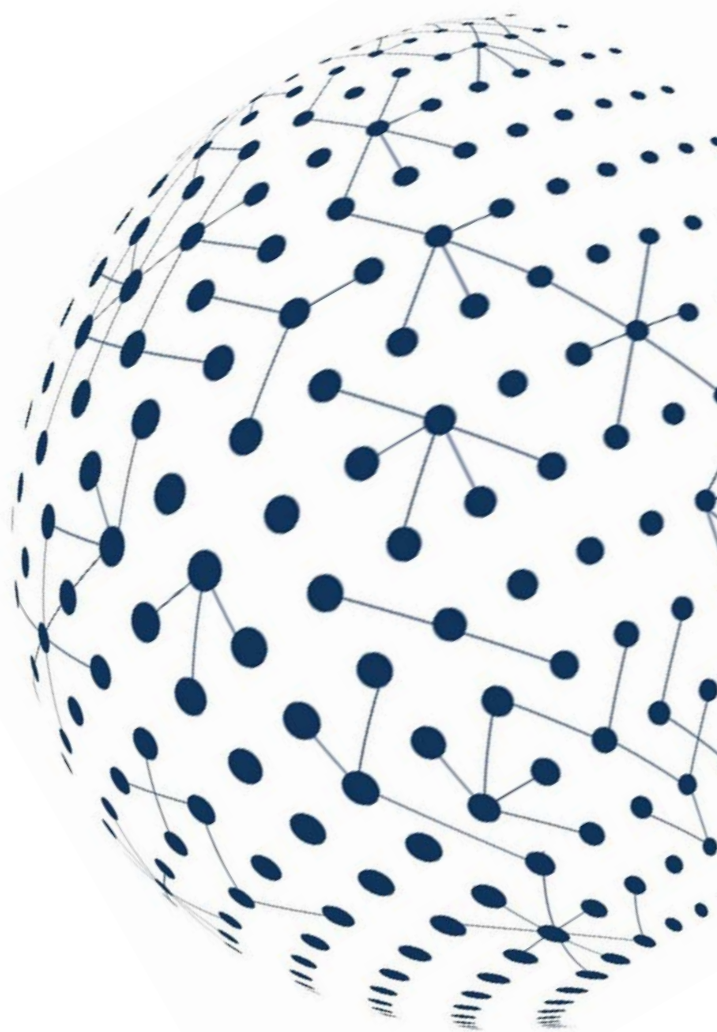


Interest rate benchmark reform

Overnight risk-free rates and term rates

2 June 2021



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Executive Summary

Interest rate benchmarks play a key role in global financial markets. To ensure financial stability, benchmarks which are used extensively must be especially robust. The Financial Stability Board (FSB), working through its members, seeks to strengthen financial systems and increase the stability of global financial markets. Consistent with this, the FSB, working through the Official Sector Steering Group (OSSG) it set up to coordinate international work to review and reform interest rate benchmarks, welcomes the progress that has been made by public authorities and private sector working groups in transitioning to overnight risk-free, or nearly risk-free, rates (RFRs) that are sufficiently robust for such extensive use.

In the markets which face the disappearance of certain interbank offered rates (IBORs), notably markets currently reliant on LIBOR, there needs to be a swift transition to new reference rates. In those markets that continue to have IBORs, the authorities and market participants are working to facilitate the wider use of overnight RFRs across financial products, especially derivatives. In many of these markets too, authorities and market participants are working on further enhancing market resilience by adding more robust fallbacks into contracts to limit risks of contract frustration if an IBOR disappeared in future.

The FSB therefore continues to encourage the adoption of these overnight RFRs where appropriate. The FSB also believes that transitioning the majority of the global derivative market activity, across both LIBOR and non-LIBOR currencies, to primarily using overnight RFRs strengthens the resilience of the global financial system and supports market functioning.

Whether they are developed as alternatives to disappearing LIBOR rates, or additional rates to enhance market resilience, it is essential that these new benchmarks are sufficiently robust to support their use by the market. The overnight RFRs are robust because they are anchored in active, liquid underlying markets. This contrasts with the scarcity of underlying transactions in the term interbank and wholesale unsecured funding markets from which some interbank offered rates (IBORs) are constructed.¹

Some of the working groups on RFRs have considered the development of forward-looking term rates derived from overnight RFRs (these may also be described as “RFR-derived term rates”).² In many markets, notably the largest part of the interest rate derivative markets, it is important, however, that transition away from IBORs is to the new overnight RFRs rather than to these types of term rates. Transition will only reduce vulnerabilities if it addresses the core weakness of the IBORs – the lack of deep and liquid underlying markets.

Because derivatives represent a particularly large exposure to most IBORs, and because these prospective RFR-derived term rates can only be robustly created if derivatives markets on the overnight RFRs are actively and predominantly used, the FSB believes that transition of derivatives to the more robust overnight RFRs is important to ensuring financial stability. Transition to use of robust overnight RFRs as the core basis for interest rate derivative markets is of particular importance for a number of interconnected reasons:

¹ FSB (2017) *Reforming major interest rate benchmarks: Progress report on implementation of July 2014 FSB recommendations*, 10 October.

² The Annex gives a description of term RFRs.

- Derivative markets represent a particularly large and often highly leveraged proportion of exposures to interest rate benchmarks. These markets must be based on the most robust benchmarks available.
- The overnight index swap (OIS) structure substantially reduces the incentive to manipulate individual IBOR settings by removing the stub payment risk.³
- Deep and liquid derivative markets based on the overnight RFRs are an essential prerequisite for creation of robust term benchmarks. Term RFRs are derived from pricing in these markets, so maintaining a high concentration of derivative market liquidity in overnight rates provides the foundations necessary to support their use for other purposes.
- Due to their basis in inputs from other derivatives markets, widespread use of term RFRs in derivatives would create the potential for actual or perceived conflicts of interest for market participants. Those participants trading actively in both derivatives based on overnight and term RFRs would be likely to face acute challenges in managing the resultant conduct risks.

The derivatives industry has recognised the importance of these issues, and, where IBORs are ending, has developed mechanisms to transition cleared derivatives to overnight RFRs via CCP rule changes, and uncleared derivatives to overnight RFRs via the International Swaps and Derivatives Association (ISDA) Protocol.

The FSB has recognised that in some cases there may be a role for RFR-derived term rates. While the transition away from their respective LIBOR in Switzerland and the United Kingdom has demonstrated that most or all products can successfully use overnight RFRs, an overnight RFR may not be the optimal rate in all the cases where term IBORs are currently used. If future use of RFR-based term rates is limited compared with current use of IBORs, for example if it is concentrated largely in certain cash products rather than derivative markets or used as a fallback for cash products⁴, this more limited use would be compatible with financial stability.

³ The stub risk refers to the variability of the daily payment flows arising from the interest rate swaps floating rate leg.

⁴ Some national working groups on risk-free rates have acknowledged that, subject to availability, term rates may be better suited as fallback rates in some IBOR-linked cash products..

Overnight RFRs

Market-led working groups in a number of jurisdictions have identified overnight RFRs as suitable alternatives or fallbacks to IBORs. Market participants and authorities are working on transitioning to these overnight RFRs, including adding them as fallbacks to IBORs to enhance contract robustness to the cessation of LIBOR and to the risk of discontinuance of other widely-used IBORs.

The introduction and design of these overnight RFRs has been driven by the substantial changes to wholesale funding markets since many of these IBORs were first developed, the lessons learnt from past instances of benchmark manipulation, and by the guidelines in the International Organization of Securities Commissions (IOSCO) *Principles for Financial Benchmarks*.⁵ The overnight RFRs are based on overnight trades in markets, whether unsecured or secured, where liquidity is deep enough to allow the rate to be strongly anchored in transactions, including in more adverse market conditions. To the extent that overnight RFRs are more strongly rooted in transactions than alternative rates, they represent the most robust alternatives available to the market.

The overnight RFRs, which largely or in some cases fully exclude bank credit risk, also closely track central bank policy rates, offering a more efficient and transparent way of measuring, managing, and hedging movements in those rates. Utilizing these RFR rates, also removes any distortions caused by credit concerns in the banking industry.

Over the last several years, market participants have developed conventions to use overnight compounded RFRs not only in derivative markets, where use of overnight RFRs was already common since the late 1990s to assess short-term central bank expectations (through OIS), but also in a wide variety of cash markets. Many of these methodologies were laid out in the FSB's *Overnight Risk-Free Rates: A User's Guide*.⁶ Since the publication of the Guide, we have seen the successful use of overnight RFRs across a number of jurisdictions and a wide range of cash products that had previously referenced IBORs. In the United Kingdom, SONIA in-arrears is now predominantly used in most new floating rate note and securitisation issuance, and it is becoming the standard in wholesale loan markets, despite the recent introduction of a term-SONIA rate. In Switzerland, where there will be no forward-looking term SARON rate, the use of in-arrears compounded SARON in cash products, including retail mortgages and corporate loans, is already well established. In the United States, most FRN issuance is now based on in-arrears SOFR, and consumer loans are moving to SOFR in-advance.

Development of forward-looking RFR term rates

Some of the working groups on RFRs have also been considering the development of new RFR-derived term rates that could be based on transactions or executable quotes, in relatively active and liquid markets for derivatives linked to the overnight RFRs, such as OIS and RFR futures markets.

⁵ IOSCO *Principles for Financial Benchmarks*, (2013)

⁶ FSB, *Overnight Risk-Free Rates: A User's Guide*, (2019)

Such RFR-derived term rates measure market expectations for the specific overnight RFRs over a designated period or term. Where OIS and RFR futures markets are more active than term unsecured funding markets, these reference rates could be more firmly anchored in transactions and executable quotes than term IBORs in those currencies.

While the FSB has supported the exploration of the potential to create RFR-derived term rates, it has also noted that work to transition away from LIBOR, should not wait for the development of RFR term rates. This is both because of the limitations of term rates described further below, and because the development of new term rates is at an earlier stage and less certain than the establishment of overnight RFRs.

Moreover, it may not be practicable, desirable or necessary to create an RFR-derived term rate in all currencies. This may be because RFR derivatives markets are not deep and liquid enough in the relevant tenors to support a robust benchmark, or because there are few compelling instances in which such a forward-looking term RFR is actually required.

Limitations and benefits of forward-looking RFR term rates

There are some limitations to RFR-derived term rates that may mean they are not the best choice in many markets.

They are by their nature a derivative of RFR markets. Because these RFR-derived term rates would be based on derivatives markets, their robustness will depend on derivatives market liquidity. Activity in these derivative markets may, however, be relatively thin and vary significantly with market conditions, including on expectations about central bank policy changes. The liquidity of such markets also varies significantly across currencies. Having a sufficiently liquid underlying market is a core requirement for determining robust benchmarks. Furthermore, in most cases, liquidity is not as deep or continuous as in overnight funding markets, and RFR-derived term rates cannot equal the robustness of the underlying overnight RFRs, which are the most liquid short-term interest rate market in most jurisdictions. Moving the bulk of current exposures referencing term IBOR benchmarks that are not sufficiently anchored in transactions to alternative term rates that also suffer from less liquid underlying markets would not reduce risks and vulnerabilities in the financial system. Therefore, because the FSB does not expect such RFR-derived term rates to be as robust as the overnight RFRs themselves, they should be used only where necessary.

Furthermore, RFR-derived term rates may be more volatile than RFRs themselves. Such an increase in volatility can be seen as a further friction and disadvantage to financial markets and their participants.

While forward-looking term rates do provide market participants advance knowledge and certainty of their interest rate obligations and can be valuable to some market participants who want or need to plan cash flows in-advance to make interest or coupon payments, the FSB's Overnight Risk-Free Rates: A User's Guide also notes several other conventions based on overnight RFRs that can potentially provide cash flow certainty.⁷ In those cases where it is not practicable to use the overnight RFR observed over the contractual reference period and calculated shortly before payment is due, depending on the structure of the loan, a measure of observed overnight RFR

⁷ See also Guggenheim and Schimpf (2020; BIS working paper 891) *At the crossroads in the transition away from LIBOR - from overnight to term rates*, which evaluates the different RFR-based options in advance.

rates calculated and set before the beginning of the interest period would be a viable option (known as “in advance”). The Guide also discusses “hybrid” models of using overnight RFRs that allow for the same notice and payment structure as an IBOR, while providing lenders with returns that are very close to that which would be attained by setting rates in arrears for certain types of loan facilities.

Where will a forward-looking RFR term rate be a suitable alternative to an overnight RFR?

As stated above, the FSB considers that the overnight RFRs are a more robust alternative than RFR-derived term rates.

Where the value of contracts referencing the benchmark is very large, markets will need to reference a robust benchmark, such as overnight RFRs, to avoid systemic risk. Benchmarks which are used extensively must be especially robust in order to ensure financial stability.

This is especially true in the market which constitutes the largest part of current IBOR usage – the market for interest rate derivatives. In many cases, overnight RFRs are a better choice than forward-looking term RFRs for these markets, or even existing IBORs, both because these markets have a long history of using derivatives based on overnight rates and therefore do not in most cases need term rates, and because the extensive use of derivatives dictates that they should refer to the most robust rates.

In the case of fallbacks in derivatives contracts which reference term IBORs, an appropriate spread adjustment would need to be added to rates produced by compounding the overnight RFR, but a forward-looking term rate is not, in most cases, needed. For this reason, the FSB supported the choice of overnight RFRs as the IBOR fallback in the work led by the ISDA to update and strengthen the fallbacks for derivatives which reference many of the key IBORs.

Feedback that the OSSG has received from market participants suggests that in many cases the choice of interest rate benchmark is motivated largely by being able to transact at the tightest spreads, or lowest cost. Those market participants say that, assuming a future world in which liquidity in many derivative markets is focused around overnight RFRs, and spreads are tightest in these markets, many other markets that currently use term rates are likely to move to rely on overnight RFRs instead.

Where market participants move to a forward-looking term rate or to the overnight RFRs, the FSB envisages that, if they are structured appropriately, either choice could be hedged using derivatives that reference the overnight RFR directly with little or no basis risk. This is true because they would be structured based on the same floating rate payment streams that are envisioned for derivatives based on the RFRs. However, hedging term rate products would require dynamic strategies, and in most cases it should be more cost effective to clients to hedge a contract that directly references the RFR set in arrears, than a forward-looking term rate since hedging overnight RFRs can be directly accomplished. Therefore, overnight RFRs should be used in cases where hedging in a liquid derivatives market is considered to be important, and RFR-derived term rates should only be used in certain segments of cash market where hedging needs are limited.

If future use of such RFR-derived term rates is relatively narrow compared with current use of IBORs, for example if it is concentrated largely in certain cash products rather than derivative markets, this more limited use would be compatible with financial stability. National Working Groups in the United Kingdom and United States, where RFR-derived term rates have been or may be created, have indicated that they consider such term rates to be needed only in certain segments of lending markets.⁸ Given the many examples of successful use of overnight RFRs across a wide range of cash products, in many cases, a RFR-derived term rate will not be needed for new cash products and the FSB encourages market participants to seek to use overnight RFRs directly in these products.

The FSB has highlighted the importance of work to ensure that robust fallback arrangements are in place across financial products. RFR-derived term rates can be a fallback in certain cash-product contracts which reference an IBOR, notably where that contract requires planned interest or coupon payments based on a forward-looking term rate. Averages of RFRs set in advance of an interest period can also be used as a fallback in many circumstances.^{9,10} In other cash products, contract holders may prefer overnight RFRs in arrears, for example in order to facilitate hedging using derivatives, and to maintain consistency across cash-products and derivatives contracts.

In cases where RFR-derived term rates are used in contracts, it will likewise be important that robust fallback provisions are employed for those term rates since there is no guarantee that a forward-looking RFR term rate will be robust in the long term. IOSCO has published a statement setting out the importance for users of financial benchmarks of incorporating contingency plans for the cessation of any benchmark, including having sufficiently robust fallback provisions in their financial contracts and instruments.¹¹ In some jurisdictions, notably the European Union, regulated firms are required by law to include robust plans in the event of such discontinuance.

Progressing transition

Previous FSB reports have noted that questions surrounding the long-run viability of some IBORs, notably LIBOR, underline the importance of transition to alternative overnight RFRs. Recent announcements by LIBOR's administrator and the U.K. Financial Conduct Authority have now made clear that LIBOR will discontinue or cease as a representative rate. In jurisdictions which use LIBOR, it is important that momentum is maintained to fulfil the FSB's recommendations regarding overnight RFRs. The most robust replacements for these IBORs are the overnight RFRs, because they are firmly and consistently grounded in transactions from active markets.

While some non-LIBOR IBORs will continue to be published, in many of these jurisdictions there are nevertheless efforts to encourage the use of overnight RFRs, especially in derivatives, or to devise more robust IBOR fallbacks that are based on overnight RFRs to enhance contract robustness as a contingency against risks of IBOR discontinuance. In some jurisdictions there is

⁸ FSMB, *Standard on the use of Term SONIA reference rates* (2021); The Working Group on Sterling Risk-Free Reference Rates *Use Cases of Benchmark Rates: Compounded in Arrears, Term Rate and Further Alternatives* (January 2020)

⁹ European Commission, *Targeted consultation on the designation of a statutory replacement rate for CHF LIBOR*, (2021)

¹⁰ The Working group on euro risk free rates has recommended the use of RFR set in advance as a fallback for periods no longer than 3-months, given the accounting and hedging challenges it may create.

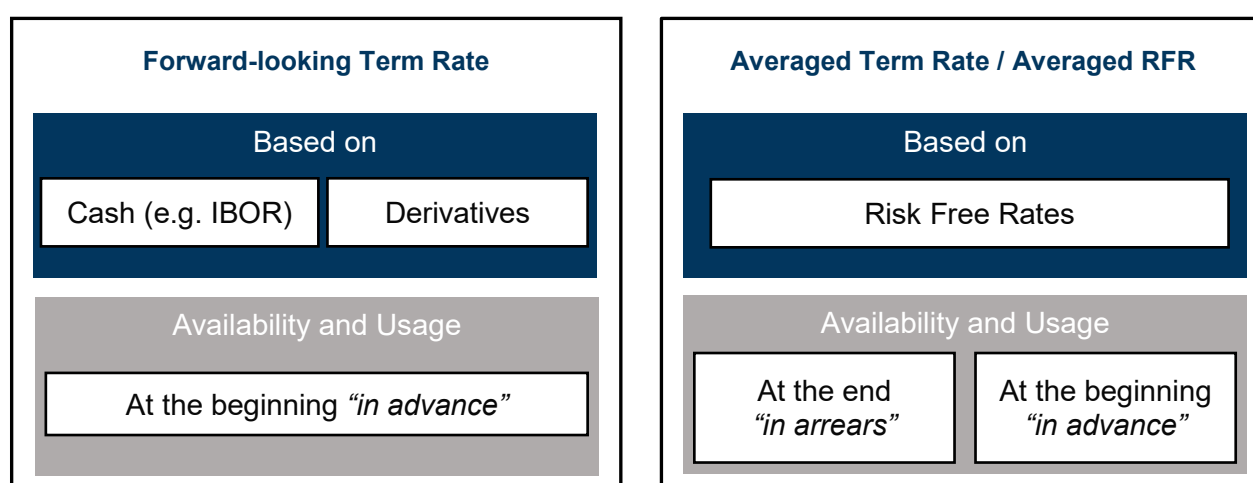
a legal requirement for certain benchmark users to establish robust written plans for such an event.

The FSB's OSSG continues its work to bring together authorities involved in interest rate benchmark reform, and to coordinate those efforts where appropriate. Important steps towards transition have been taken, but progress should continue in order to mitigate financial stability risks, in particular those risks associated with LIBOR and any use of an RFR-based term rate outside the cases set out in this paper. The FSB plans to produce its next full report on progress in November 2021.

Annex – What is a term rate?

A “term” rate is any interest rate with a tenor greater than one day (or overnight), for example 1- or 3-month rate is a term rate. Hence, a 3-month average of an overnight RFR is also a term rate. Below, we describe some of the common terminology regarding the differing types of term rates:

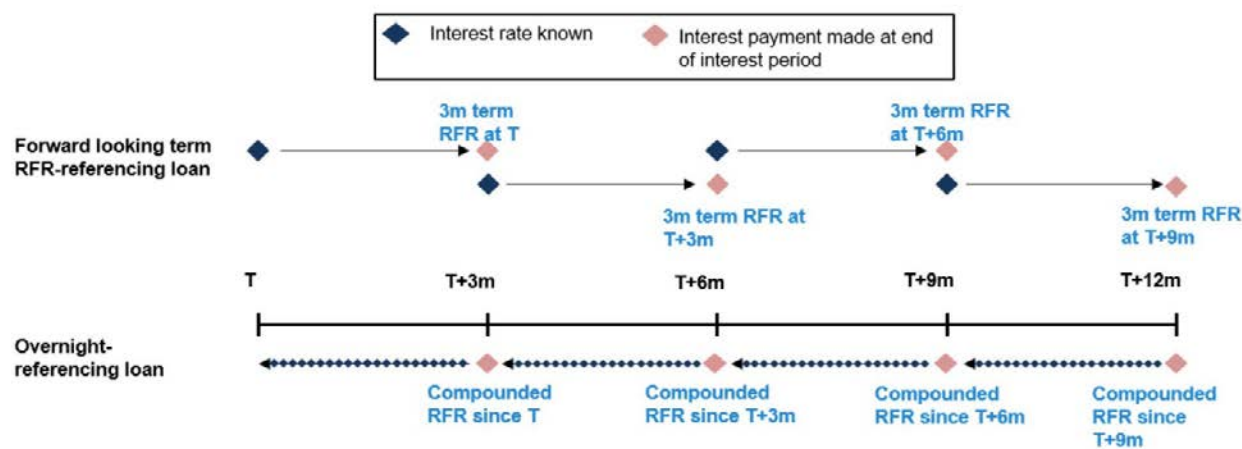
- **Averaged RFR.** Approaches reflecting a sequence of realized overnight rates (RFR) (compounded or simple average in arrears and in advance) are referred as averaged term rate or simply averaged RFR. Averaged RFR are not forward-looking as they do not reflect expectations.
- **In arrears.** Plain option of an averaged RFR. The rate is calculated and known at the end of an interest rate period.
- **In advance.** The averaged RFR of the last period is used. The averaged RFR is therefore known at the beginning of an interest rate period. However, the averaged RFR does not reflect market expectations and is therefore not forward-looking.
- **Forward-looking term rates.** Approaches reflecting a sequence of expected overnight rates (cash- and derivatives-based, e.g. LIBOR and ICE-fix, respectively) are referred as forward-looking term rates. Those rates reflect market expectations over the tenor.



In principle, forward-looking term rates could be based on overnight RFR-referencing derivatives such as futures or overnight index swaps in which a fixed rate payment is exchanged (swapped) for the floating RFR in arrears, because these provide information on market expectations of the overnight RFR over a forward-looking period. These can be referred to as “RFR-derived term rates”, “RFR-based term rates” or “term RFRs”.

The figure below shows a stylised example of a one year loan, either: i) using an overnight rate, where interest payments are based on realised overnight rates over a three-month period (backward-looking), or ii) using a term RFR derived from derivatives, where payments are based on expectations of overnight rates over a three month period (forward-looking).

Stylised example of interest rate payments using overnight RFRs and RFR-derived term rates, for a product¹²



¹² In practice, if compounded RFR is used, payments could be calculated at the exact end of the period with payments to follow, or a number of days before the end, to allow for payment at the end.