

PHIREF 1.5

Implementation Guidelines and Methodology

A. BACKGROUND

1. LIBOR Cessation

The interest rate benchmark LIBOR is expected to cease after end-2021 as the Financial Conduct Authority (FCA) will no longer compel banks to report their transactions used to calculate LIBOR by then. This is on the back of the cited lack of activity in the underlying interbank markets and the scarcity of term unsecured deposit transactions that question the sustainability of the LIBOR benchmarks.

more information here: <https://www.fca.org.uk/markets/libor>

2. Transition to Alternative Risk-free Rates (ARR)

Banking regulators and financial institutions across the globe are working on the potential replacement rate for LIBOR for each respective currency. In the US, the Alternative Reference Rates Committee (ARRC) identified SOFR as the rate that represents best practice for use in certain new USD derivatives and other financial contracts.

more information here: <https://www.newyorkfed.org/arrc/about>

On top of the daily SOFR rates that is being published already, just recently, last 10 September 2020, the ARRC submitted a Request for Proposals (RFP) to select a potential administrator to publish forward-looking SOFR term rates and they indicated a target timeline to publish the SOFR term rates during the first half of 2021, if liquidity in the SOFR derivatives markets has sufficiently developed.

more information here:

https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2020/ARRC_Press_Release_Term_Rate_RFP.pdf

https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2020/SOFR_Term_Rates_RFP.pdf

3. Contract Amendment

With SOFR identified as the best representative to replace LIBOR for USD transactions, the International Swaps and Derivatives Association (ISDA) launched its IBOR Fallbacks Supplement to the 2006 ISDA Definitions and the ISDA 2020 IBOR Fallbacks Protocol on 23 October 2020. Early adherence to the Protocol was widely encouraged, which took into effect last 25 January 2021 for all adhering parties.

This is because existing derivatives transactions will require a bilateral amendment to adequately address the USD LIBOR discontinuation. The Protocol provides a uniform, market-

wide mechanism for parties to voluntarily amend existing derivatives contracts to address the benchmark changes.

4. SOFR Calculation

Based on the ISDA recommendations, the SOFR fallback rate determined for each calculation period will be calculated as the sum of 1) the Adjusted SOFR Rate plus 2) the Spread Adjustment.

The "Adjusted SOFR Rate" will be calculated in arrears, meaning that it will be determined near the end of each calculation period, based on the average of the overnight SOFR rates observed during that calculation period and compounded daily. For example, for a transaction based on 1-month LIBOR, the Adjusted SOFR Rate for a calculation period would be based on the overnight SOFR rates for a period of 30 days.

On the other hand, the "Spread Adjustment" will be fixed upon the occurrence of an Index Cessation Event and will be calculated, for each tenor of USD LIBOR, as the median of the historical difference between such tenor of USD LIBOR and the compounded overnight SOFR rate for that tenor, observed over the prior five-year period. This adjustment is intended to account for the differences between USD LIBOR and SOFR, including the fact that USD LIBOR is an unsecured rate while SOFR is a secured rate. The Spread Adjustment is separate from, and not in place of, any spread to USD LIBOR previously negotiated between the parties. Any such negotiated spread will still be added to the "All-in" SOFR fallback rate to determine the floating rate on any such transactions.

Since the SOFR fallback rate is to be calculated in arrears based on overnight observations during each calculation period, it would not be possible to determine the rate in advance, or at the beginning of each calculation period. As a result, the SOFR fallback rate for each calculation period will be determined near the end of the calculation period, two business days prior to the related payment date.

ISDA has engaged Bloomberg Index Services Limited (BISL) to calculate and publish the fallback rates. BISL will publish, on a daily basis, the Adjusted SOFR Rate, the Spread Adjustment and the "All-in" fallback rate for each tenor of the USD LIBOR.

Under the Protocol and Amendments, BISL's published "All-in" SOFR fallback rates will be the official designated source for the replacement rate for each tenor of USD LIBOR following the occurrence of an Index Cessation Event.

5. Impact on the Philippine Interbank Reference Rate (PHIREF)

For the Philippines, the discontinuation of LIBOR also poses significant concerns given that the USD LIBOR is used in the calculation of the PHIREF, which is the implied Peso interest rate derived from done deals in the interbank foreign exchange swap market and is used as the benchmark for the reset value for the Peso floating leg of an Interest Rate Swap.

<https://bap.org.ph/markets/#dr>

6. Revisions to the Existing Benchmark

As USD LIBOR is embedded in the current calculation of the PHIREF benchmarks, one alternative is to use the ISDA recommended fallback rate instead, which is the Secured Overnight Financing Rate (SOFR). Unlike LIBOR which has a term structure, SOFR is compounded in arrears.

The idea in computing the new PHIREF is for the existing calculation to be kept intact, thereby adding the swap point component to the alternative risk-free rate and retaining its nature. The adjustment will be on the calculation of the USD rate component as the fallback rate is now computed in arrears and is determined at the end of each tenor. Parallel to the SOFR methodology, PHIREF rates would also now need to be published at the end date of each tenor.

B. FALLBACK FOR DERIVATIVES REFERENCING PHIREF (“PHIREF 1.5”)

1. Methodology

To be consistent with the ISDA’s approach, the calculation for the PHIREF fallback (named “PHIREF 1.5”) utilizing SOFR rate as the USD LIBOR replacement, needs to be adjusted for the term structure, credit spread and other factors (e.g. liquidity, operational risk and other risks), which, by nature, is currently embedded in the banks’ pricing, as the Adjusted SOFR is considered a risk-free or nearly risk free rate. Hence, the application of a spread adjustment could allow to possibly take these factors into account.

Nonetheless, considering that the Philippine USDPHP swap market uses the T+1 value date convention where the current PHIREF computation is based, it is seen best to consider retaining the current methodology in capturing the swaps component for the PHIREF 1.5 calculation. This would allow for the continued production of the said benchmark with minimal disruption to the end-users.

To factor in the active trades or liquidity in the Philippine swaps market and to take off from similar benchmarks in the other ASEAN markets, the tenors for the PHIREF 1.5 may be reduced to four, from the current seven tenors.

Below is a summary of the proposed components:

Tenor	Swaps Component	USD Rate Component	PHIREF Basis
Overnight 1 Month 3 Months 6 Months	Actual weighted average of USD/PHP FX Swaps for the corresponding tenor booked from 9:00 AM to 11:30 AM, Philippine time.	Fallback Rate (SOFR) for the corresponding tenor published daily by Bloomberg at 8:00 AM New York time, which is equivalent to 9:00 PM, Philippine time.	Actual PHIREF AM First Fix for the corresponding tenor published daily at approximately 11:35 AM, Philippine time.

**Day count convention: Actual/360*

Bloomberg, as the Calculation Agent, shall calculate and determine the PHIREF 1.5 Rate, for each maturity matching each tenor specified above, on each business day as follows:

$$\text{PHIREF 1.5} = \frac{\text{Swap Points}}{\text{Spot}} \times \frac{360 + \text{Fallback Rate (SOFR)} \times \text{Tenor}}{\text{Tenor}} + \text{Fallback Rate (SOFR)}$$

Where:

- **Swap Points** refer to the volume weighted average price of Swap Points of qualifying transactions for each tenor. The volume weighted average rate of all the qualifying transactions on Rate Record Date is calculated as follows:

$$= (\text{USD Principal} \times \text{Forward Point}) / \text{USD Aggregate Principal}$$

USDPHP Forward Points means the difference between the spot rate (or currency exchange rate) for the near leg and the forward rate (or currency exchange rate) for the far leg of that qualifying transaction.

Qualifying Transactions means all interbank transactions greater than or equal to USD 1,000,000 electronically reported through BAP-approved trading platforms.

USD Principal means the notional amount of that qualified transaction.

USD Aggregate Principal means the aggregate notional amounts of all qualifying transactions.

Higher forward points would result in a higher PHIREF 1.5. On the other hand, there may be cases where forward points may be lower, or even negative, in which case would result to a lower, or negative, PHIREF benchmark.

- **Spot** means the applicable spot reference rate to be determined by the Bankers Association of the Philippines (BAP).
- **Tenor*** means the appropriate standard Rate Tenors or actual number of days in the calculation period.
- **SOFR** means the rate of the general cost of financing US Treasury securities overnight. This is published by the New York Fed each business day on the New York Fed website (<https://www.newyorkfed.org/markets/treasury-repo-reference-rates-information>) at approximately 8:00 am ET.

*Note that the day count used to calculate the PHIREF may not necessarily be the same as the day count between 2 IRS fixing dates.

2. Application Guidelines

Assuming we are seeking the 3-month PHIREF 1.5 for an Interest Rate Swap (IRS) that resets every quarter on 19th of February and May, for the IRS period starting 19 February 2021 and ending 19 May 2021. The original PHIREF Rate Record Date (Original PHIREF Fixing Date) would have been on 18 February 2021. In the proposed application guidelines, the new fixing rate would be based on the USDPHP swap points and weighted average spot rate on the original fixing date of 18 February 2021, while the USD interest rate will be based on the latest Fallback Rate (SOFR) published on 17 May 2021, two Philippine Business Days prior to the IRS Period End Date of 19 May 2021.

The proposed methodology suggests retaining the current process of capturing the swaps component, while for the LIBOR component, the latest Fallback Rate (SOFR) published two Philippine Business Days ahead of the Payment Date, shall be used as the basis for the PHIREF 1.5 calculation. This is to allow for operational efficiency given the time difference between the US and the Philippines.

In the example above, since the published SOFR fallback rate on 17 May will be used, this means that the 3-month PHIREF 1.5 would only be available on 18 May 2021, one Philippine Business Day prior to the IRS Period End Date, 19 May 2021:

Sample Illustration I:

3-mo. PHIREF 1.5

17-Feb-21 Wed	18-Feb-21 Thu	19-Feb-21 Fri	20-Feb-21 Sat	21-Feb-21 Sun	22-Feb-21 Mon	...	17-May-21 Mon	18-May-21 Tue	19-May-21 Wed
	Original PHIREF Rate Record Date; Original PHIREF Fixing Date	PHIREF IRS Period Start Date; PHIREF IRS Reset Date	Weekend			...			PHIREF IRS Period End Date
USD/PHP FX Forward Points and Spot Rate on the Original PHIREF Rate Record Date, 18 Feb 2021, to be used in the 18 May 2021 3-mo. PHIREF 1.5 computation									
	USD/PHP FX Swap Trade Date or Record Date	USD/PHP FX Swap Value Date				...			USD/PHP FX Swap Maturity Date
3-mo. Fallback Rate (SOFR) available on Publication Date, 17 May 2021, two Philippine Business Days before the IRS Period End Date									
						3-mo. Fallback Rate (SOFR) Publication Date			
						... - For multiple Fallback Rates of the same tenor published on the same day, the rate with reference to the latest Rate Record Date shall be used			
3-mo. PHIREF 1.5 calculated and published on 18 May 2021 corresponding to Original PHIREF Rate Record Date, 18 Feb 2021									
						...		3-mo. PHIREF 1.5 Publication Date, one Philippine Business Day before the IRS Period End Date (19 May 2021)	



1 BD

In order to produce the 3-month PHIREF 1.5 on 18 May 2021, the inputs, such as, the relevant FX forward points and spot rate and Fallback Rate (SOFR) required would be:

1. The PHIREF AM First Fix according to its applicable tenor published at approximately 11:35 AM, Philippine time, on the Original Rate Record Date, 18 February 2021. Note that these are the same FX data points that would have been used to calculate the 18 February 2021 3-month PHIREF.
2. The latest Fallback Rate (SOFR) published two Philippine Business Days prior to the IRS Period End Date.

The Fallback Rate (SOFR) will have two dates associated with it:

- Rate Record Date (Original IBOR Fixing Date) or the date that the relevant IBOR would have appeared on the Bloomberg screen. For USD LIBOR, this is two banking days prior to the Reset Date, under the 2006 ISDA Definitions, and
- Fallback Rate Publication Date

Due to the alignment of the Fallback Rates' (SOFR) Day Count convention to match that of the IBOR, it can happen that on a certain day, there may be **no**, **one** or **several** Fallback Rates, with different IBOR Record Dates, that will be published.

Where multiple Fallback Rates (SOFR) of the same tenor are published on the same day, with each tagged to a unique Original Record Date, the Fallback Rate with the latest Original IBOR Record Date shall be used.

Sample Illustration II:

For a 3M SOFR Fallback Rate, Bloomberg will publish the following:

February 2021							May 2021						
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6							1
7	8	9	10	11	12	13	2	3	4	5	6	7	8
14	15	16	17	18	19	20	9	10	11	12	13	14	15
21	22	23	24	25	26	27	16	17	18	19	20	21	22
28							23	24	25	26	27	28	29
							30	31					

✘ No 3mo. Fallback Rate (SOFR) published on 13 May (with IRS Period End Date of 17 May) as 13 Feb is not a business day. The Fallback Rate (SOFR) that has been published for the most recent Original IBOR Rate Record Day should be used, in such case, the Fallback Rate (SOFR) as of 12 May Philippine Business Day.

- ☐ **Multiple Fallback Rates (SOFR)** published on 17 May, with corresponding Original IBOR Rate Record Dates of 15, 16 and 17 February. In this case, the Rate with reference to latest Record Date, 17 February Philippine Business Day, shall be used as the basis for the PHIREF 1.5 calculation.

See Annex I should the Adjusted SOFR and Spread Adjustment be used.

Sample Illustration III:

Here's a quick comparative summary of the current and the proposed methodology for PHIREF 1.5:

Calculation for 3mo. PHIREF Rate Record Date 18-Feb-21

Current Methodology (PHIREF)

Component	As of	Input
USDPHP Weighed Average	18-Feb-21	48.018
Day Count for 3-month Tenor	18-Feb-21	90
3-month USD LIBOR	17-Feb-21	0.2238%
USDPHP 3-month points	18-Feb-21	0.13507
3-month PHIREF	18-Feb-21	1.3489%

Proposed Methodology (PHIREF 1.5)

Component	As of	Input
USDPHP Weighed Average	18-Feb-21	48.018
Day Count for 3-month Tenor	18-Feb-21	90
3-month Fallback Rate (SOFR)	17-May-21	0.3252%
USDPHP 3-month points	18-Feb-21	0.13507
3-month PHIREF 1.5	18-Feb-21	1.4503%

There shall be no change in the calculation methodology for the Interest Rate Differential (IRD).

See Illustration IV for the sample detailed calculation.

3. Calculation Period, Publication and Settlement

The calculation period is expected to work similarly to the PHIREF today. On each business day in the Philippines, reporting banks provide data on all eligible FX swap transactions traded and booked in the window between 9:00 am and 4:00 pm.

With the inputs on *Sample Illustration I*, the PHIREF 1.5 for the Original PHIREF Rate Record Day 18 February 2021 will be calculated and published at approximately 11:35 AM Philippine time on 18 May 2021. The actual PHIREF 1.5 meant for IRS fixings will use the PHIREF AM First Fix. Interest payments for the IRS contracts that use the 18 February 2021 3-month PHIREF would typically be due no earlier than 19 May 2021.

Bloomberg will calculate the PHIREF 1.5 rates and each fix will be published on the Bloomberg Terminal, as well as on the Bankers Association of the Philippine's (BAP) website (<https://bap.org.ph>). The PHIREF 1.5 shall be published on each Philippine Business Day, from Monday to Friday, at approximately 11:35 AM, Philippine time. Any corrections will be published within 20 minutes of Publication Time. Calculations will be limited to the Overnight, 1-month, 3-month and 6-month PHIREF 1.5 tenors.

In cases of Force Majeure or unplanned non-working holidays, the effective publication, calculation/accrual and settlement date for all trades scheduled shall be settled on the immediately succeeding business day.

Derivatives settlement referencing PHIREF 1.5 will be known one business day prior to the payment due date.

4. Implementation

It is highly suggested that Philippine banks start tracking and monitoring their PHIREF and LIBOR exposure. They are encouraged to initiate communication on the risk-free benchmark fallback rates to all stakeholders. Each Bank must also prepare their systems to accommodate PHIREF 1.5 application.

Prior to LIBOR cessation, we also encourage having a test period for PHIREF 1.5. This shall provide leeway for the banks to identify and troubleshoot any system limitations. During this time, regulators shall as well evaluate and approve the new methodology.

Nonetheless, for derivative transactions that have reference to PHIREF, which currently relies on USD LIBOR for its calculation, the Fallback Rate PHIREF 1.5 would officially apply following the permanent cessation of the said USD benchmark.

Post-LIBOR cessation, another improvement on the existing PHIREF 1.5 benchmark rates may need to be created as the USD rate basis will shift to SOFR compounded (in arrears), depending on the direction from the local regulators and the possible creation of an Overnight Index Swap (OIS) or Cross Currency Swap (CCS) market.

ANNEX I

Application of the Adjusted SOFR and Spread Adjustment compounded in arrears in the example:

The Fallback Rate (SOFR) corresponding to the Original IBOR Rate Record Date 17 February 2021, published by Bloomberg, is expected to be computed using:

- 3-month Adjusted SOFR – compounding the daily SOFR observations over the business days from Accrual Start Date on 17 February 2021 to Accrual End Date on 17 May 2021. The final SOFR observation will be published by Federal Reserve Bank of New York on 17 May 2021 at 8:00 am New York time (9:00 pm Philippine time) and the 3-month Adjusted SOFR will be published within 45 minutes of the SOFR publication.
- The Spread adjustment will be calculated using a historical median approach over a five-year lookback period. This Spread adjustment for that tenor will be fixed ONLY upon the first to occur of (i) an announcement of discontinuation of that USD LIBOR tenor, or (ii) announcement that USD LIBOR for that tenor will be non-representative at a future date.

More information here: <https://data.bloomberglp.com/professional/sites/10/IBOR-Fallback-Rate-Adjustments-Rule-Book.pdf>

ANNEX II

Contractual Fallback for Derivatives Referencing PHIREF

Main	PHIREF 1.5
Subsequent	Relevant Repo Rates