



National Bank of Serbia

Balance of Payment Statistics

Estimation of the

FISIM

for the balance of payments purposes

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- The BPM6 methodology requires identification of **FISIM (Financial Intermediation Services Indirectly Measured)** separately. Previously it was embedded in the BoP within interest and recorded in the investment income account and not in **the services account**.
- The methodology of national accounts (NA) includes FISIM in GDP data. Absence of assessment of FISIM in BoP leads to the methodological differences between BoP and the Rest of the World sector in NA.
- It was agreed between the NBS and the SORS that once the NBS starts to calculate external FISIM (as the **majority of data sources are in the NBS**), the SORS will use the external FISIM figure as calculated by the NBS in the NA.
- **FISIM is calculated on monthly basis for BoP purposes.**

- The NBS' External Loans Division keeps a record of individual **cross-border loans data base** (loan-by-loan and assets-liability). This loan data base is in an electronic form and Oracle Discoverer Business Intelligence is used as a tool for data analysis. According to the Law, all legal entities have to report to the NBS on loans received from abroad or loans provided by resident banks, or companies to nonresidents.
- Information provided to the NBS include name and branch of activity of the legal entity, country of origin of the non-resident from which the loan was taken/to whom the loan was granted, currency of the loan, interest rate agreed, maturity, relationship between resident taking/granting the loan and nonresident granting/taking the loan. These data are required and used for calculation of the FISIM.
- Data on deposits are obtained from the Monetary Statistics Department.
- Since the liability side of financial loans is more important for the Serbian BoP, the focus is given to imported FISIM for loans, but the principle for calculating imported FISIM for deposits and exported FISIM is the same.



Estimation of FISIM

- FISIM is estimated based on differences between the amount of interest paid on loans at actual interest rates for a particular period and the amount of interest that would be paid if the interbank interest rate (**reference interest rate**) was applied.

-The reference interest rate is calculated for the reporting period based on data from the NBS external loan and credit database, by calculating the weighted average interest rates that domestic banks paid to foreign commercial banks. The weighted average rates for each currency are calculated separately with regard to long-term and short-term maturity. The stock of debt in respect of loans is used as a weight.

-The calculated reference interest rate is **applied to loan liabilities to non-resident financial corporations of domestic enterprises and of the Serbian government for the reporting period.**

-FISIM represents the difference between the calculated amount of interest and the actually paid interest.



Estimation of FISIM

- In the explanation of the methodology for calculating FISIM, FISIM refers to imported FISIM for loans. FISIM will be calculated in two phases. In the first phase, reference interest rates will be estimated, and in the second phase, estimated reference interest rates will be applied on the interest accrued.

Phase 1

- In this phase, all liabilities on loans are broken down by maturity on short-term (up to one year) and on long-term (above one year) ones, and by currency on euro, USD, Swiss franc and the residual category. After this, cross-border interbank loan liabilities are grouped by maturity and by currency and give eight groups of information. An average weighted interest rate is calculated for each group. These eight interest rates are the reference rates used for calculating FISIM.

Phase 2

- For each **loan extended by nonresident financial institution to the resident non-banking sector**, one of the calculated reference rates is subtracted from the agreed interest rate, depending on the maturity and currency of the loan, and then multiplied by the loan amount. These results is summed up and represents the imported FISIM for loans.



Numerical example

Information from the loan data base

Name of resident legal entity	Branch of activity of resident legal entity	Country of creditor	Original currency	Maturity	Interest rate agreed (%)	Loan amount (EUR)	DI relationship
Bank 1	Bank	Germany	EUR	short-term	4.0	1,000.0	no
Bank 2	Bank	Switzerland	CHF	short-term	3.0	1,000.0	no
Bank 3	Bank	USA	USD	short-term	3.5	1,000.0	yes
Bank 4	Bank	Austria	Other currency	short-term	4.0	1,000.0	no
Bank 5	Bank	Germany	EUR	long-term	3.0	1,000,000.0	no
Bank 6	Bank	Switzerland	CHF	long-term	2.0	1,000,000.0	yes
Bank 7	Bank	USA	USD	long-term	2.5	1,000,000.0	yes
Bank 8	Bank	Austria	Other currency	long-term	3.0	1,000,000.0	no
Bank 9	Bank	Germany	EUR	short-term	3.5	1,000.0	no
Bank 10	Bank	Switzerland	CHF	short-term	2.8	1,000.0	yes
Bank 11	Bank	USA	USD	short-term	3.6	1,000.0	no
Bank 12	Bank	Austria	Other currency	short-term	3.2	1,000.0	no
Bank 13	Bank	Germany	EUR	long-term	2.8	1,000,000.0	yes
Bank 14	Bank	Switzerland	CHF	long-term	2.7	1,000,000.0	yes
Bank 15	Bank	USA	USD	long-term	3.3	1,000,000.0	no
Bank 16	Bank	Austria	Other currency	long-term	2.0	1,000,000.0	no
ABC	Fishing	Germany	EUR	short-term	5.0	1,000.0	no
CDE	Manufacturing	Switzerland	CHF	short-term	7.0	1,200.0	no
EFG	Fishing	USA	USD	short-term	5.0	1,100.0	no
GHJ	Manufacturing	Austria	Other currency	short-term	6.0	1,000.0	no
JKL	Fishing	Germany	EUR	long-term	4.0	10,000.0	no
LMN	Insurance company	Switzerland	CHF	long-term	2.0	15,000.0	yes
NOP	Fishing	USA	USD	long-term	3.0	14,000.0	no
PQR	Manufacturing	Austria	Other currency	long-term	5.0	12,000.0	no



Numerical example

- Using the above information, reference rates is calculated as an average weighted reference rate for a given maturity and the original currency. For example, the average interest rate on cross-border inter-banking short-term loans in EUR would be $(4.0 + 3.5) / 2 = 3.75$.

Phase 1 – calculation of the reference rates

Resident branch of activity	Non-resident branch of activity	Currency	Maturity	Reference rate
Bank	Financial cooperation	EUR	short-term	3.75
Bank	Financial cooperation	CHF	short-term	2.90
Bank	Financial cooperation	USD	short-term	3.55
Bank	Financial cooperation	Other currency	short-term	3.60
Bank	Financial cooperation	EUR	long-term	2.90
Bank	Financial cooperation	CHF	long-term	2.35
Bank	Financial cooperation	USD	long-term	2.90
Bank	Financial cooperation	Other currency	long-term	2.50



- The next step is to calculate FISIM using these reference rates depending on the maturity and currency of the loan.

For example, company ABC took a loan from the German financial corporation (as defined in paragraph 4.63 of BPM6) with whom it has no direct investment relationship. Agreed interest rate is 5.00%, but the average cross-border inter-banking interest rate for short-term loans in EUR is 3.75%. Hence, anything paid above this interest rate would constitute payment of service which is indirectly measured (FISIM) and is calculated by multiplying the loan amount by the difference between the interest rate agreed and the reference rate.

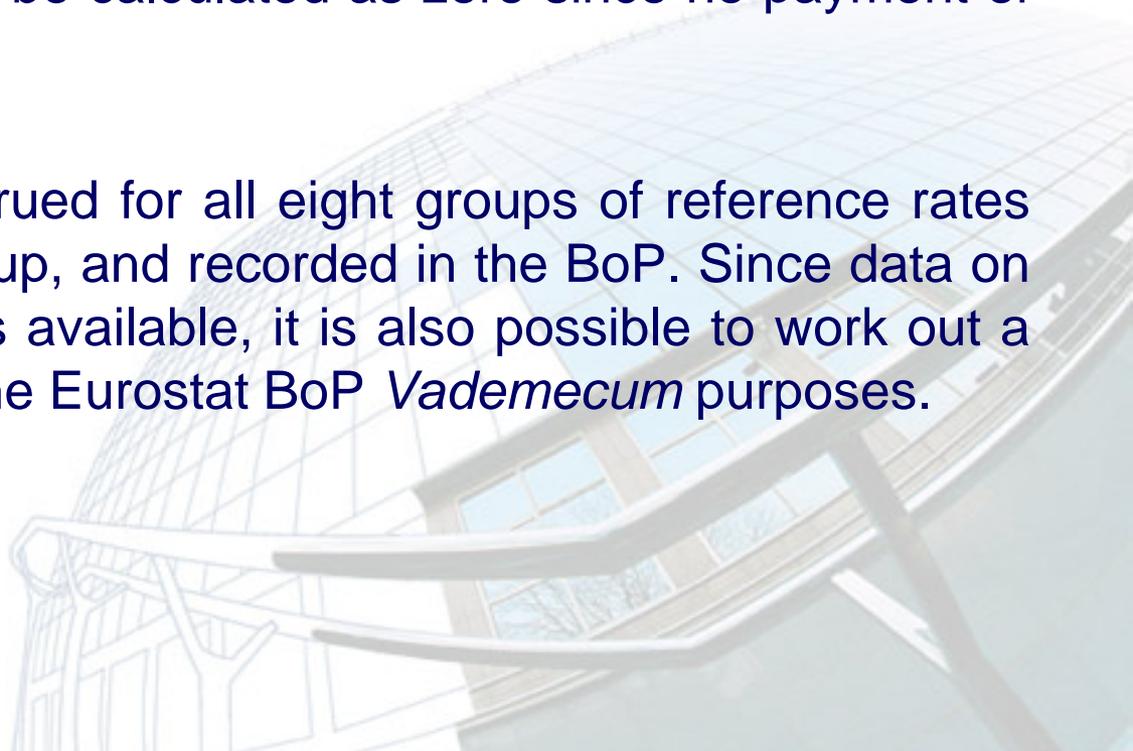
Phase 2 - calculating FISIM

Name of legal entity	Branch of Activity	Country of Creditor	DI Relationship	Interest rate agreed (%)	Reference rate	Difference between interest rate agreed and reference rate	Loan Amount (EUR)	Imported FISIM for loans (Services Account)	Accrual Interest (Primary Income Account)
(1)	(2)	(3)	(4)	(5)	(6)	(7) = (5) - (6)	(8)	(9) = (7) * (8) / 100	(10)
ABC	Fishing	Germany	no	5.00	3.75	-1.25	1,000.00	-12.50	-37.50
CDE	Manufacturing	Switzerland	no	7.00	2.90	-4.10	1,200.00	-49.20	-34.80
EFG	Fishing	USA	no	5.00	3.55	-1.45	1,100.00	-15.95	-39.05
GHJ	Manufacturing	Austria	no	6.00	3.60	-2.40	1,000.00	-24.00	-36.00
JKL	Fishing	Germany	no	4.00	2.90	-1.10	10,000.00	-110.00	-290.00
LMN	Insurance company	Switzerland	yes	2.00	2.35	0.35	15,000.00	0.00	-300.00
NOP	Fishing	USA	no	3.00	2.90	-0.10	14,000.00	-14.00	-406.00
PQR	Manufacturing	Austria	no	5.00	2.50	-2.50	12,000.00	-300.00	-300.00



Numerical example

- The level of the interest rate given to a company in direct investment relationship could be lower than the reference rate calculated. In order to avoid negative FISIM in case a company was granted a loan by a foreign owner or a fellow company which is a financial corporation (as defined in paragraph 4.63 of BPM6) at an interest rate lower than the reference rate, FISIM would be calculated as zero since no payment of service was charged.
- The FISIM and interest accrued for all eight groups of reference rates will be calculated, summed up, and recorded in the BoP. Since data on the country of the creditor is available, it is also possible to work out a break-down by country for the Eurostat BoP *Vademecum* purposes.





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Thank you for your attention

