

# Practical issues on the calculation and allocation of FISIM in Korea

Kil-hyo Ahn<sup>1</sup>

## 1. Introduction

Financial intermediation services indirectly measured (FISIM), as a share of Korea's GDP during the 2000–2005 period, was fairly stable at about 5 percent, and stood at 4.8 percent as of 2005.

Table 1  
**FISIM as percentage of GDP**

Unit: trillion won, %

	2000	2001	2002	2003	2004	2005
FISIM	23.2	30.4	35.3	38.2	37.5	38.4
GDP	578.7	622.1	684.3	724.7	779.4	806.6
FISIM/GDP (%)	4.0	4.9	5.2	5.3	4.8	4.8

Source: National Accounts Data of Korea (unpublished), Bank of Korea

Since March 2003, Korea has calculated the total amount of FISIM and has allocated it to institutional sectors and industries according to the SNA 93 recommendations. The Bank of Korea compiles Korea's national accounts, along with the flow of funds table, balance of payments and input-output table, and is in the best position to gather detailed data on the activities of the financial sectors, with ready access to various types of statistics on loans and deposits. As a result, adequate data can be obtained for calculating and allocating FISIM in Korea.

This paper deals with practical issues encountered in the process of calculating and allocating FISIM in Korea. The discussion will include the coverage of financial instruments that generate FISIM, the sub-sectors of financial institutions (FIs) that produce FISIM, the choice of reference rate and the allocation of FISIM.

## 2. Calculation of FISIM

### 2.1 Financial instruments generating FISIM

The coverage of financial instruments generating FISIM has been a critical issue in their calculation. The EU countries and Eurostat decided to calculate FISIM based solely on loans

<sup>1</sup> The Bank of Korea, Economic Statistics Department, Nandaemun-Ro 106, Jung-Gu, Seoul, Korea, E-mail: kil-hyo.ahn@bok.or.kr

and deposits. The recommendation of the Advisory Expert Group on National Accounts (1993 revision) uses the same concept of coverage for FISIM-generating financial instruments. However, Japan is interested in discussing how to deal with its public sector FIs, which procure their funds primarily through borrowing, rather than in the form of deposits. Hong Kong argues that negotiable certificates of deposit should be included in the calculation of FISIM. In Korea, negotiable certificates of deposit are classified as deposits.

Korea has decided that bonds issued and owned by FIs, like traditional loans and deposits, constitute FISIM, since one-year financial bonds<sup>2</sup> (debentures) issued by FIs are means of capturing funds for long-term loans to industry. In addition, financial bonds have characteristics similar to time deposits, especially from the buyer's perspective. On the other hand, bonds owned by FIs were regarded as means of providing funds to bond issuers, even though some bonds are purchased in the secondary bond market. Moreover, Korea's flow of funds table provides quarterly data on the balance of bonds held by FIs, disaggregated by issuing sector. Based on this rationale, bonds have been considered to generate FISIM in Korea.

Such bonds make up approximately one third of total loans and deposits. As of the end of 2006, the ratio of FI-issued bonds to total deposits (deposits plus bonds issued) was 34.9 percent, while the ratio of FI-held bonds to total loans (loans plus bonds owned) was 37.4 percent.

Table 2  
**Total loans and deposits of FIs  
(as of the end of 2006)**

Unit: trillion won, %

Total loans			Total deposits		
Items	Amount	Composition	Items	Amount	Composition
Loans (A)	1,460.6	62.6	Deposits (A)	1,500.0	65.1
Bonds owned (B)	872.0	37.4	Bonds issued (B)	805.6	34.9
(financial)	(290.7)	(33.3)	(financial)	(393.3)	(48.8)
(corporate)	(183.4)	(21.0)	(beneficiary certificates)	(230.4)	(28.6)
(government)	(205.7)	(23.6)			
<b>Total (A+B)</b>	<b>2,332.6</b>	<b>100.0</b>	<b>Total (A+B)</b>	<b>2,305.6</b>	<b>100.0</b>

Source: Economic Statistics Yearbook, Bank of Korea

Bonds issued by FIs are composed primarily of financial bonds (debentures) and one-year beneficiary certificates,<sup>3</sup> with financial bonds (as of the end of 2006) representing

<sup>2</sup> Financial bonds (debentures) are issued by FIs in order to raise funds for long-term industrial loans. Since they are guaranteed by the issuing FIs, they are less risky than corporate bonds.

<sup>3</sup> Beneficiary certificates are issued by investment trust companies to raise funds for securities investment. They represent equally divided rights to take returns on investments, and in principle, they are bearer bonds. Buyers receive bankbooks, which record their purchase, instead of certificates. It takes three or four days to cash them, because FIs need time to sell them and raise cash in the securities market. In many ways, they are very similar to time deposits.

48.8 percent and beneficiary certificates representing 28.6 percent. On the asset side, bonds owned by FIs are composed mostly of financial bonds, corporate bonds and government bonds. Based on these data, it is possible to allocate FISIM with regard to total loans.

## 2.2 FISIM-producing sub-sectors

The following sub-sectors have been identified as producing FISIM in Korea. It is generally accepted that S.124, financial auxiliaries, and S.125, insurance companies and pension funds, do not produce FISIM.

- S.122, other depository corporations
- S.123, other financial intermediaries
- S.124, financial auxiliaries

It is assumed, however, that S.124 firms produce FISIM in Korea. S.124 firms include securities companies whose primary business is stock brokerage. At the same time, they take deposits from their customers and lend money to investors to buy securities. This part of the business is assumed to generate FISIM in Korea.

Another distinctive feature of Korea is that S.122 firms have a dominant market share, representing 94.4 percent of total loans and 93.8 percent of total deposits in 2005.

Table 3

### Total loans and deposits of FISIM-producing FIs

Unit: trillion won, %

Year	Total loans		Total deposits	
	2000	2005	2000	2005
S.122	993(88.9)	1,366(93.8)	1,012(90.0)	1,352(94.4)
S.123	94(8.4)	71(4.9)	84(7.5)	64(4.5)
S.124	30(2.7)	19(1.3)	29(2.6)	16(1.1)
Total	1,117(100.0)	1,456(100.0)	1,124(100.0)	1,432(100.0)

Source: Economic Statistics Yearbook, Bank of Korea

## 2.3 Choice of reference rate

According to SNA 93, the reference rate to be used represents the pure cost of borrowing funds – ie a rate from which the risk premium has been eliminated to the greatest extent possible, and which does not include any intermediation services (Paragraph 6.128). The Advisory Expert Group on the SNA (93 revision) recommends that a single rate be used for transactions in the local currency, whereas different rates may be used for transactions in other currencies.

In Korea, three different types of reference rates are applied for the three different FISIM-producing sub-sectors of FIs – S.122, S.123 and S.124. Arguments can be made against having three different reference rates for one domestic currency financial market. But it is assumed that each sub-sector of FISIM-producing FIs in Korea is conducting business in the highly segmented financial markets, and is facing different risks on its loans and deposits.

The reference rate selected in Korea is the average rate of total loans plus total deposits. It is calculated according to the following formula (1): total interest (interest payable + interest receivable) divided by the stock of total loans plus total deposits.

$$\text{Reference rate } (r^*) = (I + d) / (L + D) \quad (1)$$

I = interest receivable, d = interest payable,

L = stock of total loans, D = stock of total deposits

If the stock of loans is equal to the stock of deposits, the reference rate level does not affect the total amount of FISIM. This is explained by the following formula (2).

$$\text{FISIM} = (I - L \times r^*) + (D \times r^* - d) = (I - d) - r^* \times (L - D) \quad (2)$$

If L = D, then FISIM = I - d.

This means that the total amount of FISIM is obtained, regardless of reference rate ( $r^*$ ), if the stock of loans is equal to the stock of deposits. In 2005, the amount of FI loans in Korea was nearly equal to the amount of FI deposits, with the ratio of loans to deposits being 101.7 percent (see Table 2).

Korea did not choose the short-term inter-bank rate as a reference rate. If the inter-bank rate (call rate) had been selected, a negative FISIM on deposits would have been an ongoing feature. Average S.122 deposit rates have been higher than the inter-bank rate in Korea, but the difference between the call rate and the average deposit rate has narrowed steadily since 2000.

Table 4  
**Trends in call rate and deposit rate**

Annual rate, %

	2000	2001	2002	2003	2004	2005
Call rate (A)	5.2	4.7	4.2	4.0	3.6	3.3
Deposit rate <sup>1</sup> (B)	6.8	5.5	4.3	3.9	3.8	3.5
FISIM (A - B)	-1.6	-1.3	-1.3	-1.2	-0.9	-0.7

<sup>1</sup> average interest rate of other depository corporations.

Source: Economic Statistics Yearbook, Bank of Korea

Since the Asian financial crisis in 1997, the Korean financial market has developed apace. The interest rate differences between the various financial markets have quickly disappeared. It is expected that the time will soon come when the reference rate will be changed from the average rate of total loans and deposits to a market rate such as the call rate, certificate of deposit (CD) yields or the government bond rate.

The reference rate level in Korea has been steadily declining. However, the margin (loan rate minus deposit rate) has been maintained at about 2.5 percentage points. The level and trend of the current reference rate for the other depository corporations (S.122) have been quite similar to the rate for one-year government bonds. Consequently, the government bond rate will be one of the candidates when selecting a new market reference rate.

## 2.4 Process of calculating FISIM

The current method of calculating FISIM is a bottom-up process. For the three FISIM-producing sub-sectors, the reference rates (the average rate of total deposits plus borrowings) are calculated first. Then, using the reference rates, the amount of FISIM is estimated for each FISIM-producing FI sub-sector. In terms of calculating reference rates and estimating FISIM amounts, loans and bonds owned, and deposits and bonds issued, are treated similarly. Finally, the total amount of FISIM for FIs is estimated by adding the three different FISIM figures.

Table 5

### Trend in reference rates

Annual rate, %

	2000	2001	2002	2003	2004	2005
Loan rate of S.122 (A)	8.8	8.1	7.1	6.8	6.3	5.9
Deposit rate of S.122 (B)	6.8	5.5	4.3	3.9	3.8	3.5
Margin (A-B)	2.0	2.6	2.8	2.9	2.7	2.4
Reference rate of S.122	7.8	6.7	5.7	5.3	5.1	4.7
CD yields (91 days)	7.1	5.3	4.8	4.3	3.9	4.0
Government bonds (1 year)	7.7	5.5	5.2	4.4	4.1	4.3

Source: Interest Rates Data of Korea (unpublished), Bank of Korea

## 3. Allocation of FISIM

### 3.1 Allocation of FISIM by sector

At present, Korea has no problem in allocating FISIM by institutional sector – non-financial corporations, financial corporations, general government, household, and all other. The flow of funds table, compiled quarterly by the Bank of Korea, provides the stocks of financial assets and liabilities by institutional sector. This table shows amounts for bonds issued and held, by institutional sector. It also makes it possible to allocate FISIM produced through bonds.

### 3.2 Allocation of FISIM by industry

The allocation of FISIM on total loans, by industry, has been made based on relatively well-established statistics from “Loans and Discounts of FIs by Industry,” which has long been compiled monthly by the Bank of Korea as an important set of financial statistics. Concerning the allocation of the FISIM on deposits, the relevant data are not available, so data on output and loans, by industry, are used collectively to allocate them. This means that allocation of the FISIM on deposits is more difficult than for the FISIM on loans.

The amount of FISIM allocated to industries should be used to calculate the Gross Value Added (GVA) of the corresponding industries. However, a few industries could not use the allocated FISIM in estimates of GVA, since the use of the allocated FISIM is sometimes found to distort the level of GVA for certain industries, such as manufacturing, wholesale and retail trade, and other services. As for the allocation of FISIM on deposits, the basic data need to be improved and further developed.

## 4. Concluding remarks

In general, financial instruments producing FISIM are regarded as being restricted to loans and deposits. However, bonds are treated as generating FISIM in Korea. Bonds issued by FIs consist primarily of financial bonds and beneficiary certificates. They have, for their buyers, characteristics similar to time deposits. Bonds owned by FIs are one of the channels used to provide funds, in the same way that loans are used. There are ample data to allocate FISIM on bonds. It seems reasonable to include bonds in the calculation and allocation of FISIM, and it would therefore be better to leave up to individual countries how to handle coverage of financial instruments producing FISIM in the revised SNA 93.

Three categories of financial institutions are assumed to produce FISIM in Korea: other depository corporations (S.122), other financial intermediaries (S.123) and financial auxiliaries (S.124). In general, financial auxiliaries are not involved in financial intermediation businesses. But in Korea, brokerage is the main business carried out by securities companies, which are classified as financial auxiliaries. One of their business activities is to open accounts for their customers, take deposits, and make loans to assist their customers in buying and selling securities. This part of their business constitutes financial intermediation services and thus, like S.122, is considered to generate FISIM.

Three different reference rates have been applied to the three sub-sectors of FIs to calculate FISIM. The Advisory Expert Group on the SNA (93 revision) is recommending a single reference rate in the local currency. But it is assumed that each sub-sector of FISIM-producing FIs in Korea is conducting business in the highly segmented financial markets, and is facing different risks on its loans and deposits.

Korea has not used the short-term inter-bank rate as a reference rate, since it has always been lower than the deposit rate, which would imply a negative FISIM on deposits. So the average interest rate on deposits and loans, ie total interest payable plus receivable, divided by total stock of deposits and loans, has been selected as the reference rate. Recently, the government bond rate has been at a level – and has shown movement – similar to that of the average interest rate. At this point, a change in the reference rate should therefore be considered.

There are high-quality data for allocating FISIM by institutional sector in Korea. The country's flow of funds table provides balances for loans and deposits by institutional sector. However, their allocation by industry is not yet satisfactory, owing to a lack of deposit data by industry.