

Annexes

Annex 1: Detailed tables on quality criteria

A.1.1 Accessibility and clarity

Table A.1.1.1

Accessibility of financial accounts data

Country	Website	Downloads	Charts and tables	Press release	Hotline
Euro area					
BE	Y	Y	Y	Y	Y
DE	Y	Y	Y	Y	Y
EE	Y	Y	Y	Y	Y
IE	Y	Y	Y	Y	Y
GR	Y	Y	N	N	Y
ES	Y	Y	Y	Y	Y
FR	Y	Y	Y	Y	Y
IT	Y	Y	Y	N	Y
CY	Y	Y	Y	Y	Y
LV	Y	Y	Y	N	Y
LT	Y	Y	Y	Y	Y
LU	Y	Y	N	N	Y
MT	Y	Y	Y	N	Y
NL	Y	Y	Y	Y	Y
AT	Y	Y	Y	N	Y
PT	Y	Y	Y	Y	Y
SI	Y	Y	Y	N	Y
SK	Y	Y	Y	N	Y
FI	Y	Y	Y	Y	Y
Euro area	Y	Y	Y	Y	Y
Non-euro area					
BG	Y	Y	Y	N	Y
CZ	Y	Y	Y	Y	Y
DK	Y	Y	Y	Y	Y
HR	Y	Y	Y	Y	N
HU	Y	N	Y	Y	Y
PL	Y	Y	Y	N	Y
RO	Y	Y	Y	N	Y
SE	Y	Y	Y	Y	Y

Source: ECB.

A.1.2 Internal consistency

Table A.1.2.1

Percentage of validation rules satisfied

(period: Q4 2012 to Q2 2019)

Country	Consistency rate
Euro area	
BE	100
DE	100
EE	100
IE	95
GR	100
ES	100
FR	100
IT	100
CY	100
LV	100
LT	100
LU	100
MT	100
NL	100
AT	100
PT	100
SI	100
SK	100
FI	100
Non-euro area	
BG	100
CZ	99
DK	91
HR	100
HU	99
PL	100
RO	96
SE	99

Source: ECB.

Table A.1.2.2

Consistency across frequencies, 2021

(percentages)

Country	Private sector debt, consolidated	Private sector credit flow, consolidated	Total financial sector liabilities, non-consolidated	Household debt, consolidated
	% difference (QFA-AFA)/QFA			
Euro area				
BE	-0.00	0.00	-0.00	0.00
DE	0.00	0.00	0.00	0.00
EE	-0.00	0.00	0.00	-0.00
IE	-0.20	-2.33	0.98	2.61
GR	0.00	0.00	0.00	0.00
ES	0.00	0.00	0.00	0.00
FR	0.00	-0.00	0.00	0.00
IT	0.30	0.22	0.09	0.00
CY	0.01	0.01	0.00	0.04
LV	0.00	-0.00	-0.00	0.00
LT	0.00	0.00	-0.00	-0.00
LU	0.00	-0.00	0.02	0.00
MT	0.00	-0.00	-0.00	-0.00
NL	0.00	0.00	0.00	0.00
AT	-0.00	0.00	-0.00	-0.00
PT	-0.00	-0.00	0.00	-0.00
SI	0.00	-0.00	-0.00	0.00
SK	-0.15	0.39	-0.26	0.04
FI	0.00	0.00	0.00	0.00
Non-euro area				
BG	-0.00	-0.00	-0.07	-0.00
CZ	1.88	3.42	-0.39	0.59
DK	0.00	-0.01	-0.00	0.00
HR	-0.00	-0.00	-0.00	-0.00
HU	-0.00	0.00	0.65	0.00
PL	-0.00	-0.00	0.00	0.00
RO	0.00	-0.00	0.00	0.00
SE	0.00	0.00	0.00	0.00

Source: ECB.

A.1.3 Revision indicators

Table A.1.3.1

Symmetric mean absolute percentage errors* for the period Q2 2020 to Q1 2022

(percentages)

	Households (including NPISHs)				Non-financial corporations						Financial corporations						
	Loans		Total assets		Debt securities		Loans		Intra-NFC loans		Total	Total	MFls	IVFs	OFIs	ICs	PFs
	Stocks	Trans- actions	Stocks	Trans- actions	Stocks	Trans- actions	Stocks	Trans- actions	Stocks	Trans- actions	Trans- actions	Stocks					
Euro area																	
BE	0.24	0.08	0.61	0.04	3.07	0.39	1.50	0.70	9.26	2.64	0.15	0.47	0.19	0.00	1.61	1.41	0.27
DE	0.21	0.01	0.36	0.01	1.76	0.02	3.14	0.17	1.75	0.26	0.03	0.32	0.00	0.00	4.33	2.46	0.38
EE	0.24	0.16	1.47	0.09	0.17	0.01	2.29	0.61	10.55	1.44	0.07	0.18	0.07	0.74	0.76	0.21	0.72
IE	1.03	0.14	1.73	0.12	10.34	1.03	1.51	0.63	8.29	0.31	0.39	0.51	0.26	0.19	1.26	4.33	3.15
GR	0.15	0.09	0.29	0.06	0.49	0.56	0.52	0.19	NA	NA	0.03	0.13	0.11	0.48	2.19	0.20	0.67
ES	0.03	0.02	2.48	0.10	0.35	0.20	0.47	0.16	0.45	0.45	0.05	0.65	0.05	0.01	6.12	0.05	0.55
FR	0.30	0.03	0.32	0.13	0.47	0.03	1.93	0.10	3.18	0.22	0.07	0.67	0.50	0.12	4.21	0.43	NA
IT	0.03	0.04	1.76	0.03	0.82	0.08	0.36	0.12	4.90	1.52	0.07	0.31	0.07	0.00	2.49	0.19	0.32
CY	0.30	0.16	0.63	0.36	7.84	3.77	4.41	0.27	0.04	0.02	0.53	0.91	0.07	0.00	1.11	0.48	2.66
LV	0.04	0.00	0.69	0.09	0.08	0.16	0.71	0.17	3.10	0.74	0.21	0.09	0.00	0.72	0.44	0.04	0.00
LT	0.03	0.01	1.96	0.94	0.04	0.07	2.50	1.32	12.89	6.41	0.22	1.13	0.00	1.14	8.80	0.22	0.00
LU	0.15	0.23	0.39	0.20	0.78	1.38	2.42	1.97	6.16	1.38	0.24	1.01	0.13	1.12	1.15	0.56	0.80
MT	1.10	0.07	1.46	0.12	0.46	2.41	5.97	0.41	10.27	0.62	0.25	0.95	0.76	2.83	0.41	1.13	31.49
NL	0.11	0.03	0.24	0.02	6.14	0.43	1.62	0.23	2.61	0.07	0.07	0.28	0.30	0.20	0.55	0.26	0.06
AT	0.10	0.03	0.30	0.04	0.21	0.06	0.78	0.38	2.36	1.52	0.04	0.11	0.07	0.07	1.11	1.13	0.80
PT	0.35	0.07	0.30	0.06	0.62	0.23	1.06	0.15	5.95	0.93	0.02	0.21	0.05	0.86	1.70	0.08	2.69
SI	0.01	0.01	0.61	0.21	0.15	0.15	0.11	0.05	0.41	0.07	0.01	0.02	0.01	0.00	0.22	0.02	0.00
SK	0.00	0.00	5.34	0.17	0.01	1.12	0.54	0.31	0.00	0.00	0.16	0.31	0.23	0.04	5.25	2.49	0.00
FI	0.11	0.08	0.21	0.05	1.98	0.94	1.28	0.38	3.54	0.94	0.06	0.31	0.17	0.32	2.72	0.16	1.60
Euro area	0.06	0.01	0.30	0.03	0.48	0.08	0.38	0.09	1.95	0.17	0.03	0.44	0.08	1.24	0.85	0.99	0.50
Median	0.15	0.04	0.61	0.09	0.49	0.23	1.50	0.27	3.36	0.68	0.07	0.31	0.07	0.19	1.61	0.26	0.61
Non-euro area																	
BG	0.03	0.01	6.15	2.48	1.13	0.03	1.05	0.17	6.55	1.76	0.03	0.12	0.11	0.51	0.39	0.60	0.00
CZ	0.01	0.01	0.98	0.10	0.04	0.00	1.37	0.88	3.87	5.04	0.13	0.40	0.05	0.10	2.61	0.14	0.42
DK	0.03	0.02	0.96	0.10	0.39	0.14	2.76	0.97	8.60	3.38	0.04	0.52	0.04	0.01	1.95	0.09	0.33
HR	0.54	0.03	0.34	0.21	3.50	0.11	0.46	0.17	1.70	0.41	0.01	0.03	0.02	0.07	0.81	0.01	0.00
HU	0.52	0.09	1.37	0.20	0.32	0.42	2.09	0.85	4.62	3.59	0.22	1.20	0.06	0.25	2.07	0.39	0.11
PL	0.01	0.01	0.73	0.08	3.65	0.46	0.48	0.10	0.29	0.34	0.10	0.20	0.14	0.05	1.23	0.01	0.00
RO	0.13	0.02	1.91	0.31	0.03	0.00	0.56	0.25	2.42	2.16	0.14	0.34	0.18	0.00	3.57	0.54	0.00
SE	0.00	0.00	0.61	0.11	1.34	0.16	0.99	0.20	0.31	0.24	0.06	5.65	11.45	0.31	2.80	1.13	1.09

Source: ECB.

Notes: NA = no revisions. For non-euro area countries, data relate to the period Q4 2018 to Q4 2019.

* In the case of transactions, underlying stocks are used in the denominator, resulting in the calculation of mean absolute comparative errors.

Table A.1.3.2
Mean absolute revisions for the period Q2 2020 to Q1 2022

(percentages of GDP)

	Households (including NPISHs)				Non-financial corporations						Financial corporations						
	Loans		Total assets		Debt securities		Loans		Intra-NFC loans		Total	Total	MFIs	IVFs	OFIs	ICs	PFs
	Stocks	Trans- actions	Stocks	Trans- actions	Stocks	Trans- actions	Stocks	Trans- actions	Stocks	Trans- actions	Trans- actions	Stocks					
Euro area																	
BE	0.30	0.09	3.58	0.23	0.73	0.09	4.00	1.86	6.17	1.75	1.67	5.16	1.09	0.00	4.20	2.10	0.05
DE	0.23	0.01	1.49	0.05	0.24	0.00	3.93	0.21	0.32	0.05	0.34	3.30	0.02	0.00	2.48	3.42	0.14
EE	0.17	0.12	3.78	0.22	0.01	0.00	3.10	0.83	3.37	0.46	0.34	0.86	0.24	0.22	0.89	0.02	0.09
IE	0.63	0.08	3.87	0.27	2.90	0.29	4.55	1.90	4.78	0.18	13.05	16.87	1.93	2.95	9.58	8.48	2.00
GR	0.16	0.10	0.89	0.18	0.01	0.02	0.63	0.24	0.00	0.00	0.18	0.76	0.58	0.05	0.54	0.04	0.01
ES	0.04	0.02	10.36	0.40	0.08	0.04	0.85	0.29	0.20	0.20	0.40	5.67	0.34	0.00	5.59	0.03	0.14
FR	0.39	0.04	1.61	0.63	0.28	0.02	5.10	0.27	4.02	0.27	0.96	9.77	5.08	0.15	3.92	0.96	0.00
IT	0.03	0.03	9.71	0.15	0.15	0.01	0.46	0.15	0.26	0.08	0.53	2.48	0.38	0.00	2.04	0.22	0.05
CY	0.49	0.26	2.93	1.65	0.07	0.03	14.15	0.86	0.00	0.00	24.00	41.20	0.52	0.00	40.86	0.19	0.88
LV	0.01	0.00	1.33	0.18	0.00	0.00	0.67	0.16	0.53	0.13	0.84	0.35	0.01	0.02	0.33	0.00	0.00
LT	0.01	0.00	4.02	1.93	0.00	0.00	1.61	0.85	1.72	0.85	0.71	3.70	0.00	0.07	3.64	0.02	0.00
LU	0.20	0.29	1.23	0.63	0.59	1.04	13.41	10.93	9.25	2.06	109.77	452.96	5.87	180.50	272.55	3.80	0.05
MT	1.11	0.07	6.55	0.53	0.05	0.28	17.66	1.21	16.11	0.97	11.49	43.01	5.27	8.12	13.22	2.57	25.60
NL	0.21	0.07	1.73	0.11	2.00	0.14	4.16	0.59	0.93	0.02	1.87	7.74	2.21	0.48	6.68	0.34	0.24
AT	0.10	0.03	1.16	0.14	0.05	0.01	1.31	0.64	1.00	0.65	0.32	0.95	0.42	0.08	1.23	0.62	0.10
PT	0.46	0.09	1.29	0.27	0.19	0.07	1.81	0.26	1.35	0.21	0.15	1.74	0.29	0.28	2.15	0.04	0.58
SI	0.01	0.01	1.53	0.53	0.00	0.00	0.10	0.04	0.05	0.01	0.05	0.08	0.03	0.00	0.04	0.01	0.00
SK	0.00	0.00	10.33	0.33	0.00	0.11	0.52	0.29	0.00	0.00	0.68	1.31	0.76	0.01	1.01	0.42	0.00
FI	0.15	0.10	0.67	0.16	0.56	0.26	2.63	0.78	2.50	0.67	0.60	3.21	1.24	0.41	2.26	0.10	0.04
Euro area	0.07	0.01	1.34	0.13	0.13	0.02	0.71	0.18	1.17	0.10	0.40	6.59	0.58	3.14	2.83	1.42	0.24
Median	0.17	0.07	1.73	0.27	0.08	0.03	2.63	0.59	1.00	0.20	0.68	3.30	0.52	0.07	2.48	0.22	0.05
Non-euro area																	
BG	0.01	0.00	17.40	7.02	0.05	0.00	1.39	0.23	1.07	0.29	0.11	0.43	0.30	0.02	0.14	0.09	0.00
CZ	0.01	0.01	2.81	0.30	0.00	0.00	1.27	0.82	0.45	0.59	0.67	2.12	0.20	0.02	2.03	0.03	0.08
DK	0.06	0.05	7.59	0.80	0.05	0.02	6.64	2.34	3.83	1.51	0.85	9.80	0.30	0.03	9.60	0.22	0.53
HR	0.36	0.02	0.88	0.53	0.26	0.01	0.72	0.27	1.00	0.24	0.03	0.14	0.07	0.01	0.14	0.00	0.00
HU	0.20	0.03	3.67	0.53	0.02	0.03	2.70	1.09	1.31	1.02	1.76	9.77	0.18	0.09	9.60	0.05	0.01
PL	0.01	0.01	1.50	0.16	0.25	0.03	0.37	0.08	0.02	0.02	0.33	0.64	0.31	0.01	0.33	0.00	0.00
RO	0.04	0.01	2.85	0.47	0.00	0.00	0.34	0.15	0.05	0.05	0.26	0.61	0.24	0.00	0.50	0.03	0.00
SE	0.00	0.00	4.35	0.77	0.76	0.09	2.77	0.56	0.32	0.24	0.78	68.71	65.43	0.70	4.48	0.63	2.23

Source: ECB.

Notes: NA = no revisions. For non-euro area countries, data relate to the period Q4 2020 to Q4 2021.

Table A.1.3.3

Upward revision ratios for the period Q2 2020 to Q1 2022

(percentages)

	Households (including NPISHs)				Non-financial corporations						Financial corporations						
	Loans		Total assets		Debt securities		Loans		Intra-NFC loans		Total	Total	MFIs	IVFs	OFIs	ICs	PFs
	Stocks	Trans- actions	Stocks	Trans- actions	Stocks	Trans- actions	Stocks	Trans- actions	Stocks	Trans- actions	Trans- actions	Stocks					
Euro area																	
BE	50	75	100	50	0	25	25	38	100	38	38	100	0	0	100	100	17
DE	13	50	100	50	38	67	100	50	100	0	50	75	38	50	50	88	88
EE	71	50	88	75	100	67	100	88	75	57	75	50	50	100	38	57	100
IE	86	29	88	63	100	63	13	13	43	29	25	88	0	100	75	88	14
GR	50	63	50	38	25	29	13	38	NA	NA	63	63	38	50	25	75	50
ES	25	100	88	88	75	38	75	75	67	86	88	100	75	100	100	75	63
FR	100	50	13	38	0	63	100	88	100	75	50	0	0	100	0	25	NA
IT	29	88	88	50	0	75	88	50	100	38	25	100	75	NA	100	100	0
CY	0	75	63	75	75	50	100	50	86	86	38	13	50	50	13	75	50
LV	33	33	100	50	60	25	75	50	50	50	38	75	40	83	88	50	100
LT	100	67	63	100	25	38	25	38	25	25	75	100	50	88	88	63	100
LU	38	50	13	63	63	50	75	75	0	13	75	100	38	100	100	63	75
MT	100	75	63	50	88	75	100	38	100	38	50	63	0	75	63	75	50
NL	88	50	100	63	100	80	13	50	0	0	50	38	63	88	38	63	0
AT	63	63	75	63	88	83	100	63	100	88	88	75	75	100	75	0	0
PT	38	25	88	50	100	75	88	25	100	38	25	13	13	75	0	13	63
SI	0	29	88	75	0	0	88	38	71	57	75	75	50	NA	83	50	NA
SK	NA	33	100	38	0	0	88	63	80	67	63	88	50	0	88	88	100
FI	25	50	63	25	14	63	75	63	75	50	63	100	100	14	100	63	83
Euro area	50	75	75	38	50	63	63	75	100	50	75	100	0	100	100	100	13
Non-euro area																	
BG	60	80	100	100	20	75	0	80	60	80	80	20	20	100	60	40	NA
CZ	80	60	0	20	100	67	20	20	67	75	40	100	50	0	100	0	33
DK	40	40	80	80	80	40	80	100	100	100	100	80	100	80	80	80	20
HR	100	80	60	100	25	100	80	80	80	80	0	40	60	100	0	100	40
HU	100	100	100	60	40	40	100	60	80	60	60	100	60	100	100	60	20
PL	20	40	80	40	100	60	100	80	80	60	80	100	100	25	100	60	100
RO	60	20	80	60	0	80	40	60	100	100	80	100	80	NA	100	100	NA
SE	100	33	40	60	60	60	20	100	100	50	20	80	100	80	100	40	0

Source: ECB.

Notes: NA = no revisions. For non-euro area countries, data relate to the period Q4 2020 to Q4 2021.

Table A.1.3.4

Directional reliability indicator for the period Q2 2020 to Q1 2022

(percentages)

	Households (including NPISHs)				Non-financial corporations						Financial corporations						
	Loans		Total assets		Debt securities		Loans		Intra-NFC loans		Total	Total	MFIs	IVFs	OFIs	ICs	PFs
	Stocks	Trans- actions	Stocks	Trans- actions	Stocks	Trans- actions	Stocks	Trans- actions	Stocks	Trans- actions	Trans- actions						
																	Stocks
Euro area																	
BE	100	63	100	100	88	75	75	50	38	50	88	88	88	88	38	75	88
DE	100	100	100	100	88	100	75	100	75	88	100	88	88	88	75	63	75
EE	100	88	88	75	88	100	75	75	63	38	100	100	75	88	75	88	88
IE	50	75	88	100	75	63	63	100	88	25	75	100	88	88	63	88	50
GR	100	100	100	100	88	88	88	75	100	100	100	100	88	88	63	88	75
ES	100	100	100	100	100	88	88	75	88	88	100	100	88	88	63	88	75
FR	100	100	100	88	75	100	100	88	88	63	100	100	88	88	63	63	88
IT	100	100	100	100	88	88	75	75	75	75	100	100	88	88	88	88	88
CY	75	75	100	75	75	75	63	88	100	100	88	75	75	88	63	88	38
LV	100	100	100	88	88	88	100	100	50	100	88	100	88	75	63	88	88
LT	100	100	88	88	100	100	88	75	75	63	100	100	88	75	88	88	88
LU	100	75	100	75	88	25	63	63	25	63	88	88	75	88	88	63	88
MT	100	88	88	100	88	88	63	88	75	88	88	100	75	50	88	75	50
NL	100	100	100	100	75	100	75	88	100	75	100	88	88	88	75	63	88
AT	100	88	100	100	100	88	88	100	38	75	75	100	88	88	75	75	63
PT	100	88	100	100	100	100	63	100	75	75	100	100	88	88	75	88	75
SI	88	100	88	100	100	88	100	100	100	100	100	100	88	88	88	88	88
SK	100	100	100	100	100	100	63	75	100	100	100	100	88	88	75	88	88
FI	100	88	100	100	88	63	63	50	63	88	100	100	88	88	88	88	75
Euro area	100	100	100	100	75	88	75	75	75	75	100	100	100	100	88	100	100
Non-euro area																	
BG	100	100	80	80	60	100	80	80	20	80	100	100	100	100	60	60	100
CZ	100	100	80	80	100	100	40	100	80	100	100	100	100	100	60	100	60
DK	100	100	100	80	100	100	40	80	60	60	80	100	100	100	100	100	100
HR	100	100	100	60	60	100	80	100	80	60	100	100	100	100	100	100	100
HU	100	100	100	80	100	100	80	80	80	20	100	100	100	100	60	100	100
PL	100	100	100	100	100	80	100	80	80	100	80	100	100	100	100	100	100
RO	100	100	60	80	100	100	100	80	40	60	100	100	100	100	80	100	100
SE	100	100	100	80	100	100	80	100	100	80	80	80	80	100	100	60	80

Source: ECB.

Note: For non-euro area countries, data relate to the period Q4 2020 to Q4 2021.

A.1.4 Vertical discrepancies

Table A.1.4.1
Four-quarter cumulative vertical discrepancies

	EUR millions*				As a percentage of GDP			
	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2021	Q4 2021	Q1 2022	Q2 2022
Households – euro area								
BE	7,780	4,473	505	1,833	2%	1%	0%	0%
DE	0	0	0	0	0%	0%	0%	0%
IE	7,279	8,359	5,215	4,410	2%	2%	1%	1%
GR	-15,275	-12,117	-14,813	-17,414	-8%	-7%	-8%	-10%
ES	4,086	4,453	5,421	-2,948	0%	0%	0%	0%
FR	-12,766	4,405	27,715	21,316	-1%	0%	1%	1%
IT	-1,549	-468	1,536	1,334	0%	0%	0%	0%
NL	3,941	2,404	-663	1,801	0%	0%	0%	0%
AT	2,446	-1	-4,108	-4,062	1%	0%	-1%	-1%
PT	0	0	0	0	0%	0%	0%	0%
SI	473	558	662	423	1%	1%	1%	1%
FI	-2,709	-7,673	-9,236	-7,463	-1%	-3%	-4%	-3%
Euro area	-31,614	6,701	30,919	56,454	0%	0%	0%	0%
Households – non-euro area								
CZ	93,791	163,387	122,352	125,508	2%	3%	2%	2%
DK	19,301	25,480	12,297	-12,741	1%	1%	0%	-1%
HR	NC	NC	NC	NC	NC	NC	NC	NC
PL	-118,057	-103,162	-79,065	-81,483	-4%	-4%	-3%	-3%
RO	NC	NC	NC	NC	NC	NC	NC	NC
SE	-67,315	-113,681	-133,945	-147,648	-1%	-2%	-2%	-3%
Non-financial corporations – euro area								
BE	2,660	-6,270	-2,615	-10,956	1%	-1%	-1%	-2%
DE	139,008	119,655	86,302	70,618	4%	3%	2%	2%
IE	-25,426	-18,733	-6,724	-4,399	-6%	-4%	-2%	-1%
GR	6,975	-1,413	2,833	5,871	4%	-1%	2%	3%
ES	-9,025	-5,339	-4,817	5,071	-1%	0%	0%	0%
FR	73,670	4,114	-32,159	-35,182	3%	0%	-1%	-1%
IT	-59	187	470	-29	0%	0%	0%	0%
NL	-345	550	1,309	-1,116	0%	0%	0%	0%
AT	4,006	7,082	11,143	14,238	1%	2%	3%	4%
PT	275	-77	-314	-606	0%	0%	0%	0%
SI	46	155	171	986	0%	0%	0%	2%
FI	2,030	2,982	9,483	14,116	1%	1%	4%	6%
Euro area	18,761	42,568	24,534	32,202	0%	0%	0%	0%

	EUR millions*				As a percentage of GDP			
	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2021	Q4 2021	Q1 2022	Q2 2022
Non-financial corporations – non-euro area								
CZ	-243,912	-122,443	-108,484	14,712	-4%	-2%	-2%	0%
DK	-6,455	-5,991	-7,702	-63,331	0%	0%	0%	-3%
HR	NC	NC	NC	NC	NC	NC	NC	NC
PL	141,470	108,085	80,780	114,001	5%	4%	3%	4%
RO	NC	NC	NC	NC	NC	NC	NC	NC
SE	96,327	224,355	135,692	256,490	2%	4%	2%	5%
Financial corporations – euro area								
BE	-9,556	3,514	7,372	12,642	-2%	1%	1%	3%
DE	2	2	0	-4	0%	0%	0%	0%
IE	-128,592	-125,722	-136,755	-759	-30%	-29%	-32%	0%
GR	5,127	3,643	1,555	-5,250	3%	2%	1%	-3%
ES	-4	0	0	0	0%	0%	0%	0%
FR	-32,330	-1,370	-15,071	51,894	-1%	0%	-1%	2%
IT	-12,208	-2,998	4,406	-7,124	-1%	0%	0%	0%
NL	0	0	0	0	0%	0%	0%	0%
AT	-4,103	-1,243	-3,850	794	-1%	0%	-1%	0%
PT	-204	57	71	142	0%	0%	0%	0%
SI	-542	-482	-526	-446	-1%	-1%	-1%	-1%
FI	8,418	9,283	4,361	1,950	3%	4%	2%	1%
Euro area	-28,137	-32,000	-16,000	0	0%	0%	0%	0%
Financial corporations – non-euro area								
CZ	-47,052	-178,363	-38,070	-121,916	-1%	-3%	-1%	-2%
DK	1,100	-13,670	-5,355	-8,859	0%	-1%	0%	0%
HR	NC	NC	NC	NC	NC	NC	NC	NC
PL	-9,943	6,980	16,547	-28,542	0%	0%	1%	-1%
RO	NC	NC	NC	NC	NC	NC	NC	NC
SE	14,674	-94,216	-49,947	6,045	0%	-2%	-1%	0%

Source: ECB.

Note: NC = No data

* For non-euro area countries, these figures are shown in the national currency.

A.1.5 Comparison with financial statistics

Table A.1.5.1

Comparison with MFI balance sheet items (BSI) data and securities issues statistics (SEC)

(percentages)

	External comparison					
	MFI loans to NFCs and households: FA vs BSI, 2021		NFC debt securities: FA vs SEC, 2021			
	Stocks	Transactions*	Stocks		Transactions*	
			% difference (QFA-SEC)/QFA	Difference as % of GDP	% difference (QFA-SEC)/QFA	Difference as % of GDP
Euro area						
BE	0.87	0.07	-2.00	-0.22	-0.15	-0.02
DE	-4.52	-0.36	6.66	0.47	0.67	0.05
EE	0.39	0.83	6.23	0.22	2.34	0.08
IE	-0.10	3.61	55.94	10.48	19.23	3.60
GR	-0.79	0.09	-2.48	-0.06	-3.97	-0.10
ES	-0.02	0.01	-0.37	-0.04	0.64	0.08
FR	0.39	-0.01	3.01	0.89	1.03	0.30
IT	0.01	0.03	0.08	0.01	-0.93	-0.09
CY	1.11	0.24	38.33	0.17	3.81	0.02
LV	-0.11	0.58	1.53	0.02	-2.81	-0.04
LT	0.02	-0.02	16.55	0.65	6.49	0.25
LU	-0.51	-0.57	-5.09	-1.82	6.52	2.33
MT	0.62	0.03	1.21	0.08	18.39	1.23
NL	0.60	-0.17	-13.26	-2.35	-1.42	-0.25
AT	2.67	0.26	4.78	0.54	-0.47	-0.05
PT	0.20	-0.25	7.56	1.22	3.03	0.49
SI	-0.03	-0.12	27.30	0.35	0.05	0.00
SK	0.61	-0.05	2.22	0.10	0.60	0.03
FI	-7.04	-1.28	3.18	0.44	-1.58	-0.22
Non-euro area						
BG	1.01		5.42	0.13		
CZ	-0.17		-7.43	-0.32		
DK	0.51		-11.76	-0.75		
HR	0.26		39.92	1.54		
HU	1.50		-1.55	-0.08		
PL	0.71		37.04	1.30		
RO	0.52		0.06	0.00		
SE	-0.55		0.30	0.09		

Source: ECB.

* In the case of transactions, underlying stocks are used in the denominator, and comparable transaction data are not available for non-euro area countries. Percentage differences can be inflated when values are very small.

Annex 2: Methodological documentation of quality indicators

A.2.1 Descriptive indicators

Upward revision ratio

The upward revision ratio is the number of upward revisions as a percentage of the total number of observations considered (N) – i.e. the total number of revisions over time and across vintages, excluding zero values:

$$\text{Upward revision ratio} = \frac{\# \text{ upward revisions}}{N} (\%)$$

The prescriptive target for this indicator is between 30% and 70%. Since positive and negative revisions should occur with roughly the same frequency, revisions should be positive around half of the time.

Directional reliability indicator

In order to assess whether revisions systematically alter the sign of changes over time, as contained in earlier assessments, a 2 x 2 contingency table can be drawn up. In that table, the columns consist of positive and negative differences in initial estimates:

$$\Delta x_t^I = x_t^I - x_{t-1}^I$$

The rows consist of positive and negative changes in the latest assessment:

$$\Delta x_t^L = x_t^L - x_{t-1}^L$$

Table A.2.1

Contingency table for directional reliability

	$\Delta x_t^I > 0$	$\Delta x_t^I \leq 0$	Subtotal
$\Delta x_t^L > 0$	n11	n12	n11 + n12
$\Delta x_t^L \leq 0$	n21	n22	n21 + n22
Subtotal	n11+ n21	n12 + n22	N

The directional reliability indicator (Q) is defined as:

$$Q = \frac{n_{11} + n_{22}}{N} (\%)$$

This indicator (Q) shows the percentage of cases in which earlier and later assessments have the same sign. It is equal to 1 (100%) if the final assessment

always has the same sign as the first assessment, and it is equal to zero if that is never the case. High values for this indicator are optimal in terms of confirming the reliability of data.

A.2.2 Indicators of size

Mean absolute percentage errors

For strictly positive data, the relative size of revisions is measured as the percentage change versus the initial assessment:

$$\% \text{ change} = \left(\frac{x_t^L - x_t^I}{x_t^I} \right)$$

If the average over time is then computed, this is called the mean percentage error (MPE):

$$\text{MPE} = \overline{\left(\frac{x_t^L - x_t^I}{x_t^I} \right)}$$

As revisions can be either positive or negative, it is usually more appropriate to use the absolute value, in order to avoid revisions with opposite signs cancelling each other out in the resulting indicator. If the average is calculated using absolute values, the result is the mean absolute percentage error (MAPE):

$$\text{MAPE}_{\text{average of ratios}} = \frac{1}{T} \sum_{t=1}^T \left| \frac{x_t^L - x_t^I}{x_t^I} \right| (\%)$$

There are two alternative definitions of this indicator: the average of ratios and the ratio of averages.

$$\text{MAPE}_{\text{ratio of averages}} = \frac{\sum_{t=1}^T |x_t^L - x_t^I| / T}{\sum_{t=1}^T |x_t^I| / T} (\%)$$

The second method has an advantage over the first. If a single data point for the denominator is close to zero, the MAPE will be artificially magnified if it is calculated as an average of ratios, which will not necessarily be the case with the second method. Consequently, the second method is preferred to the first.

To overcome the fact that transactions can be either positive or negative, so cannot be used in the denominator, the MAPE for transactions is calculated as a percentage of underlying stocks. When it is calculated in that way, the resulting indicator is usually referred to as a mean absolute comparative error (MACE), as revisions in series containing observations that have different signs or are close to zero cannot be properly related to the series value itself and must instead be related to an alternative measure (such as outstanding amounts or GDP).

Symmetric mean absolute percentage errors

A MAPE is an asymmetric indicator: if revisions are, on average, positive, the MAPE will be lower than if those revisions are, on average, negative. Where the denominator is identified in terms of the latest assessments, the results will be the opposite. A symmetric mean absolute percentage error (SMAPE) fixes those issues of asymmetry and is bounded between 0 and 1 (100%), whereas a MAPE is not bounded on the upper side. In other words, a SMAPE gives relevance to the initial observation, whereas a MAPE does not.

$$\text{SMAPE} = \frac{\sum_{t=1}^T |x_t^L - x_t^I| / T}{\sum_{t=1}^T (|x_t^L| + |x_t^I|) / T} (\%)$$

As with MAPEs, this indicator is calculated as a percentage of underlying stocks (and usually referred to as a MACE) in the case of transactions.

Additional notes:

Whenever GDP is used, it is the latest value available (in this case, 2021).

For revisions, all figures are calculated as the difference between the data in the October 2022 transmission and the data in the October 2020 transmission.

For all other tables and charts, unless otherwise indicated, figures are calculated using the data in the October 2022 transmission.