



EUROPEAN CENTRAL BANK

EUROSYSTEM

Who-to-whom matrices

Workshop on Financial
Accounts

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Overview

- 1 “Who-to-whom” concept
- 2 Who-to-whom: main data sources
- 3 Compilation of who-to-whom: two cases
- 4 Who-to-whom balancing in practice
- 5 Main features of euro area/national who-to-whom tables
- 6 Data access and visualisation
- 7 Exercises

1. Who-to-whom concept

Financial accounts basic data show total assets and liabilities by sector, instrument by instrument:

	ASSETS										LIABILITIES									
	S1	S11	S12K	S124	S12O	S128	S129	S13	S1M	S2	S1	S11	S12K	S124	S12O	S128	S129	S13	S1M	S2
F1 Monetary gold and SDRs																				
F2 Currency and deposits																				
F3 Debt securities																				
F4 Loans																				
F51 Equity																				
F52 Investment fund shares																				
F62 Life insurance																				
F6O Standardized guarantees																				
F6N Pension schemes																				
F7 Derivatives																				
F8 Other accounts, trade credit																				

For each instrument, the sum of assets held by all sectors is equal to the sum of liabilities (in stocks and flow data)

S1: all resident sectors; S11: non-financial corporations; S12K Monetary Financial Institutions; S124: investment funds; S12O: other financial institutions; S128: insurance corporations; S129: pension funds; S13: general government; S1M: households and non-profit institutions serving households; S2: Rest-of-the-world

1. Who-to-whom concept

With who-to-whom data, positions and flows (transactions, revaluations, others) are broken down by counterpart sectors

Liabilities ->	S11	S12	S13	S1M	S2	Total
Assets						
S11						
S12						
S13						
S1M						
S2						
Total						

1. Who-to-whom concept

Columns break down a **sector's liabilities by counterparty.**

Rows break down its assets.

Government

Assets:	Liabilities :
Item 1 ...	Item 1 ...
Item 2 ...	Item 2 ...
	Debt issued : B+E+H

↓

Banks

Assets:	Liabilities :
Item 1 ...	Item 1 ...
Item 2 ...	Item 2 ...
Debt held : A+B+C	



		Debtor (issuer)			
		Banks	Gov't	Corp.	Total held
Creditor (holder)	Banks	A	B	C	Banks: A+B+C
	Gov't	D	E	F	Gov't: D+E+F
	Corp.	G	H	I	Corp.: G+H+I
	Total issued	Banks: A+D+G	Gov't: B+E+H	Corp.: C+F+I	

1. Who-to-whom concept

- In other words, who-to-whom data identify creditors (=holders) and debtors (=issuers) simultaneously.
- They therefore provide a complete overview on **sectoral interlinkages** for the entire economy, consistent with macroeconomic aggregates.
- Only **resident** counterpart sectors are identified, i.e. **non-resident** counterparts are aggregated into **one sector** [which has some drawbacks, in the context of globalisation)]

1. Who-to-whom concept

How useful is who-to-whom

- It adds analytical value to the accounts, as showing the relations between sectors (e.g. MFI lending to NFCs)
- In 2009, the International Monetary Fund (IMF) and the Financial Stability Board (FSB) issued The Financial Crisis and Information Gaps report => to explore information gaps and provide appropriate proposals for strengthening data collection (IMF and FSB, 2009).

This initial Data Gaps Initiative (DGI-I), endorsed by the G-20, comprised 20 recommendations focusing on three key statistical domains:

- i) the build-up of risks in the financial sector;
- ii) **international financial network connections**; and
- iii) vulnerabilities to shocks.

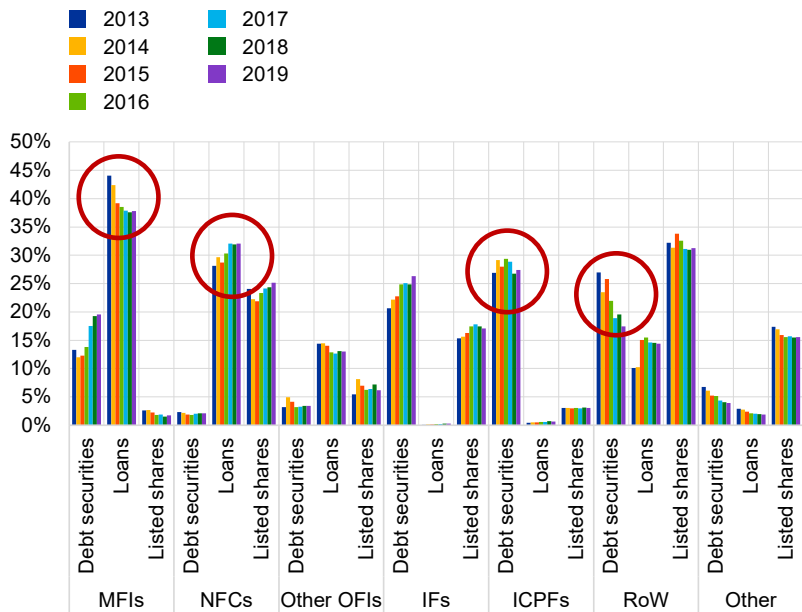
1. Who-to-whom concept

Example of use in monetary analysis: financing of non-financial corporations

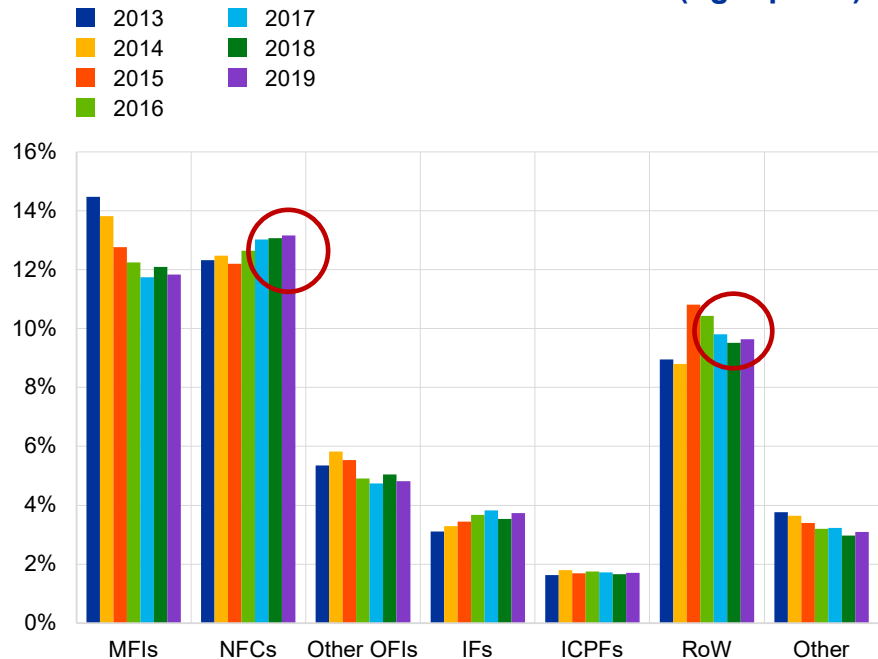
Role of financing providing sectors in the external financing of euro area NFCs

By type of financial instrument (left panel) and as a share in total euro area NFC liabilities (right panel)

(percent; annual data; 2013 to 2019)



Sources: ECB (EEA) and ECB calculations.



1. Who-to-whom concept

Data collection perspective

- A new dimension: in business accounting, the institutional sector of the counterparty is not specified
- From a compilation point of view, it entails a further challenge, but also an opportunity for enhancing quality
- For who-to-whom to be feasible, source data need to keep track of the sector of the counterparty

1. Who-to-whom concept

Example: transactions in long term debt securities

	S	S11	S12K	S121	S12T	S124	S12O	S128	S129	S13	S1M	S2
S		66.2	-79.0	0.0	-79.0	-1.4	79.1	0.7	0.0	184.5	0.0	388.3
S11	1.5	2.9	-6.4	0.0	-6.4	0.0	-0.3	0.2	0.0	5.9	0.0	-0.8
S12K	394.2	72.6	-4.7	0.0	-4.7	0.0	3.6	-1.2	0.0	341.7	0.0	-17.7
S121	696.7	63.2	61.8	0.0	61.8	0.0	59.6	0.3	0.0	496.5	0.0	15.4
S12T	-302.5	9.4	-66.5	0.0	-66.5	0.0	-56.0	-1.5	0.0	-154.8	0.0	-33.1
S124	365.5	19.7	24.9	0.0	24.9	0.0	32.9	1.5	0.0	-36.1	0.0	322.7
S12O	50.9	-2.5	0.0	0.0	0.0	0.0	35.5	0.1	0.0	-24.7	0.0	42.5
S128	19.8	13.0	-14.4	0.0	-14.4	0.0	-2.4	0.7	0.0	1.5	0.0	21.5
S129	69.2	1.2	5.7	0.0	5.7	0.0	-1.3	0.0	0.0	38.4	0.0	25.2
S13	-26.9	-0.8	-0.7	0.0	-0.7	0.0	-7.8	-0.5	0.0	-14.2	0.0	-2.9
S1M	-91.7	-6.7	-65.5	0.0	-65.5	0.0	-6.0	-0.1	0.0	-11.3	0.0	-2.2
S2	-144.2	-33.2	-17.8	0.0	-17.8	-1.4	24.8	0.0	0.0	-116.6	0.0	0.0

S12K: MFIs including Eurosystem; S12T: MFIs excluding Eurosystem;
 S12O: other financial sub-sectors;
 S1M households and non-profit institutions serving households

2. Who-to-whom: main data sources

Loans (F4) and deposits (F2M) can be obtained to a large extent via who-to-whom data from banks

Actively traded securities, i.e. F3 listed shares, F511 listed shares, F52 investment fund shares, may be obtained from securities holdings statistics and securities issues statistics

Currently, most EU countries show no who-to-who data for other instruments, including:

- F21 Currency
- F6 insurance, pensions and standardized guarantee schemes
- F7 Financial derivatives
- F8 Other accounts receivable/payable

3. Compilation of who-to-whom: two cases

Case 1: full information on bilateral links

Totals are the simple sum of the components

Liabilities -> Assets	S11	S12	S13	S1M	S2	Total
S11						
S12						
S13						
S1M						
S2						
Total						

This is mostly the case in euro area accounts for deposits and loans.

3. Compilation of who-to-whom: two cases

Case 2: no full information on bilateral links

Sometimes only totals are known for some rows or columns

and/or totals do not come from the same source as components

and/or some bilateral links are missing

=> Need to estimate

3. Compilation of who-to-whom: two cases

This is the case in euro area accounts, covering (i) short and long term debt securities, (ii) listed shares, and (iii) investment funds shares

In particular:

- Full details matching with totals are available only for the MFI sector
- Totals are available for Government assets and liabilities
- Details (from NCB reporting, generally based on Securities Holdings Statistics) are available for other components but they do not necessarily match with the other available totals

4. Who-to-whom balancing in practice

CASE 1: totals are the simple sum of the interior

Starting point: already balanced, but still possibly wrong!

Loans: wrong version

	S	S11	S12K	S124	S120	S128	S129	S13	S1M	S2	
S		110.3	0.0	-20.5	-139.2	-4.7	5.4	78.3	53.2	-213.7	-131.1
S11	-20.6	13.8	0.0	-0.1	-9.6	0.2	0.0	-1.1	0.1	-24.0	0.0
S12K	20.6	116.0	0.0	-4.6	-70.4	-4.3	-1.3	55.2	48.9	-118.9	0.0
S124	-17.0	-0.9	0.0	0.9	-6.7	0.0	0.0	3.1	1.4	-14.8	0.0
S120	-117.4	6.2	0.0	-2.9	-76.9	1.8	6.5	1.2	1.3	-54.6	0.0
S128	1.7	0.5	0.0	0.0	-0.6	2.9	0.1	-1.2	0.8	-0.8	0.0
S129	1.4	0.3	0.0	0.0	4.5	0.0	0.0	-4.4	0.3	0.7	0.0
S13	41.2	17.8	0.0	0.1	2.2	0.2	0.1	21.7	0.4	-1.4	0.0
S1M	1.3	1.1	0.0	0.0	0.5	-0.1	0.0	-0.1	-0.1	0.0	0.0
S2	-42.2	-44.5	0.0	-14.0	17.8	-5.4	0.0	3.8	0.0		0.0
SX	-131.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

4. Who-to-whom balancing in practice

Be cautious in particular with:

- inter-company loans
- sector allocation from each data source (esp. where estimations are made)
- instrument allocation: e.g. trade credits versus loans

Loans: improved version

	S	S11	S12K	S124	S120	S128	S129	S13	S1M	S2	SX
S		145.8	0.0	-22.4	-125.9	-6.4	5.4	82.8	58.1	-152.6	-15.1
S11	16.2	-6.6	0.0	0.1	-23.4	0.3	0.1	-0.9	0.1	46.5	0.0
S12K	15.7	114.3	0.0	-4.5	-70.8	-3.6	-1.3	58.5	49.0	-125.9	0.0
S124	2.6	-0.6	0.0	1.0	-3.9	0.0	0.0	2.8	3.3	0.0	0.0
S120	-89.9	-2.0	0.0	-3.5	-24.3	0.3	6.5	0.9	3.2	-70.9	0.0
S128	4.0	2.8	0.0	-0.1	0.3	2.0	0.1	-1.1	1.8	-1.8	0.0
S129	1.7	0.3	0.0	0.0	4.5	0.0	0.0	-4.3	0.3	0.8	0.0
S13	40.4	17.9	0.0	0.1	0.4	0.1	0.1	22.9	0.3	-1.3	0.0
S1M	0.7	0.4	0.0	0.0	0.4	-0.1	0.0	0.0	0.1	0.0	0.0
S2	-6.6	19.1	0.0	-15.3	-9.1	-5.4	0.0	4.1	0.0		0.0
SX	-15.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

4. Who-to-whom balancing in practice

CASE 2: totals and interior have different sources

Starting point: components and totals from various sources

		Debt securities									
	S	S11	S12K	S124	S120	S128	S129	S13	S1M	S2	
S		18.5	23.0	1.0	-59.1	-0.5	0.0	63.5	0.0	69.5	<i>Liab:116.0</i>
S11	0.9	-0.8	-0.1	0.0	0.9	0.0	0.0	0.4	0.0	-1.0	1.3
S12K	54.9	6.8	16.3	0.0	1.4	0.0	0.0	35.7	0.0	30.4	-35.7
S124	37.8	8.2	8.7	0.0	2.5	-0.2	0.0	-0.9	0.0	19.4	0.0
S120	-81.0	1.1	-3.5	0.0	-87.8	0.2	0.0	5.7	0.0	14.3	-11.0
S128	20.0	0.1	2.8	0.0	6.3	-0.1	0.0	7.0	0.0	4.0	0.0
S129	4.5	0.6	0.6	0.0	0.2	0.0	0.0	1.5	0.0	1.6	0.0
S13	-4.3	0.1	0.8	0.0	-1.4	0.0	0.0	-3.1	0.0	-0.8	0.1
S1M	-7.3	-0.3	-4.7	0.0	-1.2	0.0	0.0	-2.5	0.0	1.5	0.0
S2	30.4	1.6	-0.9	1.0	8.9	0.0	0.0	19.7	0.0		0.0
SX	<i>Total assets: 55.7</i>	1.2	3.0	0.0	11.2	-0.4	0.0	0.1	0.0	0.0	

Sum of interior components: 101.0

4. Who-to-whom balancing in practice

First step: balancing total assets and liabilities by sector

	S	S11	S12K	S124	S120	S128	S129	S13	S1M	S2	SX
S		18.5	23.0	1.0	-59.1	-0.5	0.0	63.5	0.0	69.5	116.0
S11	0.9										
S12K	54.9										
S124	37.8										
S120	-81.0										
S128	20.0										
S129	4.5										
S13	-4.3										
S1M	-7.3										
S2	30.4										
SX	55.7										

4. Who-to-whom balancing in practice

First step: balancing total assets and liabilities by sector – 3 adjustments

	S	S11	S12K	S124	S120	S128	S129	S13	S1M	S2	SX
S		0.0	0.0	0.0	-20.0	0.0	0.0	0.0	0.0	-15.0	-35.0
S11	0.0										
S12K	0.0										
S124	0.0										
S120	20.0										
S128	0.0										
S129	0.0										
S13	0.0										
S1M	0.0										
S2	0.0										
SX	20.0										

4. Who-to-whom balancing in practice

First step: balancing total assets and liabilities by sector – 3 adjustments

	S	S11	S12K	S124	S120	S128	S129	S13	S1M	S2	SX
S		18.5	23.0	1.0	-79.1	-0.5	0.0	63.5	0.0	54.5	81.0
S11	0.9	-0.8	-0.1	0.0	0.9	0.0	0.0	0.4	0.0	-1.0	1.3
S12K	54.9	6.8	16.3	0.0	1.4	0.0	0.0	35.7	0.0	30.4	-35.7
S124	37.8	8.2	8.7	0.0	2.5	-0.2	0.0	-0.9	0.0	19.4	0.0
S120	-61.0	1.1	-3.5	0.0	-87.8	0.2	0.0	5.7	0.0	14.3	9.0
S128	20.0	0.1	2.8	0.0	6.3	-0.1	0.0	7.0	0.0	4.0	0.0
S129	4.5	0.6	0.6	0.0	0.2	0.0	0.0	1.5	0.0	1.6	0.0
S13	-4.3	0.1	0.8	0.0	-1.4	0.0	0.0	-3.1	0.0	-0.8	0.1
S1M	-7.3	-0.3	-4.7	0.0	-1.2	0.0	0.0	-2.5	0.0	1.5	0.0
S2	30.4	1.6	-0.9	1.0	8.9	0.0	0.0	19.7	0.0		0.0
SX	75.7	1.2	3.0	0.0	-8.8	-0.4	0.0	0.1	0.0	-15.0	

4. Who-to-whom balancing in practice

First step: balancing total assets and liabilities by sector – 3 adjustments

	S	S11	S12K	S124	S120	S128	S129	S13	S1M	S2	SX
S		18.5	23.0	1.0	-79.1	-0.5	0.0	63.5	0.0	54.5	81.0
S11	0.9	-0.8	-0.1	0.0	0.9	0.0	0.0	0.4	0.0	-1.0	1.3
S12K	54.9	6.8	16.3	0.0	1.4	0.0	0.0	35.7	0.0	30.4	-35.7
S124	37.8	8.2	8.7	0.0	2.5	-0.2	0.0	-0.9	0.0	19.4	0.0
S120	-61.0	1.1	-3.5	0.0	-87.8	0.2	0.0	5.7	0.0	14.3	9.0
S128	20.0	0.1	2.8	0.0	6.3	-0.1	0.0	7.0	0.0	4.0	0.0
S129	4.5	0.6	0.6	0.0	0.2	0.0	0.0	1.5	0.0	1.6	0.0
S13	-4.3	0.1	0.8	0.0	-1.4	0.0	0.0	-3.1	0.0	-0.8	0.1
S1M	-7.3	-0.3	-4.7	0.0	-1.2	0.0	0.0	-2.5	0.0	1.5	0.0
S2	30.4	1.6	-0.9	1.0	8.9	0.0	0.0	19.7	0.0		0.0
SX	75.7	1.2	3.0	0.0	-8.8	-0.4	0.0	0.1	0.0	-15.0	

4. Who-to-whom balancing in practice

Second step: adjustments within the matrix, where main gaps are identified

	S	S11	S12K	S124	S120	S128	S129	S13	S1M	S2	SX
S		0.0	0.0	0.0	-20.0	0.0	0.0	0.0	0.0	-15.0	-35.0
S11	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S12K	0.0	0.0		0.0	-15.0	0.0	0.0	0.0	0.0	-15.0	30.0
S124	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
S120	20.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	20.0
S128	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
S129	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
S13	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
S1M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
S2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
SX	20.0	0.0	0.0	0.0	-5.0	0.0	0.0	0.0	0.0	0.0	

4. Who-to-whom balancing in practice

Outcome of the second step: only small gaps remain

	S	S11	S12K	S124	S120	S128	S129	S13	S1M	S2	SX
S		18.5	23.0	1.0	-79.1	-0.5	0.0	63.5	0.0	54.5	81.0
S11	0.9		-0.1	0.0	0.9	0.0	0.0	0.4	0.0	-1.0	1.3
S12K	54.9	6.8		0.0	-13.6	0.0	0.0	35.7	0.0	15.4	-5.7
S124	37.8	8.2	8.7		2.5	-0.2	0.0	-0.9	0.0	19.4	0.0
S120	-61.0	1.1	-3.5	0.0		0.2	0.0	5.7	0.0	14.3	9.0
S128	20.0	0.1	2.8	0.0	6.3		0.0	7.0	0.0	4.0	0.0
S129	4.5	0.6	0.6	0.0	0.2	0.0		1.5	0.0	1.6	0.0
S13	-4.3	0.1	0.8	0.0	-1.4	0.0	0.0		0.0	-0.8	0.1
S1M	-7.3	-0.3	-4.7	0.0	-1.2	0.0	0.0	-2.5		1.5	0.0
S2	30.4	1.6	-0.9	1.0	8.9	0.0	0.0	19.7	0.0		0.0
SX	75.7	1.2	3.0	0.0	6.2	-0.4	0.0	0.1	0.0	0.0	

4. Who-to-whom balancing in practice

Third step: automated adjustments to close remaining discrepancies

	S	S11	S12K	S124	S120	S128	S129	S13	S1M	S2	SX
S		-0.1	0.0	0.0	-0.7	0.0	0.0	0.0	0.0	-1.1	-1.9
S11	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.6	-1.3
S12K	0.0	0.0	0.0	0.0	-0.8	0.0	0.0	-4.1	0.0	-0.8	5.7
S124	1.4	0.3	0.3	0.0	0.2	0.0	0.0	0.8	0.0	-0.1	0.0
S120	0.1	0.2	0.4	0.0	7.1	-0.4	0.0	0.8	0.0	1.0	-9.0
S128	0.7	0.5	0.6	0.0	-0.1	0.0	0.0	1.3	0.0	-1.6	0.0
S129	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	-0.1	0.0
S13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1
S1M	0.0	0.0	0.3	0.0	-0.1	0.0	0.0	-0.1	0.0	-0.1	0.0
S2	1.1	0.1	1.4	0.0	-0.9	0.0	0.0	0.5	0.0		0.0
SX	3.4	-1.2	-3.0	0.0	-6.2	0.4	0.0	-0.1	0.0	0.0	

4. Who-to-whom balancing in practice

Outcome of the third step: balanced who-to-whom table

	S	S11	S12K	S124	S120	S128	S129	S13	S1M	S2	SX
S		18.4	23.0	1.0	-79.7	-0.5	0.0	63.5	0.0	53.4	79.1
S11	0.9	-0.7	0.0	0.0	1.0	0.0	0.0	1.1	0.0	-0.4	0.0
S12K	54.9	6.8	16.3	0.0	-14.4	0.0	0.0	31.6	0.0	14.6	0.0
S124	39.2	8.5	9.0	0.0	2.7	-0.2	0.0	-0.1	0.0	19.3	0.0
S120	-60.9	1.3	-3.1	0.0	-80.7	-0.2	0.0	6.5	0.0	15.3	0.0
S128	20.8	0.5	3.4	0.0	6.2	-0.1	0.0	8.3	0.0	2.4	0.0
S129	4.5	0.6	0.6	0.0	0.2	0.0	0.0	1.6	0.0	1.5	0.0
S13	-4.3	0.1	0.8	0.0	-1.4	0.0	0.0	-3.0	0.0	-0.8	0.0
S1M	-7.3	-0.3	-4.4	0.0	-1.3	0.0	0.0	-2.7	0.0	1.5	0.0
S2	31.4	1.7	0.5	1.0	8.0	0.0	0.0	20.2	0.0	0.0	0.0
SX	79.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Remark: some algorithms can also be used to balance matrices – with some caution

4. Who-to-whom balancing in practice

Listed shares

CASE 3:
balancing
price/other
changes

	S	S11	S12K	S124	S120	S128	S129	S13	S1M	S2	SX
S		716.9	58.7	0.0	123.9	21.3	0.0	0.0	0.0	440.4	1,361.2
S11	181.4	176.2	1.2	0.0	2.7	1.3	0.0	0.0	0.0	0.0	0.0
S12K	18.0	7.2	2.4	0.0	3.3	0.9	0.0	0.0	0.0	4.2	0.0
S124	485.1	96.4	8.0	0.0	6.0	5.5	0.0	0.0	0.0	369.2	0.0
S120	63.8	35.9	7.3	0.0	18.2	1.4	0.0	0.0	0.0	1.0	0.0
S128	19.4	9.9	0.5	0.0	1.8	0.8	0.0	0.0	0.0	6.3	0.0
S129	31.2	5.8	0.3	0.0	0.6	0.2	0.0	0.0	0.0	24.3	0.0
S13	41.1	34.1	2.4	0.0	1.2	0.4	0.0	0.0	0.0	3.0	0.0
S1M	131.1	74.4	9.1	0.0	4.9	10.4	0.0	0.0	0.0	32.3	0.0
S2	390.2	276.9	27.7	0.0	85.4	0.2	0.0	0.0	0.0	0.0	0.0
SX	1,361.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POSITIONS	S	S11	S12K	S124	S120	S128	S129	S13	S1M	S2	
S		4,986.7	386.1	0.0	1,037.3	177.4	NA	0.2	NA	2,958.3	
S11	1,514.0	1,157.7	29.5	0.0	54.8	9.7	NA	0.0	NA	105.2	
S12K	247.4	137.1	19.6	0.0	27.2	7.9	NA	0.0	NA	232.1	
S124	3,195.6	764.7	72.0	5.0	68.8	37.8	NA	0.0	NA	2168.0	
S120	867.1	223.8	24.5	0.0	114.1	5.3	NA	7.8	NA	388.6	
S128	182.9	101.6	4.6	0.0	14.6	20.1	NA	0.0	NA	54.5	
S129	217.9	49.8	2.3	0.0	3.9	1.6	NA	0.2	NA	167.3	
S13	295.9	240.4	25.0	0.0	9.4	3.3	NA	0.0	NA	16.0	
S1M	891.2	570.8	53.1	0.0	84.2	31.0	NA	0.0	NA	174.6	
S2	2,729.4	1830.5	132.4	0.0	548.3	23.1	NA	0.1	NA		
PERCENTAGES	S	S11	S12K	S124	S120	S128	S129	S13	S1M	S2	
S		14.4	15.2	0.0	11.9	12.0	NA	0.0	NA	14.9	
S11	12.0	15.2	3.9	NA	4.9	13.5	NA	-62.3	NA	0.0	
S12K	7.3	5.3	12.0	NA	12.1	11.3	NA	18.8	NA	1.8	
S124	15.2	12.6	11.0	0.0	8.7	14.6	NA	0.4	NA	17.0	
S120	7.4	16.0	29.7	NA	16.0	25.9	NA	0.0	NA	0.3	
S128	10.6	9.8	12.0	NA	12.0	4.2	NA	NA	NA	11.6	
S129	14.3	11.7	12.4	NA	14.2	15.0	NA	0.0	NA	14.5	
S13	13.9	14.2	9.5	NA	12.5	12.3	NA	0.0	NA	18.9	
S1M	14.7	13.0	17.1	NA	5.8	33.7	NA	NA	NA	18.5	
S2	14.3	15.1	20.9	NA	15.6	1.0	NA	0.0	NA		

Consider
ratio price
change/initial
position

But take
into
account
possible
wrong
allocation
of volume
changes

5. Main features euro area/national who-to-whom tables

Data types	Stocks, transactions, other changes
Holder residency	Euro area, and 27 EU countries
Holder sectors	11 to 12 sectors (central banks are only available for some instruments)
Issuer residency	Euro area / non-euro area
Issuer sectors	10 to 11 sectors for euro area issuers No sector detail for non-euro area issuers
Instruments	Securities (except unlisted shares), loans and deposits
Series length	13Q4 to 23Q1 (securities) 99Q1 to 23Q1 (loans and deposits)
Timeliness	T+120 (securities – euro area accounts) T+102: country data T+ 94 (deposits and loans – euro area accounts)

6. Data access and visualisation

Who-to-whom data lead to a significant increase of data volume.

This requires statisticians / institutions to develop data visualisation tools to help the users

Quarterly **press release** on euro area economic and financial developments by institutional sector - Full release - Annex Table 2.2 (for households) and Table 3.2 (for non-financial corporations)

<http://www.ecb.europa.eu/press/pr/stats/ffi/html/index.en.html>

6. Data access and visualisation

Euro Area Accounts Report in SDW: <http://sdw.ecb.europa.eu/reports.do?node=1000005335>

EURO AREA

Who-to-whom detail

4.1.2 Short-term debt securities by counterpart sector

(EUR billions, current prices)

1. Transactions

		FINANCING									
		Total	Non-financial corporations	MFIs ¹⁾	of which: other MFIs ²⁾	Non-MMF investment funds	Other financial institutions ³⁾	Insurance corporations and pension funds	General government	Households ⁴⁾	Rest of the world ⁵⁾
2019 Q2											
INVESTMENT	Total	-34.7	2.5	-4.3	-4.3	0.0	-1.5	0.0	-4.0	0.0	-27.4
	Non-financial corporations	-0.2	1.7	0.3	0.3	0.0	-1.0	0.0	0.2	0.0	-1.3
	MFIs ¹⁾	-9.4	1.8	12.4	12.4	0.0	-4.5	0.0	-0.4	0.0	-18.7
	of which: other MFIs ²⁾	-6.3	1.8	12.4	12.4	0.0	-4.7	0.0	1.2	0.0	-17.0
	Non-MMF investment funds	-8.8	1.2	-0.7	-0.7	0.0	-0.7	0.0	-4.7	0.0	-3.8
	Other financial institutions ³⁾	1.2	0.3	-0.5	-0.5	0.0	3.2	0.0	1.6	0.0	-3.3
	Insurance corporations and pension funds	4.8	0.3	-0.5	-0.5	0.0	-0.4	0.0	5.7	0.0	-0.3
	General government	-6.3	0.4	-0.7	-0.7	0.0	-0.1	0.0	-6.2	0.0	0.2
	Households ⁴⁾	0.2	0.1	-0.1	-0.1	0.0	0.0	0.0	0.3	0.0	-0.1
	Rest of the world ⁵⁾	-16.3	-3.2	-14.6	-14.6	0.0	2.2	0.0	-0.6	0.0	

7. Exercise 1

Which questions may be answered by who-to-whom data?

- Did Government lend much to NFCs in 2020?
- Did Government issue large amount of debt securities?
- Did NFCs obtain much financing from non-banking financial institutions?
- Did Households increase their deposits in 2020?

7. Exercise 2

Transactions in long term debt securities

	S	S11	S12K	S124	S12O	S128	S129	S13	S1M	S2
S		64.0	-78.4	-1.2	84.3	0.7	0.0	186.1	0.0	363.0
S11	-10.2	3.0	-6.4	0.0	-1.5	0.2	0.0	1.1	0.0	-6.6
S12K	410.1	70.8	-4.1	0.0	32.5	-1.0	0.0	332.9	0.0	-21.0
S124	348.0	16.0	31.6	0.0	30.9	1.5	0.0	-47.2	0.0	315.1
S12O	32.6	2.7	1.3	0.0	33.8	-0.1	0.0	-42.1	0.0	36.9
S128	10.7	8.3	-24.8	0.0	-1.8	0.8	0.0	11.9	0.0	16.3
S129	70.6	1.2	5.6	0.0	-1.2	0.0	0.0	39.8	0.0	25.1
S13	-26.5	-1.0	-0.7	0.0	-7.1	-0.4	0.0	-15.3	0.0	-1.9
S1M	-80.9	-3.1	-79.7	0.0	-1.1	-0.3	0.0	4.1	0.0	-0.8
S2	-135.9	-34.1	-1.3	-1.2	-0.3	0.0	0.0	-99.1	0.0	0.0

S11: NFCs; S12K: Banking sector including Central Bank;
S124: Investment Funds; S12O: Other financial sub-sectors;
S128: Insurance corporations; S129: Pension Funds; S13 Government;
S1M Households and non-profit institutions serving households; S2: RoW

7. Exercise 2

Questions on the table in the previous slide:

- Which sectors have been the main net buyers of debt securities, and which were the (euro area) sectors from whom they bought?
- Conversely, which sectors have been net sellers of debt securities over this period?
- Have net sellers sold to net buyers?
- How much was issued over this period by euro area residents?
- How large were the purchases of euro area debt securities by euro area residents?

7. Exercise 2

Answers:

- Banks (including central banks) have purchased high amounts of securities, issued mainly by government.
- Investment funds (S124) purchased a lot of long term debt securities, mainly issued by non-euro area residents (S2)
- Conversely, non-euro area investors and households (S1M) have been net sellers of debt securities over this period.

7. Exercise 2

Answers:

- Non-residents sold mainly government debt securities, while households sold mainly securities issued by the banking sector.
- However, we do not know which sectors “transacted” with whom
- Total net issues of debt securities by euro area residents reached EUR 255 billion, while net purchases by residents of securities issued by euro area residents reached EUR 391 billion

