

# Treatment of risk in the estimation of FISIM

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## 1. Treatment of FISIM in Japan's national accounts

Financial Intermediation Services Indirectly Measured (FISIM) are the productive services of financial intermediaries measured indirectly. They are based on the assumption that, in the absence of explicit charges, the compensation for financial intermediation services is included in the interest margin between deposit and lending rates. The amounts of such services are allocated to depositors and borrowers using a reference rate, which represents the pure cost of borrowing funds. The difference between the reference and lending rates corresponds to services provided to borrowers, while the difference between the reference and deposit rates corresponds to services provided to depositors.

In Japan, the figures of the trial estimation for the fiscal year starting in 1995 have been published by the Economic and Social Research Institute of the Cabinet Office in its *Annual Report on National Accounts*. The estimation method is deliberately envisaged and is broadly consistent with international guidelines. However, the reference rate might be reconsidered, since it does not satisfy the requirements for the reference rate. In the trial estimation, the reference rate is defined as financial intermediaries' interest payments to financial institutions divided by the balances of borrowings from them. In Japan, other financial intermediaries borrow large amounts of money from other depository corporations, and their interest payments include the compensation for services provided by other depository corporations. As a result of using a high reference rate, the trial estimation of the Cabinet Office tends to result in the overestimation of FISIM on the deposit side (see Table 1 below).

For the measurement of Japan's FISIM, the reference rate should be based on the interest on claims among other depository corporations such as money market rates. For FISIM on the lending side, however, multiple reference rates might be necessary. The margin between the reference and lending rates of other depository corporations is recorded as their FISIM. This margin is recorded again as part of the FISIM of other financial intermediaries as long as the same reference rate is used. Such double-counting should be eliminated by measuring the FISIM of other financial intermediaries based on their own interest margin, ie the margin between their borrowing and lending rates.

For other depository corporations, interest rates corresponding to the maturities of deposits and loans should be utilised. The use of an interest rate of the call market – the annual average of call rates with maturities of overnight up to three months, for example – or the Tokyo Interbank Offered Rate (Tibor) for three months tends to result in negative FISIM on the deposit side due to the zero or extremely low interest rate policy. Another factor is that such interest rates correspond to relatively short maturities, while the average maturity of deposits is calculated to be approximately one year and that of loans to be between three and four years. It is therefore considered optimum, for example, to apply the yen-yen swap rate for one year or the average of yen-yen swap rates for three and four years as the reference rate. If the yen-yen swap rate for one year is applied, estimated amounts of FISIM on the deposit side become positive for the year 2006. If the average of yen-yen swap rates

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for three and four years is applied, estimated amounts on the deposit side become positive from 2003 to 2006, while the estimated amounts on the lending side become smaller (see Table 1 below).

The 2008 System of National Accounts (SNA) recommends that the maturity structure of deposits and loans be reflected in a reference rate. In conformity with this recommendation, two different reference rates may be used when the maturities of deposits and loans are different from each other. Thus, the use of a single reference rate for one currency needs to be reconsidered. The ECB proposal in terms of the reference rate as described below appears to be quite relevant to this issue.

## **2. Treatment of risk premia in the measurement of FISIM**

### **2.1 ECB proposal**

During the OECD joint working party on financial statistics and national accounts held in September 2008, a participant from the ECB proposed the exclusion of term and credit risk premia from the measurement of FISIM. This proposal uses two main methods: (i) using reference rates that correspond to maturities of deposits and loans, eg the six-month interbank rate for maturities of less than one year, the three-year government bond rate for maturities from one to five years, and the seven-year government bond rate for maturities of more than five years; and (ii) calculating and deducting either the yield spread between corporate and government bonds or the yield spread between asset-backed and mortgage-backed securities (ABS/MBS) and government bonds.

### **2.2 Treatment of the term premium**

The term premium discussed by the ECB corresponds to the margin between the reference rate for deposits and that for loans as described above. By calculating FISIM for deposits and loans separately, using two different reference rates, the term premium might be excluded from FISIM. By adopting such an estimation method, Japan's FISIM would be decreased by approximately 20%, compared to the estimation method that uses a single reference rate (see Chart 1 below).

Such exclusion would be appropriate as long as FISIM is limited to deposits and loans. This limitation is justified only by underlining the functions of deposits and loans that are not realised by other financial instruments. In fact, transforming maturities is not a unique function of deposits and loans; it can be realised by means of securities other than shares, eg by issuing short-term securities and holding long-term securities, by accepting short-term deposits and investing in long-term securities, or by issuing short-term securities and investing in long-term loans.

Term premia represent the compensation given to financial intermediaries for bearing interest rate risk, since they are not able to earn profits simply from interest rate spreads in the long term. Such activities can be regarded as compensation for productive services other than FISIM. This is because, in the system of national accounts, the bearing of risk is not generally regarded as a productive service, but the provision of insurance policies by insurance companies, in contrast, *is* regarded as a productive service. Similarly, the bearing of interest rate risk by financial intermediaries – including by issuing or holding securities other than shares – could be regarded as a productive service. The amounts of insurance services in the national accounts are based on the margin of insurance companies; ie the sum of the actual premiums plus the property income, less the expected claims. In a similar manner, the amounts of services bearing interest rate risk could be based on earnings corresponding to the term premia less losses caused by mismatches of maturities of assets

and liabilities. In addition, if bearing interest rate risk is regarded as a productive service, it would be necessary to explore a method of allocating it to consuming entities, eg depositors/investors and borrowers/fund-raisers.

### **2.3 Treatment of the credit risk premium**

FISIM on the lending side corresponds to monitoring services such as financial intermediaries' advisory activities vis-à-vis borrowers with a view towards enabling them to repay on a regular basis. It appears inappropriate to understand FISIM on the lending side as opportunity costs of borrowers, though FISIM on the deposit side are generally understood as opportunity costs of depositors for settlement services. In Japan, many borrowers are small- and medium-sized enterprises as well as households, who are virtually unable to raise funds in the market by themselves. Their projects often become feasible only by borrowing money from financial intermediaries. Assuming that such entities raise funds in the financial market, they would have to pay much higher interest rates than borrowing rates. Thus, opportunity costs – which derive from borrowing rates higher than the market rates – are not observed.

When financial intermediaries provide funds to high-risk borrowers, they utilise substantial resources to avoid default by strengthening their monitoring and advisory activities. Thus, their lending rates add the compensation for their monitoring services onto the reference rate. Such a description is consistent with the reality of retail activities of other depository corporations, which are clearly distinguished from insurances services against credit risks. Given that credit risk premia include the compensation for monitoring services, it would be inappropriate to exclude credit risk premia entirely.

When financial intermediaries increase their lending to risky borrowers, however, the number of defaults tends to increase. This implies that monitoring services have not been fully provided to such borrowers. As long as financial intermediaries lend money to such borrowers, complete defaults are avoided, and thus their monitoring services continue. It is only when financial intermediaries give up avoiding defaults and stop lending that their monitoring services cease. Once that happens, they write off such loans from their balance sheets. Taking account of such a situation, losses caused by non-performing loans should be deducted from FISIM on the lending side. In Japan, the Bank of Japan calculates and publishes the amount of credit costs based on write-offs of non-performing loans and allowances of loan losses of other depository corporations. If such costs are deducted by adjusting the reference rate for loans, the estimated amounts of Japan's FISIM would decrease by approximately 20% (see Chart 1 below).

In this respect, the problem of a lagged structure of credit costs remains, although they represent total losses caused by non-performing loans over the long term. While allowances for loan losses are recognised, monitoring services are still provided. When monitoring services cease, any losses are not recognised in accounting terms due to the existing provision. In contrast, when borrowers start repaying on a regular basis, reversals of allowances for loan losses are recognised, as happened in the fiscal year 2005. Such a problem could be resolved by depending on past trends in the credit cost ratio rather than using data on credit costs that are recognised for a specific fiscal year.

## **3. Conclusion**

Under the current framework of FISIM, which limits the scope of its measurement to deposits and loans, the term premium should be excluded. Moreover, credit costs – as opposed to credit risk premia – should be deducted from FISIM, since such costs perforce mean the failure to perform risk management activities such as the monitoring of borrowers.

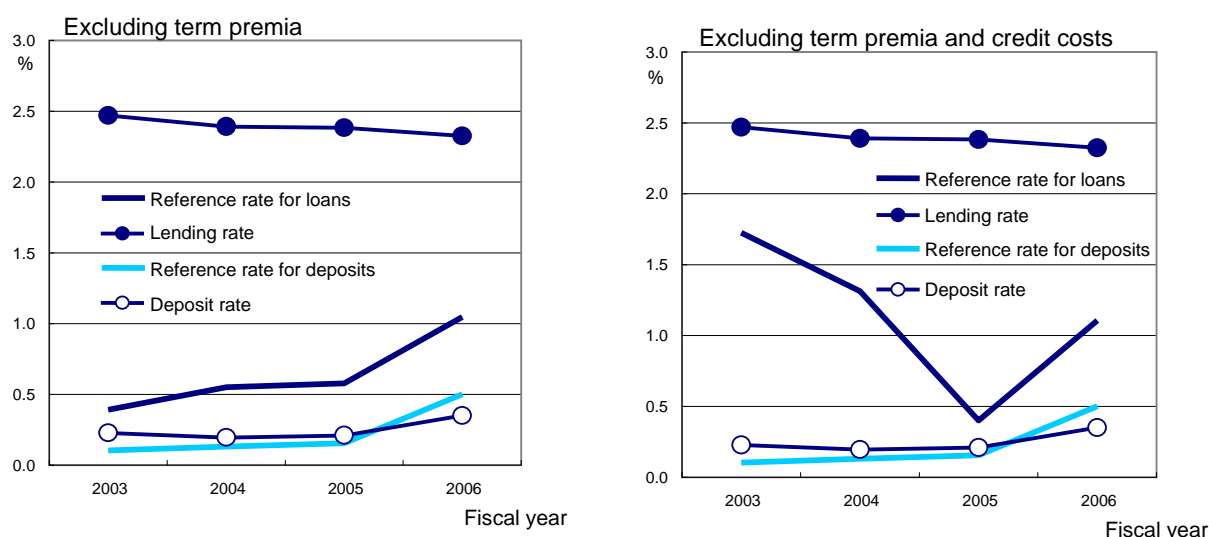
From the viewpoint of statistics users, the method of deducting term premia and credit costs from FISIM would be preferable, as the amounts of FISIM remain stable even during a boom or turmoil in the financial sector. Otherwise, the fluctuation of interest margins tends to be too large in comparison with the fluctuation of production in the real sector. An advantage could be further added by utilising past trends, especially for credit costs.

Table 1  
**Estimation of Japan's FISIM**  
 (Billions of yen)

Reference rate	FY 2003	FY 2004	FY 2005	FY 2006
(FISIM on the lending side)				
<i>Trial estimation by the Cabinet Office</i>	10,046	9,759	9,147	11,469
Average of yen-yen swap rate for 3 and 4 years	18,772	14,916	14,449	8,981
Yen-yen swap rate for 1 year	20,308	17,072	16,831	11,288
(FISIM on the deposit side)				
<i>Trial estimation by the Cabinet Office</i>	14,253	14,088	14,037	9,334
Average of yen-yen swap rate for 3 and 4 years	1,519	3,182	4,117	9,189
Yen-yen swap rate for 1 year	-1,555	-1,233	-761	4,548
(Total FISIM)				
<i>Trial estimation by the Cabinet Office</i>	24,299	23,847	23,183	20,803
Average of yen-yen swap rate for 3 and 4 years	20,291	18,098	18,565	18,170
Yen-yen swap rate for 1 year	18,753	15,839	16,071	15,837

Chart 1

**Interest margin excluding term premia and credit costs**



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