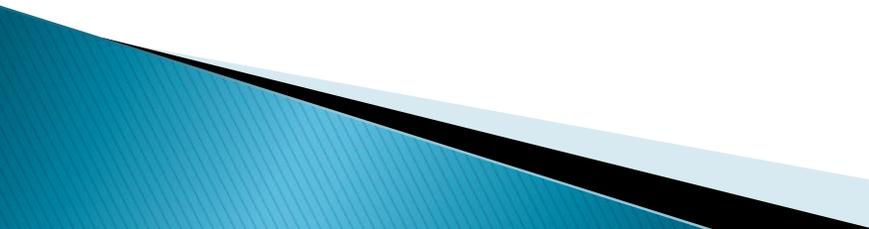


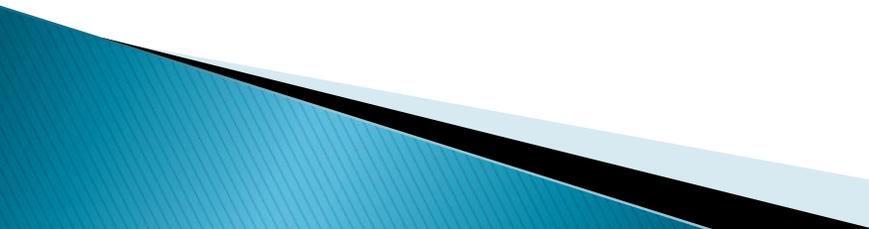
Flow of Funds Accounts Based on European System of Accounts

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Main aims

- ▶ To present flow of funds accounts (FFA) in the meaning of social accounting matrix (SAM),
 - ▶ To construct SAM for Poland integrated with FFA,
 - ▶ To calculate some coefficients and multipliers for Poland based on input–output techniques (following Klein 1983, 2003),
 - ▶ To make some exemplary comparisons with coefficients calculated for Hungary and Italy.
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FFA for Poland

- ▶ follow the form of European System of Accounts (ESA 95).
 - ▶ Values of financial transactions are aggregated to twenty one instruments of financial market (forms of financial assets) and six institutional sectors, among which there are five subsectors of financial corporations and three subsectors of general government.
 - ▶ Changes of liabilities and changes of financial assets are presented in two separate tables.
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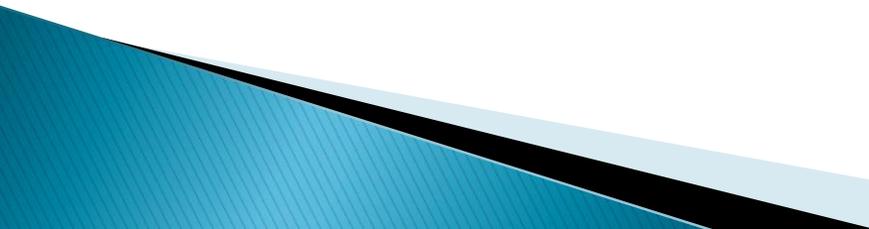
Applied scheme of SAM with a disaggregation of accumulation account

			USES						
			1	2	3	4	5	Total	
RESOURCES	1	Production account		I		II			
	2	Means of production	Primary incomes	III					
	3	Current account	Institutional sectors						
	4	Capital account	Institutional sectors						
	5	Financial account	Financial assets						
	Total								

Two ways of constructing sub-matrices that present changes of financial assets and liabilities:

- ▶ direct use data from financial accounts,
- ▶ registering only positive flows.

Other possible way of presenting data for FFA in SAM:

- ▶ Pyatt 1991, Green, Murinde 2003
 - ▶ Tsujimura, Mizoshita 2003
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Following Klein (1983, 2003):

$\mathbf{A}^T = [a_{ij}]$ – sub-matrix 5,4 showing financial assets,

$\mathbf{L}^T = [l_{ji}]$ – sub-matrix 4,5 of liabilities,

$\mathbf{K}^T = [k_{hj}]$ – matrix consisting of non-financial assets (or capital transfer),

where:

- ▶ $i = 1, 2, \dots, m$ – the number of the form of financial asset or liability,
- ▶ $j = 1, 2, \dots, n$ – the number of institutional sector,
- ▶ $h = 1, 2, \dots, s$ – the number of category of non-financial asset (or capital transfer) distinguished in SAM.

Model FFA based on input–output techniques

$$l = Dw, \quad (1)$$

$$w = Cl + k = a + k, \quad (2)$$

where:

- ▶ l – vector of issue of liabilities,
- ▶ w – vector of net worth of particular sectors (sum of financial and nonfinancial assets by institutional sectors),
- ▶ k – vector of non–financial capital,
- ▶ $D = [d_{ij}/w_j]$ – matrix of coefficients showing the i –th liability constructed by the j –th sector as a fraction of this sector's net worth,
- ▶ $C = [a_{ji}/l_i]$ – matrix of coefficients representing the j –th sector's acquiring of the i –th financial asset as a fraction of total issue of liabilities of the i –th form.

Vectors w , l or a as a function of k :

$$w = (I - CD)^{-1}k, \quad (3)$$

$$l = (I - DC)^{-1}Dk, \quad (4)$$

$$a = [(I - CD)^{-1} - I]k, \quad (5)$$

Elements of matrix D for Poland for 2010

Sector Liabilities	households; non- profit institutions	financial corporations	non-financial corporations	general government	rest of the world
monetary gold and SDRs; currency	0,000	0,014	0,000	0,000	0,002
deposits	0,000	0,297	0,000	0,000	0,085
securities other than shares	0,000	0,201	0,037	0,667	0,239
loans	0,236	0,091	0,008	0,335	0,040
shares and other equity	0,000	0,180	0,006	0,000	0,076
insurance technical reserves	0,000	0,148	0,000	0,000	0,005
other accounts receivable/payable	0,002	0,024	0,208	0,030	0,200

Coefficients of financing accumulation by external sources based on matrix for Poland, Italy and Hungary (liabilities per unit of net worth)

Sector	Country	Poland		Italy	Hungary
		2008	2010	2010	
households, non-profit institutions		0,752	0,238	0,506	-0,209
financial corporations		0,737	0,955	0,445	1,031
non-financial corporations		0,222	0,259	0,328	2,316
general government		0,705	1,031	1,769	2,137
rest of the world		-0,553	0,646	0,114	0,983

Elements of matrix C for Poland for 2010

Assets Sector	monetary gold and SDRs; currency	deposits	securities other than shares	loans	shares and other equity	insurance technical reserves	other accounts receivable/pa vable
households; non-profit institutions	0,798	0,513	0,003	-0,010	0,548	0,896	0,011
financial corporations	0,110	0,138	0,508	0,596	0,666	0,031	0,028
non-financial corporations	0,034	0,240	0,099	0,121	0,529	0,063	0,798
general government	0,026	-0,073	0,014	0,082	-0,596	0,009	-0,025
rest of the world	0,033	0,182	0,376	0,210	-0,147	0,000	0,188

Elements of multipliers matrix $(I-CD)^{-1}$ for Poland for 2010

Sector	households, non-profit institutions	financial corporations	non-financial corporations	general government	rest of the world
households, non-profit institutions	1,108	0,593	0,046	0,465	0,261
financial corporations	0,274	1,625	0,092	0,958	0,435
non-financial corporations	0,142	0,481	1,252	0,602	0,465
general government	0,027	0,035	0,004	1,053	0,020
Total economy	1,551	2,735	1,394	3,077	1,181
rest of the world	0,130	0,359	0,098	0,541	1,293
Total	1,680	3,094	1,492	3,618	2,475

Elements of multipliers matrix $(I-DC)^{-1}D$ for Poland for 2010

Sector Liabilities	households; non- profit institutions	financial corporations	non-financial corporations	general government	rest of the world
monetary gold and SDRs	0,000	0,001	0,000	0,000	0,000
currency	0,004	0,023	0,001	0,014	0,009
deposits	0,093	0,514	0,036	0,367	0,235
securities other than shares	0,103	0,443	0,090	0,859	0,410
loans	0,304	0,316	0,034	0,485	0,160
shares and other equity	0,071	0,343	0,036	0,453	0,233
insurance technical reserves	0,041	0,243	0,014	0,145	0,071
other accounts receivable/payable	0,064	0,211	0,281	0,294	0,356

Next steps

- I. Simulation analyses showing macroeconomic effects of increasing in chosen expenditures (e.g. capital uses of a given sector) on resources on all accounts distinguished in SAM taking into consideration feedbacks effects among production accounts and income redistribution registered on current and capital accounts of all institutional sectors.
- II. Enclosing the deterministic model based on SAM (with flow of funds accounts) to econometric multisectoral macromodel.
- III. Introducing the effects of changes of interest rates, prices and wages related to the rate of investment and saving, which influence demand and supply on financial markets by making coefficients of matrices **C** and **D** variables.
- IV. Deeper comparative cross-section-time analyses doable owing to construction of a dynamic database of FFA coefficients.
- V. Using revaluation accounts following ESA 1995 (real holding gains/loses) for explanation of changes of propensity to invest in material or financial form, which have direct influence to a position of financial market.