

Table 1

FISIM-based method considered by the ONS
for indirectly measuring deposit and loan service prices

Basic concept	<ul style="list-style-type: none"> • FISIM measurement and allocation method considered by the Eurostat.
Interest rates of deposit and loan	<ul style="list-style-type: none"> • Interest rate of deposit = the actual rate of interest payable = (total amount of interest payable – deposit-related fee) / deposit outstanding • Interest rate of loan = the actual rate of interest receivable = (total amount of interest receivable – loan-related fee) / loan outstanding <p style="text-align: center;">using the stock-based data to measuring deposit and loan service price</p>
Reference rate	<ul style="list-style-type: none"> • reference rate of FISIM measurement and allocation method is used. the Eurostat has proposed three type of interest rate as “reference rate” 1. “interbank rate” 2. mid-rate between the actual rate of interest payable and the actual rate of interest receivable 3. mid-rate between the “interbank rate” and the yield on bonds
Handling of fees	<ul style="list-style-type: none"> • Deposit-related fees are deducted from total amount of interest payable, loan-related fees are added to total amount of interest receivable.
Aggregating weight	<ul style="list-style-type: none"> • based on volumes of transactions(flow basis)
Handling “negative service prices”	<ul style="list-style-type: none"> • unclear
Qualitative differences in the services	<ul style="list-style-type: none"> • Deposit and loan services are homogenous at the aggregated level such as total outstanding of deposits ,or total outstanding of loans.
Corresponding nominal output	<ul style="list-style-type: none"> • Nominal output of FISIM as Eurostat definition.

Outline of the “FISIM-based method” by the ONS

$$P_L = \frac{(I_L + F_L)}{L} \times 100 - RF$$

$$P_D = RF - \frac{(I_D - F_D)}{D} \times 100$$

$$P = w_L \times P_L + w_D \times P_D$$

$$w_L + w_D = 1$$

P_L : Loan service price index, P_D : Deposit service price index

P : Deposit and Loan service price index, RF : Reference rate

I_L : Interest receivable, F_L : Loan-related fees

L : Loans and discounts outstanding

I_D : Interest payable, F_D : Deposit-related fees

D : Amount outstanding of deposits

w_L : Weight for loan service price

w_D : Weight for deposit service price

Table 3

UCA-based method considered by the BLS
for indirectly measuring deposit and loan service prices

Basic concept	<ul style="list-style-type: none"> • Based on User Cost Approach.
Interest rates of deposit and loan	<ul style="list-style-type: none"> • Interest rate of pre-selected representative deposit = the actual rate of interest payable for each representative deposit = (interest payable for a deposit – deposit-related fees)/ Average outstanding of that deposit • Interest rate of pre-selected representative loan = the actual rate of interest receivable for each representative loan = (interest receivable for a loan – loan-related fees)/ Average outstanding of that loan using the stock-based data to measuring deposit and loan service price
Reference rate	<ol style="list-style-type: none"> 1. Official discount rate (Central bank lending rate) 2. Federal fund rate (interbank lending rate) 3. weighted average of the interest rates on all banks' securities holdings where the weights are shares of the different securities in a banks' securities portfolio. the same reference rate should be used for both loans and deposits.
Handling of fees	<ul style="list-style-type: none"> • Deposit-related fees are deducted from interest payable of each deposit, loan-related fees are added to interest receivable of each loan.
Aggregating weight	<ul style="list-style-type: none"> • Net interest revenue will be allocated between loan and deposit products by using the reference rate.
Handling "negative service prices"	<ul style="list-style-type: none"> • Negative service price is excluded from index calculation until it becomes positive
Qualitative differences in the services	<ul style="list-style-type: none"> • Break down the deposit and loan to distinct categories of a homogenous level. • The services generated by banks via deposits and loans to be qualitatively different in each category.
Corresponding nominal output	<ul style="list-style-type: none"> • Total Financial output that is defined by user cost approach.

Outline of the UCA-based method by the BLS

$$P_L = \sum_{i=1}^m w_{Li} \left\{ \frac{(I_{Li} + F_{Li})}{L_i} \times 100 - RF \right\}$$

$$P_D = \sum_{j=1}^n w_{Dj} \left\{ RF - \frac{(I_{Dj} - F_{Dj})}{D_j} \times 100 \right\}$$

$$P = w_L \times P_L + w_D \times P_D$$

$$w_L + w_D = 1$$

$$w_L = \sum_{i=1}^m w_{Li}$$

$$w_D = \sum_{j=1}^n w_{Dj}$$

P_L : Loan service price index, P_D : Deposit service price index

P : Deposit and Loan service price index, RF : Reference rate

I_{Li} : Interest receivable of loan category i

F_{Li} : Loan-related fees of loan category i

I_{Dj} : Interest payable of deposit category j

F_{Dj} : Deposit-related fees of deposit category j

L_i : Average outstanding of loan category i

D_j : Average outstanding of deposit category j

$w_{L(i)}$: weight of loan category i

$w_{D(j)}$: weight of deposit category j

Table 5

PIRD-based method for indirectly measuring
deposit and loan service prices

Basic concept	<ul style="list-style-type: none"> Based on User Cost Approach.
Interest rates of deposit and loan	<ul style="list-style-type: none"> Published interest rate data of representative deposit and loan. using flow-based data to measuring deposit and loan service price.
Reference rate	<ul style="list-style-type: none"> Using Interbank rates in principle (see table 9 for detail).
Handling of fees	<ul style="list-style-type: none"> Unclear (There are inconsistencies between the basic logic of the user cost approach and that of the present CSPI, which calculates weights by aggregating the price of distinctive services under the input-output table).
Aggregating weight	<ol style="list-style-type: none"> Annual average outstanding basis (= turnover ratio adjusted new transaction amount basis. See Appendix 2 for detail). Mixed weight basis (current deposits and special deposits: the daily receipt amount that is calculated as the total amount of new receipt per year divided by 365. for all other deposits and loans: annual average outstanding basis).
Handling “negative service prices”	<ul style="list-style-type: none"> In cases where the differential between the “reference rates” and the deposits or lending rates are negative, the price of the concerned deposit or loan service is taken as zero.
Qualitative differences in the services	<ul style="list-style-type: none"> Break down the deposit and loan as much as possible to distinct categories of a homogenous level. The services generated by banks via deposits and loans to be qualitatively different in each category.
Corresponding nominal output	<ul style="list-style-type: none"> the differentials between the “reference rates” and the deposit and loan interest rates divided out from the “financial output” multiplied by the deposits outstanding and loans outstanding, respectively, and then totaled.

Outline of the PIRD-based method

$$P_L = \sum_{i=1}^m w_{Li} \{RL_i - RF_{Li}\}$$

$$P_D = \sum_{j=1}^n w_{Dj} \{RF_{Dj} - RD_j\}$$

$$P = w_L \times P_L + w_D \times P_D$$

$$w_L + w_D = 1$$

$$w_L = \sum_{i=1}^m w_{Li}$$

$$w_D = \sum_{j=1}^n w_{Dj}$$

P_L : Loan service price index, P_D : Deposit service price index

P : Deposit and Loan service price index

RL_i : Published interest rate of loan category i

RF_{Li} : Reference rate of loan category i

RD_j : Published interest rate of deposit category j

RF_{Dj} : Reference rate of deposit category j

$w_{L(i)}$: weight of loan category i

$w_{D(j)}$: weight of deposit category j

Data used for calculating the weights

1. Deposits

Average amount outstanding	“ <i>Yokin, Genkin, Kashidashikin</i> ” (Deposit, Vault Cash, loans and discounts)
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Source: Bank of Japan (only Japanese basis)

2. Loans and Discounts

Loans and Discounts outstanding (amount outstanding at end of month)	“Loans and Discounts Outstanding by Sector”
Individuals	“Loans and Discounts Outstanding by Sector”
Finance and Insurance	“Loans and Discounts Outstanding by Sector”
Nondeposit money corporations engaged in the provision of finance, credit and investment	“Loans and Discounts Outstanding by Sector”
Securities companies	“Loans and Discounts Outstanding by Sector”
Overseas Yen Loans	“Loans and Discounts Outstanding by Sector”

Source: Bank of Japan

Table 8

The weight data of deposits and loans

	Annual average outstanding basis	Mixed weight basis	Percentage of the private corporations and the local governments (annual average outstanding basis)
Current deposits	3.2% (166,074)	2.6% (135,589)	97.7%
Special deposits	0.5% (24,673)	3.9% (207,388)	96.7%
Ordinary deposits	7.9% (404,479)	7.7% (404,479)	36.4%
Time deposits	17.0% (874,101)	16.5% (874,101)	30.5%
Negotiable certificates of deposit	3.6% (183,095)	3.5% (183,095)	99.5%
Short-term loans and discounts	33.9% (1,740,594)	32.9% (1,740,594)	- -
Long-term loans and discounts	33.9% (1,740,594)	32.9% (1,740,594)	- -
total	5,133,612	5,285,841	- -

Figures in parentheses are value data , 100 million yen

Table 9

Deposit and Lending rates, Reference rates

1. Deposit

	Interest rates	Reference rates
Current deposits		Call rate(uncollateralized overnight)
Special deposits		Call rate(uncollateralized overnight)
Ordinary deposits	Monthly average of Ordinary deposit rate	Call rate(uncollateralized 1 week)
Time deposits (1 month-less than 2 month)	Average interest rates on time deposits by term(new receipt)	<ul style="list-style-type: none"> • 87/10-97/5: Call rate(uncollateralized 1 month) • 97/6- :TIBOR(Tokyo Interbank Offered Rate: Japanese yen 1 month)
Time deposits (2 month-less than 3 month)	Average interest rates on time deposits by term(new receipt)	<ul style="list-style-type: none"> • 87/10-97/5: Call rate(uncollateralized 2 month) • 97/6- :TIBOR(Tokyo Interbank Offered Rate: Japanese yen 2 month)
Time deposits (3 month-less than 6 month)	Average interest rates on time deposits by term(new receipt)	<ul style="list-style-type: none"> • 87/10-97/5: Call rate(uncollateralized 3 month) • 97/6- :TIBOR(Tokyo Interbank Offered Rate: Japanese yen 3 month)
Time deposits (6 month-less than 1 year)	Average interest rates on time deposits by term(new receipt)	<ul style="list-style-type: none"> • 87/10-97/5: Call rate(uncollateralized 3 month) • 97/6- :TIBOR(Tokyo Interbank Offered Rate: Japanese yen 3 month)
Negotiable certificates of deposit (90 days -180 days)	Average interest rates on certificates of deposit(new issues)	<ul style="list-style-type: none"> • 87/10-97/5: Call rate(uncollateralized 3 month) • 97/6- :TIBOR(Tokyo Interbank Offered Rate: Japanese yen 3 month)

Source: Bank of Japan, Japanese Bankers Association

2. Loans and Discounts

	Interest rates	Reference rates
Short-term loans and discounts	Short-term prime lending rate	<ul style="list-style-type: none"> • 87/10-97/5: Call rate(uncollateralized 3 month) • 97/6- :TIBOR(Tokyo Interbank Offered Rate: Japanese yen 3 month)
Long-term loans and discounts	Long-term prime lending rate (From Jun. 97, the quotation of 5-year straight bond rated Baa by Moody's is also used)	5-years yen interest rate swap

Source: Bank of Japan, Japanese Bankers Association, Japan Securities Dealers Association, Totan Derivatives Co, Ltd