Bank of China, USA

Funds Transfer Pricing Procedure

(Version 2020)

June 2020

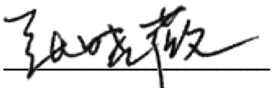
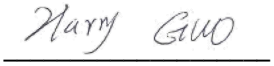
Version	Date Changes Made	Author	Description
2016	Nov 8, 2016	FMD	Initial Creation
2017	May 17, 2017	FMD	Annual Update
2018	June 15, 2018	FMD	Annual Update
2018	Aug 30, 2018	FMD	Update
2020	July 23, 2020	TRY	Transfer and Revision

Amendment: The Head Office Overseas Funding Rates is updated twice a week instead of once a week.

8/30/18 Update: FTP now includes 4-months, 5-months, 7-months, 8-months, 10-months, and 11-month rates.

7/23/20 Revision: Enhanced multiple curve construction, core deposit methodology and contingent liquidity charge scheme.

Identifying Information	
Title	Funds Transfer Pricing Procedure (Version 2020)
Procedure Owner	Treasury
Contact Information	LIU, Shunan (SNLIU@BOCUSA.COM)
Effective Date	July 23, 2020
Location	J:\1. Policy, Procedure & Plan\2. TRY Procedures\
Document Type	Procedure

Reviewed by		
Xiaowei Zhang **Head of Treasury & SVP**	 Signature	7/23/2020 Date
Hongsheng Guo **SVP**	 Signature	7/23/2020 Date

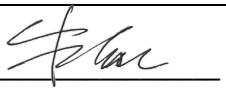
Approved by		
Asset-Liability Committee **(ALCO)**	See ALCO meeting minutes as of 07/23/2020	
Min Zhu **EVP**	 Signature	Date

Table of Contents

1. SUMMARY

The Funds Transfer Pricing Procedure establishes the proper guidelines in determining the cost of funds across the various products offered by the Bank of China USA. The FTP applies BOCNY's actual market borrowing quote, swap market rate and the Head Office (H.O.) Overseas Funding Rates as base. The BOCNY's market borrowing quote will be provided by external broker weekly. FTP rates will be updated accordingly and circulated to the business lines and departments at least weekly or whenever H.O. Oversea Funding Rates changes.

This procedure entails relevant information of the current methodologies and guidelines of Funds Transfer Pricing and will be reviewed periodically.

2. OBJECTIVES

To understand the methodologies and guidelines of the FTP process in order to properly calculate the cost of funds.

3. ROLES AND RESPONSIBILITIES

The Treasury is responsible for development, maintenance and revision of the FTP methodology at least annually or whenever business profile and strategy reform. The Treasury is also responsible for production and distribution of FTP rates report of major currencies to departments. In addition, the Treasury is responsible to coordinate Global Market Department and other business units to obtain relevant market rate quote and determinate case-by-case FTP rate at certain tenor for special foreign currencies product if such FTP rate is not included in the regular FTP rates report.

Global Market Department is responsible for providing and documenting market borrowing quote. Financial Management Department is responsible for execution of FTP interest income/expense calculation monthly or whenever requested by ad-hoc events.

FTP procedure will be reviewed on annual basis and routine maintenance will be approved by EVP in-charge. Any material revisions of the procedure and related methodologies will be presented to the ALCO committee for final approval.

4. METHODOLOGIES

4.1. TERM LOAN AND TERM DEPOSIT

The FTP rate calculation is defined to be FTP Rate = Base Rate + Liquidity Premium for term deposits and term loans. The base rate is based on the benchmark (i.e. Libor, Swap, etc.), and the liquidity premium is based on the rate tables in FTP rates report distributed by TRY.

4.1.1. FTP CURVE CONSTRUCTION

Basis for FTP curve construction in FTP rates report are as below:

- **Fixed FTP Rate Curve:**
  - Within One Year = Brokered Deposits Market Quote + FDIC Insurance Fee
  - Two Year and Above = Head Office Fixed Funding Rate + Hedge Fee
- **Floating FTP Rate Curve:**
  - Within One Year = Fixed FTP Rate within One Year – Interest Rate Swap Rate
  - Two Year and Above = Head Office Floating Funding Rate

Other linear interpolation and extrapolation guidelines were established as below:

- **Deal Tenor in (1D, 1M] [1]:** For any FTP rates below one month will be the same as one-month fixed FTP rate since the minimum term of Bank's major market funding source is one month. (i.e. deal's term shorter than 1M will use the 1M rate Deal)
- **Deal Tenor in (1M, 10Y]:** For FTP rates between one-month and ten-year will be linear interpolated. Commencing August 2020, FTP rates report will include daily rates to streamline product-pricing process. (See appendix 2 for detailed interpolation)

[1] T in (a,b] means T is greater than a, and less than or equal to b.

- **Deal Tenor over 10Y:** For both fixed and floating FTP rates beyond 10-year, the 10-year FTP fixed and floating rates will be applied respectively. (i.e. deal term longer than the last available point will use the last available FTP rate)

4.1.2. PRODUCT APPLICATION

Principles for transferring pricing of term asset and term liability (See appendix 1 for detailed FTP product category mapping) are as below:

- **Floating Rate Products:** Base rate is based on the rollover term; the liquidity premium based on the contract term. For floating products with contract term shorter than 6M will be treated as fixed rate products.

- **Fixed Rate Products:** FTP rate for fixed rate loan is based on contract term.

4.1.3. STRATEGIC ADJUSTMENTS

In consideration of any potential market volatility and uncertain liquidity outlook, a strategic FTP adjustment may also been included. An additional 10bps strategic FTP adjustment has also been added to the fixed FTP rate curve (within one-year) in this version to stimulate term deposit attraction and optimize current funding profile (Temporary item, subject to recalibrate in accordance with future market and liquidity, trends in future).

Furthermore, TRY may rebuild FTP curve structurally by blending YCD with BCD or other method based on future market issuance mix and business profile.

4.2. NON-MATURITY ASSETS AND LIABILITIES

For Non-maturity Asset (i.e. Due From Banks and Interbranch / Affiliate) apply IOER and Non-Maturity Liability (i.e. Non-Maturity Deposit) apply the core deposit methodology and contingent liquidity cost scheme. (See appendix 1 for detailed FTP product category mapping)

4.2.1. CORE DEPOSIT METHODOLOGY

The determination of core/non-core segment in non-maturity deposit is established by a historical statistical method at financial institution, corporate and retail portfolio level with a special focus on large customers. Core deposit calculation will be performed monthly.

Principles for core segment at each NMD portfolio level:

- Core Deposit Amount = minimal (last monthly average balance, mean – standard deviation of the past two year business daily balance)
- Non-Core Deposit Amount = last monthly average balance – Core Deposit Amount

For large customer who engaged more than 2 years with the Bank and their average of last two calendar years' month-end balance is greater than 1% of the average of last two calendar years' month-end total liability:

- Core Deposit Amount = minimal (last monthly average balance, 16th percentile of the past two year business daily balance)
- Non-Core Deposit Amount = last monthly average balance – Core Deposit Amount

Therefore, **Core / Non-Core FTP credit for NMD =**

Core Deposit Amount * 2-Year Fixed FTP Rate +Non-Core Deposit Amount * IOER

4.2.2. CONTINGENT LIQUIDITY COST SCHEME

The contingent liquidity cost (CLC) is defined as the cost of maintaining sufficient cushion of high quality liquid assets to meet outflows during financial stress.

Based on the HQLA yield and cost of longer-term funds:

- Buffer Cost (BC) = Cost of funding buffer = 1M FTP Funding Rate
  = 1M Fixed Rate FTP without any Strategic Adjustment
- Buffer Revenue (BR) = Return of liquidity buffer = IOER

Therefore, **CLC charges on NMD = Core Deposit Amount * 14D LST Runoff Rate * (BC – BR)**

4.2.3. OVERALL FTP SCHEME FOR NMD

The overall FTP credit for Non-Maturity deposit is calculated as below:

FTP Credits for NMD

= Core / Non-Core FTP credit for NMD - CLC charges on NMD

= Core Deposit Amount * 2Y Fixed FTP Rate + Non-Core Deposit Amount * IOER - Core Deposit Amount * 14D LST Runoff Rate * (Buffer Cost – Buffer Revenue)

4.3. OFF-BALANCE SHEET ITEMS

The off-balance sheet items including in FTP contingent liquidity charge scheme are based on the buffer occupation (i.e. net outflow contribution) under EPS liquidity stress testing. The purpose of the charge is to reflect the marginal cost of maintaining sufficient buffer cushion during normal course of business when meet liquidity requirement. (See appendix 1 for detailed FTP product category mapping)

The contingent liquidity cost guidelines in determination and calculation method are as follow:

- The FTP base is 14 days LST drawdown ratio.
- FTP CLC rate is the 1M FTP Funding Rate (1M Fixed Rate FTP without any Strategic Adjustment) – IOER (Interest Rate on Excess Reserves)
- Off-Balance Sheet FTP = month-end balance x 14 days LST drawdown ratio x FTP CLC Rate

4.4. FUNDING POOL PRODUCT

Funding pool products scope currently include Due from FED, Loans to Interbranch/Financial institutions, repo/reverse repo, bond investment, brokered deposits and due to Interbranch etc. (See appendix 1 for detailed FTP product category mapping)

Liquidity Portfolio: assigned with a favorable FTP rate (IOER) to stimulate excess funding utilization efficiency and strengthen liquidity management:

- Money Market instruments including Reverse Repo and Loans to Interbranch/Financial institutions (performed by MKD);
- All types of government bonds including U.S. Treasury, Mortgage-Backed Security and Supranational Bonds;
- In addition, when the bank has an excessive rise in funding which leads to a liquidity surplus, new ultra-short (within one-month) lending conducted by asset departments (other than MKD) could be temporarily counted into liquidity portfolio and enjoy the favorable rate (IOER). These eligible products need obtain ample funding confirmation from Treasury when deal origination, otherwise assign original matched maturity FTP rate.

Credit Bonds: Employed three-year US Treasury (on the run) yield at the purchased date as a FTP rate in consideration of the collateral pledging requirements, investment opportunity cost and stress testing's constrains on portfolio duration. TRY will revisit this approach as needed.

Other: exempted in FTP calculation.

5. APPENDIX

APPENDIX 1: FTP PRODUCT MAPPING

Product Category	FTP Application
Fed Balance	Funding Pool Product - Other
Due from IB / AFF/ FI[2]	Funding Pool Product - Other
Reverse Repo / Loans to IB / AFF / FI (MKD)[3]	Funding Pool Product - Liquidity Portfolio
Government Bond Investments	Funding Pool Product - Liquidity Portfolio
Credit Bond Investments	Funding Pool Product - Credit Bond
Customer Loan	Term Loan*
Trade Finance	Term Loan*
Due to IB / AFF	Funding Pool Product - Other
Call Loans from IB / AFF / FI (MKD)	Funding Pool Product - Other
Due to FI (Non-Maturity)	Non-Maturity Deposit (FI Portfolio)
Due to FI (w. Term)	Term Deposit
Demand, MM & Savings	Non-Maturity Deposit (Corp. and Retail Portfolio)
Time Deposits	Term Deposit
Sweep Deposits - Custodial IND	Funding Pool Product - Other
Sweep Deposits - ICS	Non-Maturity Deposit (Corp. Portfolio)
Sweep Deposits - CDARS	Term Deposit
Sweep Deposits - MMDA	Non-Maturity Deposit (Retail - MMDA Portfolio)
Brokered CDs	Funding Pool Product - Other
Yankee CDs	Funding Pool Product - Other
Repo	Funding Pool Product - Other
Loan Commitments	Off-Balance-Sheet Items
Credit Enhancement Facility - CPDP	Off-Balance-Sheet Items
Credit Enhancement Facility - 80/20	Off-Balance-Sheet Items
Standby Letter of Credit	Off-Balance-Sheet Items

**Note: Deals within one-month tenor could be considered as liquidity portfolio (as mentioned in section 4.4) in funding pool product if obtained confirmation when origination.*

[2] IB stands for Interbranch, AFF stands for Affiliate, and FI stands for Financial Institutions

[3] Only due from / loans to FI conducted by MKD will be included in liquidity portfolio, others should be counted as term product.

APPENDIX 2: DAILY FTP RATES

Steps and detailed formulas to construct standard term FTP rates and interpolate into daily buckets are as below:

Step 1. FTP Rate Basis

Fixed FTP Rate

- A Month = A Month BCD Market Quote + FDIC Insurance (A = 1 or 2 or 3 or 4 or 5 or 6 or 7 or 9 or 12)
- B Year = B Year H.O. Fixed Funding Rate + Hedge Fee (B = 2 or 3 or 4 or 5 or 6 or 7 or 10)

Floating FTP Rate

- C Month = C Month Fixed FTP Rate – C Month Libor Swap Rate (C = 6 or 12)
- D Year = D Year H.O. Floating Funding Rate (D = 2 or 3 or 4 or 5 or 6 or 7 or 10)

Step 2. Standard Term Rate

Short-term Fixed FTP Rate

- 8 Month = 1/2*7-Month Fixed FTP Rate + 1/2*9-Month Fixed FTP Rate
- 10 Month = 2/3* 9-Month Fixed FTP Rate + 1/3* 12-Month Fixed FTP Rate
- 11 Month = 1/3* 9-Month Fixed FTP Rate + 2/3* 12-Month Fixed FTP Rate

Short-term Floating FTP Rate

- 7 Month = 5/6* 6-Month Floating FTP Rate + 1/6* 12-Month Floating FTP Rate
- 8 Month = 4/6* 6-Month Floating FTP Rate + 2/6* 12-Month Floating FTP Rate
- 9 Month = 3/6* 6-Month Floating FTP Rate + 3/6* 12-Month Floating FTP Rate
- 10 Month = 2/6* 6-Month Floating FTP Rate + 4/6* 12-Month Floating FTP Rate
- 11 Month = 1/6* 6-Month Floating FTP Rate + 5/6* 12-Month Floating FTP Rate

Long-term Fixed and Floating FTP Rate

- 8 Year = 2/3 * 7 Year FTP Rate + 1/3 * 10 Year FTP Rate
- 9 Year = 1/3 * 7 Year FTP Rate + 2/3 * 10 Year FTP Rate

Step 3. Daily Buckets Transformation

For any i^{th} day between n^{th} day and m^{th} day standard tenor boundary, and i, n and m between 2 and 3600 (360 annual conversion):

FTP Rate at i^{th} day = (m-i) / (m-n)* FTP rate at n^{th} day + (i-n) / (m-n)* FTP rate at m^{th} day Rates