocol) will be applicable to the instruments – for example, instruments requiring rates be fixed at the start rather than the end of the period such as certain FRAs.
- What legislative and/or regulatory solutions may exist to either amend existing contracts, or offer a means to continue providing a usable alternative form of IBOR.

## Valuation impacts of evolving liquidity

Over the transition period, and likely subsequent to the cessation of IBOR,

valuation professionals will need to consider the impact of evolving liquidity in ARR indexed products. Examples include:

- Evolving liquidity in ARR indexed products may result in limited price transparency for those entering into transactions in nascent markets, or at the horizon of observable market data.
- Different products will likely evolve at different speeds – for example, observability towards the end of 2021 for linear SOFR products exceeded that for FF-OIS, but there were limited non-linear SOFR transactions.
- Valuation professionals may need to find alternative sources of market data if existing data providers are unable to supply market information.
- Liquidity in ARR indexed products or time series in ARR fixings may not provide sufficient data to support risk requirements, such as those required for VaR and SVaR calculations, or to meet upcoming requirements such as real price observations for FRTB, absent regulatory relief.
- Reduced observability of market data with a consequent impact on the ability to derive primary instrument pricing, or source independent data for price verification procedures.
- Reduced observability of market data leading to changes in accounting fair value hierarchy classification, and potentially impacting Level 3 capital surcharges for G-SIB institutions.
- Increased uncertainty of pricing inputs, resulting in more onerous valuation allowances under prudent valuation frameworks.
- Certain instrument types may have payoff features that cannot readily align to “in arrears” rates such as the ARRs. For example, barriers, CMS trades, in arrears swaps, spread transactions and certain FRAs may rely on knowing the fixing at the start of the period. Such existing transactions may require amendment or termination, resulting in adverse impact on values.
- Reduced appetite for certain IBOR indexed assets or those without adequate fallback language may result in adverse valuation impacts – for example for collateral with reduced eligibility for central bank funding programs, or where investors are precluded by policy or regulation from investing in such assets.

Concurrent to the increases in liquidity in ARRs, liquidity in IBOR indexed products is decreasing, which may give rise to challenges in valuing IBOR indexed products. Examples include:

## Valuation impacts of new risks

The varied paths for amendment of IBOR indexed products to address if, when and how they would “fallback” to ARR indexed rates will introduce additional basis risks. These risks will need to be identified, monitored and managed. Examples include:

- ARRs based on overnight rates will require amendments to valuation models and their associated inputs and outputs to ensure that definitions of input are updated to conform to industry standard quoting conventions; that the modelling approaches are aligned to overnight indices and how such rates are used in financial instruments; and that the outputs are aligned to the terms of the associated cash flows and that downstream systems properly interpret the revised outputs.
- ARRs based on overnight rates, whether secured or unsecured, effectively have minimal bank funding risk embedded into them. This contrasts to the implicit dynamic bank funding levels embedded in IBOR. As a result, the profitability and valuation of products indexed to ARRs may differ from those indexed to IBOR.
- Additional basis risks may emerge where the terms of how ARRs are used to derive cash flows differ in linked transactions. For example, whether as a result of new transactions or variance in the way that fallback provisions operate, a loan transaction deriving cash flows off daily simple SOFR interest conventions may have basis differences with a derivative hedge deriving cash flows through a compounding in arrears approach.
- Similarly, more pronounced basis risks may emerge where underlying collateral (e.g. SOFR ARMs) apply a compounding in advance convention, whereas beneficial interests apply a compounding in arrears convention.
- Different instruments may apply ARR floors at different levels. For example, a LIBOR floor in an existing transaction may be most equitably replaced by a floor on the aggregate of SOFR and the transition credit spread adjustment, whereas a new transaction may apply a floor on the ARR rate directly. New modeling frameworks may be required for option products, given the potential different options on forward-setting interest rates inclusive of bank credit spreads, versus potential future ARR set in arrears with/without compounding features, with/without averaging and with/without a fixed

credit adjustment<sup>2</sup>.

## Actions for the valuation professional

*"The reforms to interest rate benchmarks will have a big impact across financial markets, from Wall Street to Main Street. Making sure the entire market appreciates the scale of the issue and takes early action is therefore a priority. Given the scale of the task, this is not something that can be resolved in the months before end-2021. To ensure a successful and orderly transition, institutions need to be taking action – and starting now."*

*Scott O'Malia, Chief Executive Officer, International Swaps and Derivatives Association (ISDA), 4 July 2018*



The impacts arising from the IBOR transition are complex and pervasive, and the valuation impacts represent only a portion of the impacts to financial and non-financial institutions alike. This Perspectives Paper groups such valuation challenges under three broad headings: i) valuation impact of terms in existing IBOR inventory; ii) valuation impact of evolving market liquidity and iii) valuation impact of new risks. All entities should have comprehensive IBOR transition programs to address these impacts on all aspect of their businesses, commensurate with the magnitude of the impact to their business.

Valuation professionals should, as part of such a program, ensure that appropriate consideration is given to addressing the valuation impacts of the IBOR transition, including:

- Developing a comprehensive understanding of the IBOR transition exposures affecting the institution, including on and off balance sheet items, direct and indirect exposures, updated on a frequent basis, and providing sufficient granularity into the exposures.
- Developing a detailed understanding

<sup>2</sup> See Piterbarg 2020 [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3537925](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3537925)

of the contractual terms of the instruments in the portfolio, and the range of and expected transition paths for such instruments, and an understanding of the impact of the contractual features on the valuation.

- Developing an understanding of the impacts of the IBOR transition on each of the impacted valuation bases e.g. LOCOM / cost basis, fair value, prudent valuation, capital or stress basis, tax basis, or other calculations.
- Developing processes to monitor market activity and update impacted processes and controls such as those related to market data sources, observability and liquidity assessments on a timely basis throughout the transition period. In such a dynamic environment, the frequency of such assessments may need to be increased compared to existing processes.
- Developing the appropriate governance framework to provide effective challenge to the valuation processes through the transition period.

The IVSC would be interested to hear your views on this Perspectives Paper and the broader subject of changes to IBOR as it relates to valuation. Share your feedback through the [IVSC Group page on LinkedIn](#) or by emailing us at: [contact@ivsc.org](mailto:contact@ivsc.org)

### Glossary of Abbreviations

- ARM** – Adjustable Rate Mortgages  
**CCP** – Central Counterparty Clearing House;  
**CMS** – Constant Maturity Swap  
**FRA** – Forward Rate Agreements  
**FRTB** – Fundamental Review of the Trading Book  
**G–SIB** – Global systematically important banks  
**IBOR** – Interbank Offer Rates  
**ISDA** – International Swaps and Derivatives Association  
**LIBOR** – London Interbank Offer Rates  
**LOCOM** – Lower of Cost or Market  
**SOFR** – Secured Overnight Financing Rate  
**SVaR** – Stressed Value at Risk  
**VaR** – Value at Risk



