

Annexes

Annex 1: Detailed tables

A.1.1 Accessibility and clarity

Table A.1.1.1

Average share of observations marked as “free for publication” per dataset (all items)

(July 2018 to June 2019/Q3 2018 to Q2 2019)

Country	Monthly b.o.p.	Quarterly b.o.p.	Quarterly i.i.p.
	All items	All items	All items
Euro area			
BE	100	100	100
DE	98	98	100
EE	100	98	99
IE	0	92	91
GR	100	100	100
ES	13	9	35
FR	94	96	95
IT	100	100	100
CY	0	89	89
LV	100	99	100
LT	100	98	100
LU	66	60	50
MT	100	62	58
NL	0	100	100
AT	0	61	60
PT	84	57	66
SI	100	100	100
SK	100	100	100
FI	94	98	92
Euro area median	98	98	99
Non-euro area			
BG	100	100	100
CZ	98	96	92
DK	100	84	97
HR	100	100	100
HU	99	98	100
PL	100	100	100
RO	92	96	98
SE	94	96	93
UK	0	33	12

Source: ECB.

Table A.1.1.2

Clarity of accessibility to b.o.p./i.i.p. data

	Website	Download available	Charts and tables	Press release	Hotline
Euro area					
BE	Y	Y	Y	N	Y
DE	Y	Y	Y	Y	Y
EE	Y	b.o.p. i.i.p.	b.o.p. i.i.p.	Y	Y
IE	Y	b.o.p. i.i.p.	b.o.p. i.i.p.	Y	Y
GR	Y	Y	Y	Y	N
ES	Y	Y	Y	Y	Y
FR	Y	Y	Y	Y	Y
IT	Y	Y	Y	Y	Y
CY	Y	Y	Y	Y	N
LV	Y	Y	Y	N	Y
LT	Y	Y	Y	Y	Y
LU	NCB	NCB	NCB	NCB NSI	NCB NSI
MT	Y	Y	Y	Y	Y
NL	Y	Y	Y	Y	Y
AT	Y	Y/Y	Y/Y	Y	Y
PT	Y	Y	Y	Y	Y
SI	Y	Y	Y	N	N
SK	Y	b.o.p. i.i.p.	N	N	Y
FI	Y	Y	Y	Y	Y
Euro area data	Y	Y	Y	Y	Y
Non-euro area					
BG	b.o.p. i.i.p.	b.o.p. i.i.p.	b.o.p. i.i.p.	b.o.p.	Y
CZ	Y	Y	Y	Y	N
DK	Y	Y	Y	Y	Y
UK	Y	Q A	Q A	Q A	Y
HR	Y	Y	Y	Y	N
HU	Y	Y	Y	Y	Y
PL	Y	Y/Y	Y	Y	N
RO	Y	Y	Y	Y	Y
SE	Y	Y	Y	Y	Y

Source: ECB.

A.1.2 Upward revisions ratio

Table A.1.2.1

Upward revisions ratio for current account (monthly data)

Percentage of revised periods

(April 2016 to March 2019)

	Current account				Goods				Services				Primary Income				Secondary Income			
	Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																				
BE	89	89	-	80	49	37	37	49	74	80	77	74	94	100	-	94	100	100	83	91
DE	43	91	-	91	9	23	17	86	97	97	97	97	100	100	-	46	46	57	37	60
EE	89	100	-	86	46	57	26	43	49	63	69	80	77	89	-	86	74	83	60	66
IE	91	83	-	91	91	49	37	14	91	91	77	63	46	66	-	100	100	100	100	100
GR	80	80	-	83	64	64	100	100	80	86	91	97	80	46	-	80	96	100	100	100
ES	80	91	-	63	51	91	63	80	60	57	37	3	89	91	-	77	43	54	31	37
FR	91	94	-	100	94	89	77	86	80	94	86	94	77	86	-	71	89	91	91	86
IT	66	77	-	77	31	40	20	46	74	77	51	83	86	91	-	94	63	46	69	66
CY	71	54	-	89	68	71	83	94	NA	NA	NA	NA	62	54	-	58	65	68	43	NA
LV	86	94	-	94	58	89	61	79	94	91	97	100	71	56	-	89	68	62	NA	48
LT	50	3	-	6	34	0	17	0	56	66	41	40	74	83	-	94	3	29	68	71
LU	60	86	-	89	89	77	74	91	60	89	31	83	54	66	-	77	31	11	46	60
MT	43	46	-	43	89	89	83	91	34	91	31	89	34	77	-	80	9	9	40	17
NL	91	94	-	89	46	34	57	23	44	97	49	97	91	94	-	83	63	63	40	34
AT	86	71	-	80	89	57	69	71	74	71	86	86	51	63	-	60	77	66	71	77
PT	94	89	-	77	20	17	68	91	85	60	91	66	80	80	-	60	89	100	86	91
SI	43	34	-	94	49	66	57	97	57	46	100	100	37	26	-	43	49	34	83	66
SK	83	66	-	77	40	17	49	31	94	91	89	97	43	77	-	66	42	60	81	91
FI	86	66	-	77	91	74	74	94	57	51	43	63	74	60	-	66	77	89	85	97
Euro area median	83	83	-	83	51	57	61	80	74	83	77	84	74	77	-	77	65	63	70	69
Euro area	100	-	100	-	71	-	43	-	100	-	91	-	100	-	100	-	71	-	66	-
Non-euro area																				
BG	-	100	-	89	-	26	-	3	-	91	-	100	-	54	-	97	-	100	-	97
CZ	-	91	-	91	-	74	-	77	-	89	-	86	-	91	-	91	-	60	-	60
DK	-	100	-	100	-	43	-	97	-	100	-	97	-	86	-	94	-	63	-	63
HR	-	69	-	54	-	51	-	69	-	54	-	66	-	77	-	51	-	80	-	71
HU	-	29	-	49	-	6	-	11	-	89	-	89	-	77	-	60	-	31	-	54
PL	-	94	-	89	-	94	-	83	-	83	-	69	-	80	-	80	-	66	-	86
RO	-	94	-	83	-	69	-	89	-	89	-	63	-	63	-	77	-	60	-	63
SE	-	60	-	74	-	91	-	66	-	60	-	69	-	69	-	94	-	37	-	43
UK	-	86	-	71	-	49	-	54	-	69	-	77	-	91	-	89	-	66	-	29

Source: ECB.

Table A.1.2.2
Upward revisions ratio for current account (quarterly data)
Percentage of revised periods

(Q2 2016 to Q1 2019 (April))

	Current account				Goods				Services				Primary Income				Secondary Income			
	Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																				
BE	92	75	-	42	33	8	33	17	58	50	58	33	100	100	-	100	83	92	67	92
DE	25	67	-	100	0	0	83	83	100	91	100	100	100	100	-	42	40	60	30	60
EE	75	83	-	83	67	58	33	25	67	92	92	92	58	67	-	100	58	75	58	67
IE	100	100	-	91	91	91	64	82	100	75	82	75	64	73	-	92	82	58	36	33
GR	75	75	-	75	67	89	90	100	100	100	100	91	75	42	-	75	100	91	100	100
ES	75	92	-	67	100	100	58	100	50	75	33	0	75	75	-	83	0	50	0	0
FR	92	100	-	92	100	92	83	83	67	83	92	92	50	25	-	42	83	92	92	83
IT	92	92	-	92	8	0	0	0	92	92	83	100	92	100	-	92	75	82	92	92
CY	100	100	-	100	92	92	100	100	100	100	100	100	100	100	-	100	100	100	57	30
LV	75	100	-	83	75	100	58	75	58	82	92	100	55	33	-	83	64	60	33	56
LT	55	0	-	0	33	0	17	0	33	42	73	75	75	75	-	75	0	17	50	67
LU	42	58	-	50	83	83	83	92	92	83	50	67	33	33	-	50	25	0	25	42
MT	50	50	-	42	100	100	83	100	33	83	25	75	50	83	-	75	25	25	42	25
NL	83	92	-	83	42	27	58	27	67	100	42	73	92	92	-	83	75	67	42	25
AT	75	92	-	92	92	83	50	75	100	100	92	100	42	67	-	50	73	58	67	42
PT	92	92	-	83	17	8	67	100	92	58	100	67	92	92	-	75	83	100	92	92
SI	50	33	-	92	58	42	42	100	58	33	100	100	58	25	-	50	50	33	83	67
SK	42	33	-	58	17	0	42	25	92	100	100	100	17	75	-	42	33	100	60	100
FI	92	58	-	92	92	50	58	83	25	33	33	58	92	67	-	75	83	92	64	83
Euro area median	75	83	-	83	67	58	58	83	67	83	92	91	75	75	-	75	73	67	58	67
Euro area	100	-	100	-	33	-	42	-	100	-	83	-	100	-	100	-	75	-	42	-
Non-euro area																				
BG	-	100	-	100	-	100	-	17	-	100	-	100	-	50	-	92	-	100	-	75
CZ	-	75	-	75	-	58	-	67	-	92	-	50	-	75	-	83	-	83	-	67
DK	-	100	-	92	-	42	-	75	-	92	-	100	-	75	-	92	-	58	-	67
HR	-	33	-	67	-	67	-	92	-	33	-	83	-	33	-	17	-	100	-	100
HU	-	17	-	42	-	0	-	0	-	83	-	83	-	67	-	42	-	33	-	75
PL	-	100	-	100	-	100	-	83	-	67	-	83	-	100	-	83	-	33	-	75
RO	-	75	-	50	-	33	-	92	-	83	-	25	-	67	-	58	-	67	-	58
SE	-	58	-	100	-	25	-	67	-	100	-	100	-	58	-	92	-	67	-	75
UK	-	100	-	100	-	17	-	8	-	100	-	100	-	67	-	75	-	0	-	33

Source: ECB.

Table A.1.2.3

Upward revisions ratio for international investment position (quarterly data)

Percentage of revised periods

(Q2 2016 to Q1 2019 (April))

	Financial account				Direct investment				Portfolio investment				Other investment			
	Assets		Liabilities		Assets		Liabilities		Assets		Liabilities		Assets		Liabilities	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																
BE	83	92	-	100	83	92	75	58	50	83	-	58	83	83	58	67
DE	67	100	-	100	67	100	70	73	NA	NA	-	50	42	58	40	42
EE	50	67	-	100	50	67	83	83	83	100	-	67	58	50	58	50
IE	92	100	-	100	100	92	64	64	64	75	-	25	100	100	55	64
GR	33	17	-	67	33	17	17	33	43	NA	-	NA	88	67	67	70
ES	83	100	-	100	92	100	92	92	25	42	-	33	83	100	33	58
FR	100	100	-	33	92	92	17	25	83	100	-	58	100	67	50	75
IT	100	58	-	83	42	42	58	50	33	33	-	83	100	100	33	50
CY	100	100	-	100	100	100	92	67	33	58	-	82	100	100	8	17
LV	33	100	-	92	83	83	75	58	60	75	-	42	33	67	75	75
LT	100	100	-	100	92	100	67	92	100	100	-	67	83	92	58	58
LU	92	100	-	100	92	100	58	58	75	75	-	75	67	75	42	50
MT	25	75	-	75	25	75	25	83	25	58	-	67	33	83	50	42
NL	92	100	-	100	92	83	58	50	92	92	-	33	100	100	75	58
AT	25	50	-	83	17	17	25	42	91	92	-	58	92	83	75	58
PT	100	0	-	33	100	33	33	67	0	0	-	42	50	50	25	42
SI	100	100	-	58	100	100	42	58	100	100	-	42	100	100	58	58
SK	100	42	-	75	100	42	42	33	83	83	-	18	67	33	75	75
FI	75	100	-	92	50	50	58	58	83	67	-	33	75	75	75	75
Euro area median	92	100	-	92	92	83	58	58	69	75	-	54	83	83	58	58
Euro area	100	-	100	-	100	-	67	-	100	-	42	-	100	-	42	-
Non-euro area																
BG	-	100	-	92	-	58	-	50	-	75	-	67	-	100	-	25
CZ	-	75	-	58	-	92	-	83	-	67	-	50	-	8	-	33
DK	-	67	-	100	-	75	-	33	-	17	-	50	-	67	-	17
HR	-	8	-	50	-	8	-	50	-	83	-	50	-	100	-	42
HU	-	83	-	100	-	100	-	75	-	75	-	67	-	58	-	67
PL	-	67	-	92	-	58	-	100	-	92	-	50	-	58	-	75
RO	-	83	-	92	-	75	-	58	-	50	-	58	-	92	-	50
SE	-	25	-	100	-	25	-	67	-	33	-	50	-	58	-	42
UK	-	50	-	100	-	83	-	67	-	0	-	42	-	67	-	58

Source: ECB.

A.1.3 Directional reliability indicator

Table A.1.3.1

Directional reliability indicator for current account (monthly data)

Percentage of revised periods

(April 2016 to March 2019)

	Current account				Goods				Services				Primary Income				Secondary Income			
	Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																				
BE	86	89	-	83	86	89	91	89	91	83	74	86	86	86	-	80	80	71	86	86
DE	97	97	-	91	97	97	91	100	91	91	100	100	77	83	-	97	86	94	86	86
EE	89	91	-	89	89	97	91	86	89	97	89	89	66	69	-	66	74	77	77	86
IE	77	80	-	89	89	86	89	97	83	83	83	86	80	71	-	74	60	71	89	89
GR	94	94	-	94	96	96	93	93	97	100	80	83	97	100	-	100	100	100	97	97
ES	83	91	-	89	83	86	71	91	80	83	80	77	71	80	-	77	74	86	91	91
FR	91	89	-	91	100	94	91	97	86	94	86	97	80	77	-	94	86	91	77	71
IT	97	91	-	89	100	97	94	83	97	97	80	89	86	86	-	97	77	77	80	77
CY	97	97	-	97	71	77	69	86	NA	NA	NA	NA	91	91	-	100	70	68	76	NA
LV	89	83	-	83	88	83	88	88	57	71	77	80	94	88	-	83	76	81	NA	86
LT	100	91	-	86	91	94	94	86	76	91	88	89	80	83	-	57	69	80	85	91
LU	66	74	-	94	80	69	66	91	89	83	94	94	57	80	-	91	71	71	86	80
MT	71	69	-	63	89	77	69	63	66	74	49	40	94	83	-	80	37	34	57	49
NL	66	74	-	49	89	86	97	89	59	60	74	80	49	49	-	49	71	83	63	60
AT	63	91	-	66	71	77	66	71	66	63	57	60	71	77	-	77	51	46	40	37
PT	91	91	-	94	97	94	97	100	79	86	85	83	83	94	-	97	89	86	80	80
SI	94	94	-	86	94	97	94	97	86	94	100	97	74	86	-	66	83	91	97	94
SK	89	100	-	94	89	100	91	97	54	60	69	60	74	77	-	77	79	80	78	83
FI	57	63	-	63	86	94	83	89	51	54	60	66	54	49	-	66	51	49	50	51
Euro area median	89	91	-	89	89	94	91	89	81	83	80	84	80	83	-	80	74	80	80	84
Euro area	94	-	89	-	97	-	94	-	97	-	89	-	77	-	91	-	89	-	91	-
Non-euro area																				
BG	-	94	-	89	-	91	-	97	-	83	-	86	-	83	-	74	-	100	-	94
CZ	-	94	-	86	-	94	-	89	-	69	-	86	-	89	-	83	-	100	-	97
DK	-	91	-	80	-	91	-	91	-	80	-	89	-	77	-	86	-	86	-	74
HR	-	77	-	60	-	71	-	57	-	94	-	74	-	57	-	66	-	71	-	54
HU	-	86	-	86	-	97	-	97	-	69	-	60	-	54	-	80	-	66	-	80
PL	-	89	-	77	-	91	-	89	-	74	-	60	-	86	-	71	-	94	-	89
RO	-	86	-	86	-	94	-	94	-	66	-	63	-	91	-	54	-	71	-	74
SE	-	89	-	94	-	97	-	91	-	66	-	71	-	83	-	91	-	60	-	37
UK	-	77	-	60	-	83	-	66	-	63	-	86	-	60	-	63	-	71	-	66

Source: ECB.

Table A.1.3.2
Directional reliability indicator for current account (quarterly data)
Percentage of revised periods

(Q2 2016 to Q1 2019)

	Current account				Goods				Services				Primary Income				Secondary Income			
	Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																				
BE	91	73	-	91	82	100	82	91	100	100	100	100	91	82	-	82	73	64	64	91
DE	100	100	-	91	91	100	100	100	89	100	90	100	78	100	-	91	56	78	100	100
EE	100	91	-	91	82	91	100	82	91	100	91	91	27	55	-	64	82	73	82	91
IE	100	100	-	100	70	90	90	90	90	91	100	100	90	100	-	82	100	91	80	82
GR	100	100	-	91	100	100	100	88	100	100	75	80	91	91	-	91	100	100	100	100
ES	91	100	-	91	91	91	100	100	100	100	73	100	82	100	-	82	91	91	100	100
FR	100	100	-	91	91	100	91	91	91	82	91	73	91	100	-	100	82	73	73	91
IT	100	100	-	100	100	100	100	91	100	100	91	100	91	100	-	73	100	100	100	91
CY	91	91	-	73	91	82	100	91	100	100	82	100	100	73	-	82	73	82	83	89
LV	73	100	-	91	91	100	82	100	100	100	73	100	100	100	-	91	90	90	100	100
LT	90	100	-	91	100	91	91	100	91	100	80	91	91	82	-	73	90	100	91	82
LU	55	91	-	73	64	64	82	100	82	91	64	73	64	64	-	64	55	55	91	91
MT	100	100	-	64	91	91	100	82	73	73	64	100	82	73	-	73	64	45	64	73
NL	64	82	-	45	100	70	100	100	36	70	45	80	64	73	-	55	82	73	73	91
AT	91	100	-	91	55	73	64	82	100	100	100	100	100	100	-	82	100	91	100	100
PT	82	82	-	100	91	100	100	100	100	100	73	82	73	100	-	100	73	45	82	100
SI	91	82	-	100	100	100	82	100	100	100	100	91	91	82	-	55	100	91	100	82
SK	82	91	-	100	91	91	100	100	91	100	100	100	100	100	-	73	100	100	100	100
FI	91	91	-	82	100	91	100	91	82	82	91	100	82	82	-	100	55	55	80	91
Euro area median	91	100	-	91	91	91	100	91	91	100	90	100	91	91	-	82	82	82	91	91
Euro area	100	-	100	-	100	-	91	-	100	-	100	-	100	-	73	-	100	-	100	-
Non-euro area																				
BG	-	91	-	100	-	100	-	100	-	91	-	91	-	73	-	73	-	100	-	100
CZ	-	91	-	100	-	100	-	100	-	91	-	100	-	73	-	100	-	100	-	100
DK	-	73	-	73	-	64	-	91	-	100	-	73	-	64	-	82	-	91	-	82
HR	-	82	-	91	-	100	-	100	-	100	-	91	-	73	-	91	-	100	-	91
HU	-	91	-	100	-	100	-	100	-	100	-	91	-	100	-	91	-	73	-	100
PL	-	82	-	100	-	82	-	91	-	100	-	100	-	100	-	55	-	100	-	100
RO	-	91	-	73	-	100	-	100	-	100	-	100	-	91	-	82	-	91	-	73
SE	-	100	-	100	-	91	-	91	-	100	-	91	-	100	-	100	-	100	-	91
UK	-	82	-	91	-	82	-	91	-	73	-	82	-	55	-	91	-	82	-	91

Source: ECB.

Table A.1.3.3

Directional reliability indicator for international investment position (quarterly data)

Percentage of revised periods

(Q2 2016 to Q2 2019)

	Financial account				Direct investment				Portfolio investment				Other investment			
	Assets		Liabilities		Assets		Liabilities		Assets		Liabilities		Assets		Liabilities	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																
BE	91	91	-	55	82	100	82	55	91	91	-	100	91	91	82	91
DE	100	100	-	100	89	80	67	100	100	100	-	100	91	100	100	100
EE	100	82	-	82	82	91	82	82	100	100	-	100	100	100	100	100
IE	64	100	-	100	91	91	100	100	91	100	-	100	82	91	90	90
GR	100	100	-	73	100	100	80	73	NA	100	-	NA	NA	NA	NA	NA
ES	73	100	-	73	64	100	55	73	100	73	-	91	82	82	82	100
FR	80	100	-	91	80	82	70	91	100	80	-	100	90	90	90	100
IT	73	100	-	64	82	73	73	64	100	100	-	100	100	100	91	100
CY	73	73	-	91	82	82	91	91	91	100	-	100	91	100	100	73
LV	91	100	-	90	78	100	91	90	100	100	-	100	100	100	100	100
LT	100	100	-	100	100	91	100	100	90	100	-	100	100	100	100	100
LU	82	91	-	91	82	73	73	91	100	100	-	73	91	82	91	73
MT	91	100	-	100	55	64	91	100	100	100	-	73	100	100	100	100
NL	73	91	-	91	73	91	82	91	100	91	-	100	91	91	100	100
AT	64	91	-	91	82	82	73	91	100	100	-	100	100	91	100	91
PT	100	90	-	82	78	73	89	82	67	100	-	100	100	90	100	100
SI	73	100	-	64	100	91	82	64	100	100	-	100	100	100	100	100
SK	91	82	-	91	91	91	100	91	89	100	-	100	73	100	100	91
FI	100	100	-	91	100	100	64	91	100	100	-	82	91	100	100	100
Euro area median	91	100	-	91	82	91	82	91	100	100	-	100	91	100	100	100
Euro area	91	-	73	-	91	-	73	-	91	-	82	-	100	-	100	-
Non-euro area																
BG	-	91	-	82	-	91	-	82	-	100	-	91	-	73	-	82
CZ	-	73	-	91	-	73	-	91	-	91	-	91	-	91	-	91
DK	-	100	-	73	-	100	-	73	-	100	-	91	-	82	-	82
HR	-	100	-	91	-	100	-	91	-	91	-	100	-	100	-	100
HU	-	73	-	91	-	73	-	91	-	82	-	100	-	100	-	91
PL	-	73	-	82	-	73	-	82	-	100	-	100	-	100	-	91
RO	-	55	-	73	-	55	-	73	-	100	-	100	-	100	-	91
SE	-	82	-	73	-	82	-	73	-	100	-	100	-	100	-	100
UK	-	82	-	82	-	82	-	82	-	64	-	82	-	82	-	91

Source: ECB.

A.1.4 Symmetric mean absolute percentage error

Table A.1.4.1

Symmetric mean absolute percentage error for current account (monthly data)

As a percentage of average underlying first and last assessments

April 2016 to March 2019

	Current account				Goods				Services				Primary Income				Secondary Income			
	Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																				
BE	3	2	-	2	2	2	3	2	4	3	4	3	18	12	-	9	12	22	5	7
DE	1	1	-	1	2	1	1	0	2	3	3	2	7	5	-	2	3	3	2	2
EE	1	1	-	1	2	1	1	1	1	1	2	2	10	6	-	7	11	10	8	6
IE	5	3	-	7	6	3	4	3	5	5	8	7	5	4	-	13	26	29	32	34
GR	6	3	-	4	0	0	2	1	11	6	18	13	3	3	-	8	1	2	1	1
ES	2	2	-	1	1	1	2	1	3	3	2	3	10	9	-	5	8	5	2	3
FR	3	3	-	2	2	1	1	1	4	4	2	2	9	8	-	8	11	13	7	8
IT	1	1	-	2	1	1	1	1	2	2	2	2	7	7	-	6	5	4	10	8
CY	29	27	-	25	9	9	10	7	9	10	10	9	48	46	-	43	22	22	16	13
LV	2	2	-	3	2	2	1	1	5	4	8	5	3	3	-	15	6	5	3	2
LT	1	3	-	2	1	6	1	5	3	4	4	3	27	24	-	19	7	3	4	4
LU	4	3	-	3	12	8	9	6	2	2	2	2	6	5	-	4	4	3	2	4
MT	17	8	-	8	13	10	8	7	6	6	10	6	19	1	-	2	88	93	83	88
NL	5	4	-	4	2	2	1	1	5	5	3	5	15	13	-	13	19	13	16	12
AT	3	2	-	2	3	2	4	2	4	4	4	4	6	4	-	3	7	7	6	5
PT	2	2	-	1	0	1	0	0	3	3	3	2	8	5	-	5	11	15	3	4
SI	1	0	-	1	1	0	0	1	1	1	4	5	8	9	-	9	4	3	1	4
SK	1	1	-	1	1	1	1	1	9	7	7	6	14	7	-	3	16	12	6	5
FI	3	2	-	3	2	1	1	1	5	5	4	4	13	9	-	15	22	22	8	10
Euro area median	3	2	-	2	2	1	1	1	4	4	4	4	9	7	-	8	11	10	6	5
Euro area	2	-	2	-	1	-	1	-	3	-	3	-	7	-	8	-	3	-	3	-
Non-euro area																				
BG	-	2	-	2	-	1	-	2	-	7	-	8	-	4	-	35	-	4	-	3
CZ	-	1	-	2	-	1	-	1	-	4	-	3	-	10	-	9	-	3	-	1
DK	-	2	-	2	-	1	-	1	-	5	-	2	-	3	-	4	-	4	-	5
HR	-	5	-	5	-	7	-	3	-	4	-	4	-	38	-	36	-	12	-	13
HU	-	1	-	1	-	2	-	1	-	3	-	4	-	6	-	4	-	19	-	3
PL	-	2	-	2	-	1	-	1	-	3	-	2	-	5	-	5	-	2	-	4
RO	-	1	-	2	-	0	-	0	-	4	-	4	-	3	-	21	-	7	-	3
SE	-	2	-	2	-	1	-	1	-	4	-	4	-	3	-	3	-	15	-	8
UK	-	2	-	1	-	2	-	1	-	3	-	3	-	4	-	4	-	3	-	5

Source: ECB.

Table A.1.4.2

Symmetric mean absolute percentage error for current account (quarterly data)

As a percentage of average underlying first and last assessments

(Q2 2016 to Q1 2019)

	Current account				Goods				Services				Primary Income				Secondary Income			
	Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																				
BE	1	1	-	1	1	2	2	2	1	1	2	1	14	10	-	10	8	14	4	5
DE	0	0	-	0	1	1	0	0	2	2	3	2	5	4	-	1	2	2	1	2
EE	1	1	-	1	1	1	1	1	1	1	1	2	7	4	-	5	6	4	1	2
IE	1	1	-	3	2	1	2	2	2	1	7	5	1	1	-	2	2	2	5	6
GR	5	3	-	4	0	0	2	1	10	6	16	11	3	2	-	6	1	2	0	0
ES	2	2	-	0	1	1	0	1	2	2	1	3	6	5	-	4	4	2	2	2
FR	1	1	-	1	1	1	1	1	2	2	1	1	2	1	-	1	4	4	4	4
IT	0	0	-	0	0	0	0	0	1	1	1	1	5	5	-	5	3	1	1	1
CY	20	18	-	16	7	5	3	4	9	9	11	10	28	27	-	27	9	7	4	3
LV	1	1	-	1	1	2	1	1	0	1	2	2	1	2	-	3	3	2	0	0
LT	1	4	-	4	0	6	1	5	2	1	2	1	22	18	-	4	3	2	3	4
LU	4	3	-	3	9	7	5	4	1	1	1	1	6	5	-	5	5	3	4	3
MT	15	7	-	8	7	6	2	4	5	5	9	5	16	1	-	1	87	92	82	87
NL	3	2	-	2	1	1	1	1	5	3	3	2	7	6	-	6	8	4	3	3
AT	1	1	-	1	1	1	1	0	1	1	1	1	5	3	-	2	2	3	1	1
PT	2	1	-	1	0	0	0	0	3	3	3	2	6	4	-	3	10	14	2	3
SI	0	0	-	1	0	0	0	0	1	1	4	5	5	7	-	7	3	2	0	3
SK	0	0	-	0	1	1	0	1	4	3	2	3	2	0	-	2	0	0	0	0
FI	2	5	-	6	1	1	1	1	2	1	2	1	6	3	-	5	16	17	9	5
Euro area median	1	1	-	1	1	1	1	1	2	1	2	2	6	4	-	4	4	3	2	3
Euro area	1	-	1	-	0	-	0	-	2	-	2	-	3	-	4	-	1	-	1	-
Non-euro area																				
BG	-	2	-	2	-	2	-	0	-	3	-	7	-	3	-	21	-	2	-	0
CZ	-	1	-	0	-	0	-	0	-	1	-	0	-	5	-	3	-	1	-	0
DK	-	1	-	1	-	1	-	0	-	3	-	2	-	2	-	2	-	1	-	1
HR	-	1	-	1	-	1	-	0	-	3	-	5	-	3	-	2	-	6	-	2
HU	-	2	-	2	-	0	-	1	-	2	-	1	-	29	-	19	-	9	-	6
PL	-	1	-	1	-	2	-	1	-	2	-	2	-	4	-	4	-	9	-	3
RO	-	1	-	1	-	1	-	1	-	1	-	1	-	4	-	4	-	1	-	1
SE	-	0	-	1	-	0	-	0	-	1	-	1	-	1	-	6	-	2	-	2
UK	-	0	-	1	-	0	-	0	-	1	-	2	-	1	-	1	-	2	-	2

Source: ECB.

Table A.1.4.3

Symmetric mean absolute percentage error for international investment position (quarterly data)

As a percentage of average underlying first and last assessments

(Q2 2016 to Q1 2019)

	Financial account				Direct investment				Portfolio investment				Other investment			
	Assets		Liabilities		Assets		Liabilities		Assets		Liabilities		Assets		Liabilities	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																
BE	2	2	-	2	2	3	2	3	1	1	-	2	2	1	1	2
DE	0	0	-	1	1	1	2	1	0	0	-	2	0	0	0	0
EE	0	0	-	1	1	1	2	1	0	0	-	0	1	0	1	0
IE	1	1	-	2	2	2	2	3	1	1	-	0	3	2	4	4
GR	0	1	-	0	3	5	3	1	0	0	-	1	0	0	1	1
ES	1	1	-	1	1	1	2	4	0	0	-	0	2	1	1	0
FR	1	0	-	0	1	1	1	1	0	1	-	1	1	1	0	0
IT	1	0	-	0	0	1	1	0	0	1	-	0	3	2	1	1
CY	33	31	-	30	37	38	51	35	1	1	-	1	15	7	27	18
LV	0	0	-	0	2	2	1	0	0	0	-	0	1	0	0	0
LT	2	2	-	2	3	7	3	5	5	2	-	0	0	0	1	1
LU	1	2	-	2	3	4	4	3	0	0	-	1	1	1	1	1
MT	16	0	-	0	18	1	18	1	18	0	-	0	9	1	5	0
NL	2	2	-	2	3	2	4	2	0	1	-	2	1	1	3	2
AT	1	0	-	1	2	1	3	1	0	0	-	0	2	1	3	2
PT	1	2	-	0	9	2	3	3	5	4	-	0	2	2	1	2
SI	5	4	-	1	2	2	1	1	2	3	-	1	10	6	2	1
SK	1	1	-	1	6	6	3	3	1	1	-	0	0	1	0	0
FI	0	1	-	2	2	1	4	3	0	1	-	2	1	1	2	2
Euro area median	1	1	-	1	2	2	3	2	0	1	-	0	1	1	1	1
Euro area	2	-	2	-	3	-	4	-	0	-	1	-	1	-	1	-
Non-euro area																
BG	-	1	-	1	-	2	-	2	-	0	-	0	-	2	-	1
CZ	-	0	-	0	-	5	-	1	-	0	-	1	-	3	-	1
DK	-	0	-	1	-	1	-	3	-	0	-	0	-	1	-	1
HR	-	3	-	1	-	51	-	6	-	4	-	0	-	15	-	6
HU	-	2	-	2	-	2	-	2	-	0	-	0	-	1	-	1
PL	-	0	-	0	-	1	-	0	-	1	-	0	-	1	-	0
RO	-	1	-	1	-	5	-	1	-	1	-	1	-	2	-	1
SE	-	1	-	1	-	1	-	2	-	1	-	0	-	0	-	0
UK	-	0	-	1	-	3	-	4	-	3	-	1	-	1	-	1

Source: ECB.

A.1.5 Mean absolute comparative error

Table A.1.5.1

Mean absolute comparative error for financial account (monthly data)

As a percentage of average underlying first and last assessments

(April 2016 to March 2019)

	Financial account				Direct investment				Portfolio investment				Other investment			
	Assets		Liabilities		Assets		Liabilities		Assets		Liabilities		Assets		Liabilities	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																
BE	1.4	0.8	-	0.8	2.2	1.5	3.8	1.7	0.9	0.5	-	0.6	3.7	2.3	5.0	2.8
DE	0.3	0.2	-	0.3	0.7	0.5	0.9	0.6	0.1	0.1	-	0.3	0.4	0.2	0.2	0.4
EE	2.1	1.1	-	0.9	4.6	2.6	2.6	1.3	1.3	0.6	-	1.4	4.6	1.6	1.2	0.9
IE	0.9	0.6	-	0.8	2.7	2.3	4.9	2.2	0.8	0.7	-	0.7	1.7	2.0	2.1	1.7
GR	0.3	0.2	-	0.1	0.6	0.7	1.2	0.4	0.1	0.1	-	0.5	0.5	0.4	0.3	0.1
ES	0.7	0.5	-	0.5	1.1	1.0	1.4	0.9	1.2	0.7	-	0.7	2.2	1.0	1.7	0.7
FR	0.9	0.6	-	0.6	1.0	0.9	1.4	0.7	2.6	1.4	-	1.3	1.1	0.9	1.0	0.7
IT	0.7	0.3	-	0.3	1.6	0.9	2.0	1.3	0.4	0.3	-	0.4	1.3	0.5	2.0	0.4
CY	0.8	0.7	-	0.6	0.9	0.8	0.9	0.7	3.6	2.4	-	2.7	5.5	3.2	2.6	2.3
LV	0.7	0.7	-	0.5	4.5	4.9	2.1	1.0	0.2	0.2	-	0.2	1.5	1.0	1.3	0.7
LT	2.6	1.0	-	0.7	12.1	4.0	2.2	1.7	1.5	0.4	-	0.1	5.5	2.9	2.2	1.4
LU	1.1	0.7	-	0.7	1.8	1.5	1.7	1.4	0.6	0.6	-	0.9	4.0	3.1	3.3	1.9
MT	0.1	0.1	-	0.1	1.5	0.1	0.2	0.1	0.9	0.1	-	0.3	0.5	0.3	0.7	0.4
NL	1.0	0.9	-	1.1	1.5	1.4	2.5	1.7	0.9	0.9	-	0.8	1.3	1.1	2.9	1.9
AT	1.2	0.7	-	0.6	2.5	1.8	3.0	1.8	0.5	0.2	-	0.4	4.2	2.4	4.7	2.5
PT	0.8	0.5	-	0.3	1.3	0.8	1.0	0.5	1.5	0.4	-	0.6	2.1	1.5	0.6	0.6
SI	0.5	0.5	-	0.5	0.8	0.9	1.1	0.8	0.2	0.2	-	0.6	1.3	1.2	0.9	0.6
SK	1.6	2.0	-	0.8	6.7	8.8	2.1	1.9	1.7	1.5	-	0.5	1.2	1.8	0.5	0.5
FI	1.5	1.1	-	1.6	3.3	3.1	7.2	6.1	1.6	1.1	-	1.3	4.5	3.6	3.7	3.3
Euro area median	0.9	0.7	-	0.6	1.6	1.4	2.0	1.3	0.9	0.5	-	0.6	1.7	1.5	1.7	0.7
Euro area	0.4	-	0.4	-	0.8	-	1.0	-	0.5	-	0.7	-	0.5	-	0.6	-
Non-euro area																
BG	-	0.8	-	0.6	-	3.2	-	0.8	-	1.9	-	1.0	-	2.0	-	1.4
CZ	-	0.5	-	0.6	-	2.3	-	0.6	-	0.8	-	2.3	-	1.3	-	1.3
DK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HR	-	3.9	-	1.5	-	34.2	-	3.2	-	6.7	-	3.0	-	15.3	-	1.4
HU	-	3.8	-	3.1	-	5.1	-	4.2	-	0.1	-	0.1	-	2.7	-	0.8
PL	-	0.8	-	0.6	-	1.6	-	1.0	-	1.8	-	0.5	-	1.6	-	0.5
RO	-	1.7	-	1.0	-	7.1	-	0.9	-	1.2	-	0.5	-	5.6	-	2.5
SE	-	1.2	-	1.2	-	1.1	-	1.4	-	0.4	-	0.3	-	2.0	-	1.9
UK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: ECB.

Table A.1.5.2

Mean absolute comparative error for financial account (quarterly data)

(Q2 2016 to Q1 2019)

	Financial account				Direct investment				Portfolio investment				Other investment			
	Assets		Liabilities		Assets		Liabilities		Assets		Liabilities		Assets		Liabilities	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																
BE	0.4	0.3	-	0.3	0.8	0.5	2.0	1.0	0.2	0.2	-	0.2	1.9	0.8	1.5	1.7
DE	0.1	0.0	-	0.1	0.2	0.2	0.5	0.2	0.0	0.0	-	0.1	0.3	0.1	0.1	0.3
EE	0.4	0.4	-	0.3	0.6	0.8	0.8	0.5	0.1	0.2	-	0.1	1.7	0.8	0.3	0.2
IE	0.3	0.2	-	0.2	1.1	0.7	2.8	1.0	0.2	0.1	-	0.1	0.7	0.7	0.4	0.4
GR	0.2	0.2	-	0.1	0.6	0.6	0.9	0.3	0.0	0.1	-	0.2	0.2	0.1	0.1	0.0
ES	0.4	0.2	-	0.1	0.4	0.3	0.6	0.4	0.3	0.2	-	0.3	0.9	0.4	0.3	0.1
FR	0.2	0.2	-	0.1	0.6	0.4	0.7	0.4	0.5	0.3	-	0.2	0.3	0.3	0.2	0.2
IT	0.3	0.2	-	0.1	0.8	0.5	0.9	0.6	0.2	0.2	-	0.1	0.3	0.3	0.5	0.2
CY	0.6	0.5	-	0.4	0.7	0.6	0.7	0.5	0.8	0.6	-	0.2	2.1	1.2	0.8	0.7
LV	0.2	0.2	-	0.1	0.9	0.5	0.4	0.2	0.1	0.0	-	0.1	0.6	0.4	0.2	0.2
LT	0.9	0.4	-	0.4	4.9	2.5	0.5	0.7	0.9	0.2	-	0.0	0.5	0.4	0.7	0.4
LU	0.5	0.4	-	0.3	0.9	0.8	1.1	0.6	0.2	0.2	-	0.4	1.8	1.2	1.9	1.0
MT	0.2	0.1	-	0.0	1.1	0.1	0.1	0.1	0.8	0.0	-	0.1	0.4	0.2	0.1	0.1
NL	0.8	0.6	-	0.7	1.2	0.9	1.2	1.2	0.3	0.3	-	0.4	0.6	0.5	0.7	0.6
AT	0.3	0.2	-	0.3	0.5	0.5	1.5	0.8	0.2	0.1	-	0.2	0.9	0.5	1.2	0.9
PT	0.5	0.3	-	0.1	0.6	0.4	0.4	0.2	1.2	0.3	-	0.3	1.5	0.9	0.3	0.3
SI	0.4	0.4	-	0.3	0.7	0.6	0.6	0.4	0.2	0.2	-	0.4	0.9	0.8	0.5	0.4
SK	0.5	0.4	-	0.4	1.4	2.8	0.9	0.8	0.5	0.5	-	0.2	0.1	0.3	0.1	0.0
FI	0.5	0.6	-	0.9	1.6	0.8	3.9	2.3	0.5	0.5	-	0.7	2.0	1.3	1.4	1.3
Euro area median	0.4	0.3	-	0.3	0.8	0.6	0.8	0.5	0.2	0.2	-	0.2	0.7	0.5	0.4	0.3
Euro area	0.2	-	0.2	-	0.5	-	0.6	-	0.1	-	0.2	-	0.3	-	0.1	-
Non-euro area																
BG	-	0.5	-	0.4	-	1.2	-	0.4	-	0.1	-	0.4	-	1.7	-	0.7
CZ	-	0.2	-	0.2	-	1.5	-	0.4	-	0.0	-	0.6	-	1.0	-	0.2
DK	-	0.4	-	0.4	-	0.3	-	0.7	-	0.2	-	0.1	-	2.0	-	1.7
HR	-	1.0	-	0.6	-	14.7	-	1.1	-	1.7	-	0.3	-	1.9	-	0.5
HU	-	2.8	-	2.3	-	3.8	-	3.1	-	0.1	-	0.0	-	1.0	-	0.5
PL	-	0.4	-	0.2	-	1.0	-	0.5	-	0.4	-	0.0	-	0.6	-	0.2
RO	-	0.5	-	0.3	-	2.3	-	0.4	-	0.5	-	0.2	-	1.6	-	0.8
SE	-	0.2	-	0.1	-	0.5	-	0.4	-	0.2	-	0.1	-	0.2	-	0.2
UK	-	0.2	-	0.2	-	0.5	-	1.0	-	0.3	-	0.3	-	0.4	-	0.5

Source: ECB.

A.1.6 Net relative revisions

Table A.1.6.1

Net relative revisions (monthly data) – counterpart area rest of the world

Current account revisions as a percentage of current account items; financial account positions as a percentage of underlying positions

(April 2016 to March 2019)

	Current account					Financial account			
		Goods	Services	Primary income	Secondary income	Direct investment	Portfolio investment	Other investment	
Euro area									
BE	3	3	4	13	14	0.3	1.5	1.0	2.8
DE	1	2	2	12	4	0.3	0.6	0.3	0.5
EE	2	3	3	9	22	0.6	1.3	1.2	1.5
IE	9	6	12	27	37	0.3	1.1	0.8	2.0
GR	3	3	3	17	2	0.2	0.5	0.4	0.2
ES	3	2	9	12	9	0.5	0.8	1.1	1.0
FR	3	2	6	11	12	0.5	1.0	1.5	1.1
IT	1	1	4	8	20	0.4	1.3	0.5	0.6
CY	5	16	9	3	29	0.3	0.7	4.3	3.3
LV	3	3	6	27	8	0.7	1.5	0.3	1.1
LT	2	1	7	38	13	1.2	3.0	0.5	3.0
LU	3	8	2	4	9	0.0	1.1	1.2	3.5
MT	2	13	4	4	105	0.1	0.1	0.1	0.5
NL	4	4	4	12	41	0.5	0.8	1.2	2.0
AT	4	5	5	9	11	0.8	1.7	0.6	2.5
PT	3	2	8	12	29	0.2	0.8	0.8	0.8
SI	3	1	7	26	11	0.5	1.0	0.7	1.1
SK	1	1	4	14	16	1.0	1.6	1.9	1.6
FI	4	2	7	21	20	1.4	3.8	2.0	2.8
Euro area median	3	3	5	12	14	0.5	1.1	0.8	1.5
Euro area	2	1	4	6	7	0.3	1.0	0.7	0.6
Non-euro area									
BG	2	3	0	69	9	1.1	1.4	2.6	2.7
CZ	2	1	6	14	4	0.6	1.1	3.0	2.0
DK	2	4	5	7	12	-	-	-	-
HR	13	10	13	197	31	2.4	7.5	6.5	7.5
HU	2	2	3	4	33	0.4	0.4	0.2	2.5
PL	1	1	5	12	8	0.5	1.6	0.7	1.1
RO	3	1	7	54	20	1.3	1.5	1.1	4.3
SE	2	2	7	7	30	0.6	1.3	0.5	1.0
UK	3	4	4	5	15	-	-	-	-

Source: ECB.

Table A.1.6.2

Net relative revisions (quarterly data) – counterpart area rest of the world

Current account revisions as a percentage of current account items; financial account positions as a percentage of underlying positions

(Q2 2016 to Q1 2019)

	Current account				Financial account transactions			Financial account positions					
	Goods	Services	Primary income	Secondary income	Direct investment	Portfolio investment	Other investment	Direct investment	Portfolio investment	Other investment			
Euro area													
BE	1	1	3	9	9	0.1	0.8	0.4	1.5	0.7	3.2	2.3	4.0
DE	0	1	2	9	2	0.1	0.1	0.1	0.4	1.0	1.0	3.3	0.7
EE	1	2	1	9	9	0.3	0.3	0.3	0.7	1.6	3.4	0.8	0.9
IE	5	2	11	4	18	0.2	0.8	0.2	0.6	0.7	2.4	2.3	4.8
GR	2	3	2	14	3	0.1	0.4	0.0	0.1	1.5	7.2	1.5	1.7
ES	3	1	8	8	5	0.1	0.4	0.4	0.2	1.2	5.0	0.9	1.5
FR	1	1	4	4	8	0.1	0.4	0.4	0.4	1.4	3.2	2.4	1.1
IT	0	0	1	4	2	0.1	0.6	0.2	0.3	1.1	1.7	3.2	1.2
CY	2	6	8	1	15	0.0	0.2	0.7	0.9	0.5	4.7	3.5	27.1
LV	1	2	2	7	5	0.2	0.4	0.1	0.3	0.3	1.2	0.4	0.7
LT	1	0	2	17	8	0.5	1.4	0.2	0.6	1.5	8.2	3.4	1.9
LU	2	6	2	2	6	0.0	0.5	0.4	1.2	0.1	1.6	1.3	1.6
MT	1	4	3	2	94	0.1	0.1	0.0	0.2	0.2	0.9	0.1	2.3
NL	1	2	5	2	12	0.0	0.2	0.6	0.3	0.5	1.7	4.6	2.6
AT	1	1	1	7	2	0.3	0.8	0.2	0.6	0.8	2.4	0.5	2.1
PT	2	2	7	7	27	0.1	0.3	0.4	0.4	2.6	8.5	8.5	5.3
SI	2	0	7	17	10	0.3	0.5	0.4	0.9	6.1	1.7	3.7	14.6
SK	1	1	1	4	1	0.4	0.7	0.7	0.3	3.2	8.8	1.9	1.6
FI	2	1	2	12	16	0.6	1.8	0.9	1.2	2.8	7.1	4.5	3.4
Euro area median	1	1	2	7	8	0.1	0.4	0.4	0.4	1.1	3.2	2.3	1.9
Euro area	1	1	3	3	3	0.1	0.3	0.2	0.2	1.1	1.4	2.5	1.1
Non-euro area													
BG	1	4	5	46	5	0.7	0.9	0.4	2.0	1.7	5.3	0.5	4.5
CZ	1	0	1	3	1	0.2	0.6	0.8	0.9	1.0	3.5	2.4	2.5
DK	1	2	4	6	3	0.1	0.6	0.3	0.8	1.3	3.0	1.1	1.5
HR	2	2	6	23	17	0.5	0.4	1.0	1.1	3.8	4.8	2.9	5.2
HU	1	1	2	5	19	0.1	0.1	0.1	0.9	1.3	1.5	0.2	2.5
PL	1	1	2	9	3	0.3	0.9	0.2	0.5	0.6	1.5	1.2	1.1
RO	1	0	2	15	5	0.4	0.4	0.4	1.5	1.5	3.4	2.3	3.1
SE	1	1	3	4	3	0.2	0.7	0.3	0.3	2.7	6.2	2.4	0.5
UK	1	1	3	6	5	0.1	0.8	0.4	0.2	1.6	2.1	6.4	1.5

Source: ECB.

A.1.7 Indicators on validation rules and consistency of balance of payments-related datasets

Table A.1.7.1

Average share of satisfied integrity rules/validations for monthly balance of payments

Percentage of possible integrity rules

(July 2018 to June 2019)

	CS	EQ0	FUNC	GEO2	GEO3	IAI	RS	RSCS
Euro area								
BE	100	100	100	100	100	100	100	100
DE	100	100	100	100	100	100	100	100
EE	100	100	100	100	100	100	100	100
IE	64	100	100	92	95	100	95	64
GR	100	100	100	100	100	100	100	100
ES	100	100	100	100	100	100	100	100
FR	100	100	100	100	100	100	100	100
IT	100	100	100	100	100	100	100	100
CY	100	100	100	100	100	100	100	100
LV	100	100	100	100	100	100	100	100
LT	100	100	100	100	100	100	100	100
LU	100	100	100	100	100	100	100	100
MT	100	100	100	100	100	100	100	100
NL	100	100	100	100	100	100	100	100
AT	100	100	100	100	100	100	100	100
PT	100	100	100	100	100	100	100	100
SI	100	100	100	100	100	100	100	100
SK	100	100	100	100	100	100	100	100
FI	100	100	100	100	100	100	100	100
Euro area median	100	100	100	100	100	100	100	100
Non-euro area								
BG	N/A	N/A	N/A	100	100	100	100	N/A
CZ	N/A	N/A	N/A	100	100	100	100	N/A
DK	N/A	N/A	N/A	100	100	100	100	N/A
HR	N/A	N/A	N/A	88	87	100	83	N/A
HU	N/A	N/A	N/A	100	100	100	100	N/A
PL	N/A	N/A	N/A	100	100	100	100	N/A
RO	N/A	N/A	N/A	100	100	100	100	N/A
SE	N/A	N/A	N/A	100	100	100	100	N/A
UK	N/A	N/A	N/A	100	100	100	100	N/A

Source: ECB.

Note: The non-availability of results for non-euro area countries is due to voluntary transmission requirements (Eurostat Regulation).

Table A.1.7.2

Average share of satisfied integrity rules/validations for quarterly balance of payments

Percentage of possible integrity rules

(Q3 2018 to Q2 2019)

	ACC	BAL	CONS	CS	EQ0	FUNC	GEO2	GEO3	GEO4	IAI	MAT	OTH	OW	RS	RSCS	STR
Euro area																
BE	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
DE	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
EE	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
IE	100	100	72	100	100	99	100	100	100	100	99	100	100	100	100	100
GR	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
ES	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
FR	100	100	100	99	100	94	100	100	93	100	100	100	100	99	92	100
IT	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
CY	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
LV	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
LT	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
LU	100	100	97	100	100	100	100	100	100	100	100	100	100	100	100	100
MT	100	100	100	100	100	100	100	100	100	100	100	97	99	100	98	100
NL	100	100	100	99	100	100	100	100	100	100	100	100	99	100	100	100
AT	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
PT	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SI	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SK	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
FI	100	100	99	100	100	99	100	99	100	100	100	100	100	100	100	100
Euro area median	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Non-euro area																
BG	100	100	100	100	100	100	100	100	92	100	N/A	100	100	100	100	100
CZ	100	100	100	100	100	100	100	100	100	100	N/A	100	100	100	100	100
DK	100	100	98	100	100	100	100	100	69	100	N/A	100	100	100	88	100
HR	100	100	53	100	100	100	100	100	100	100	N/A	100	100	100	100	100
HU	100	100	100	100	100	100	100	100	100	100	N/A	100	100	100	98	100
PL	100	100	99	100	100	100	100	100	100	100	N/A	100	100	100	100	100
RO	100	100	99	100	100	100	100	100	100	100	N/A	100	100	100	100	100
SE	100	100	100	100	88	100	100	100	74	100	N/A	100	100	100	100	100
UK	100	100	73	100	100	100	100	100	68	100	N/A	100	100	100	100	100

Source: ECB.

Note: The non-availability of results for non-euro area countries is due to voluntary transmission requirements (Eurostat Regulation).

Table A.1.7.3

Average share of satisfied integrity rules/validations for quarterly international investment position

Percentage of possible integrity rules

(Q3 2018 to Q2 2019)

	ACC	CS	CURR	EQ0	FUNC	GEO2	GEO3	GEO4	MAT	OTH	OW	REC	RS	RSCS	STR	ACC
Euro area																
BE	100	100	100	100	100	100	100	100	100	100	100	90	100	100	99	100
DE	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
EE	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
IE	100	100	100	100	100	99	100	100	99	100	100	100	100	100	100	100
GR	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
ES	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
FR	100	100	100	100	100	100	100	96	100	100	100	100	100	100	100	100
IT	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
CY	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
LV	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
LT	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
LU	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
MT	100	99	100	100	100	100	100	85	100	100	100	67	100	100	100	100
NL	100	100	100	100	100	100	100	100	100	100	100	99	100	100	100	100
AT	100	100	100	100	100	100	100	100	100	100	100	95	100	100	100	100
PT	100	100	100	100	100	100	100	100	99	100	100	99	100	100	100	100
SI	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SK	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
FI	100	100	100	100	98	100	92	100	100	100	100	100	100	100	100	100
Euro area median	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Non-euro area																
BG	100	100	100	100	100	100	100	82	96	100	N/A	N/A	100	100	100	100
CZ	100	100	100	100	100	100	100	100	100	100	N/A	N/A	100	100	100	100
DK	100	100	100	100	100	100	100	97	100	100	N/A	N/A	100	100	100	100
HR	100	100	86	100	100	100	100	100	89	100	N/A	N/A	100	100	100	100
HU	100	100	100	100	100	100	100	100	100	100	N/A	N/A	100	100	100	100
PL	100	100	100	100	100	100	100	100	100	100	N/A	N/A	100	100	100	100
RO	100	100	100	100	100	100	100	100	100	100	N/A	N/A	100	100	100	100
SE	100	100	100	100	100	100	100	84	100	100	N/A	N/A	100	100	100	100
UK	100	100	100	100	100	100	100	100	100	100	N/A	N/A	100	100	100	100

Source: ECB.

Note: The non-availability of results for non-euro area countries is due to voluntary transmission requirements (Eurostat Regulation).

Table A.1.7.4
Average time consistency for current account
Consistency between monthly and quarterly data as a percentage of respective item

(Q3 2018 to Q2 2019)

	Current account				Goods				Services				Primary Income				Secondary Income			
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																				
BE	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
DE	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
EE	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
IE	98	98	-	92	97	98	93	94	97	97	83	87	96	99	-	97	94	93	90	83
GR	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
ES	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
FR	99	99	-	99	100	100	100	100	100	100	100	100	95	94	-	94	100	100	100	100
IT	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
CY	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	99	99	99	99
LV	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
LT	100	100	-	100	100	100	100	100	100	100	100	100	99	99	-	100	100	100	100	100
LU	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
MT	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
NL	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
AT	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
PT	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
SI	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
SK	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
FI	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	92	90
Euro area median	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
Euro area	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-
Non-euro area																				
BG	-	99	-	100	-	100	-	100	-	98	-	98	-	98	-	97	-	100	-	100
CZ	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100
DK	-	98	-	99	-	99	-	100	-	94	-	99	-	98	-	100	-	99	-	100
HR	-	99	-	97	-	99	-	97	-	96	-	96	-	89	-	90	-	95	-	96
HU	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100
PL	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100
RO	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100
SE	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100
UK	-	99	-	99	-	99	-	99	-	96	-	96	-	96	-	96	-	97	-	99

Source: ECB.

Table A.1.7.5
Average time consistency for financial account
Consistency between monthly and quarterly data as a percentage of underlying i.i.p. item

(Q3 2018 to Q2 2019)

	Direct investment				Portfolio investment				Other investment			
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area												
BE	100	100	100	100	100	100	-	100	100	100	100	100
DE	100	100	100	100	100	100	-	100	100	100	100	100
EE	100	100	100	100	100	100	-	100	100	100	100	100
IE	100	100	98	99	100	100	-	100	100	100	99	100
GR	100	100	100	100	100	100	-	100	100	100	100	100
ES	100	100	100	100	100	100	-	100	100	100	100	100
FR	100	100	100	100	100	100	-	100	100	100	100	100
IT	100	100	100	100	100	100	-	100	100	100	100	100
CY	100	100	100	100	100	100	-	100	100	100	100	100
LV	100	100	100	100	100	100	-	100	100	100	100	100
LT	100	100	100	100	100	100	-	100	100	100	100	100
LU	100	100	100	100	100	100	-	100	100	100	100	100
MT	100	100	100	100	100	100	-	100	100	100	100	100
NL	100	100	100	100	100	100	-	100	100	100	100	100
AT	100	100	100	100	100	100	-	100	100	100	100	100
PT	100	100	100	100	100	100	-	100	100	100	100	100
SI	100	100	100	100	100	100	-	100	100	100	100	100
SK	100	100	100	100	100	100	-	100	100	100	100	100
FI	100	100	100	100	100	100	-	100	100	100	100	100
Euro area median	100	100	100	100	100	100	-	100	100	100	100	100
Euro area	100	-	100	-	100	-	100	-	100	-	100	-
Non-euro area												
BG	-	100	-	100	-	100	-	100	-	100	-	100
CZ	-	100	-	100	-	100	-	100	-	100	-	100
DK	-	100	-	100	-	100	-	100	-	100	-	100
HR	-	100	-	99	-	100	-	99	-	93	-	100
HU	-	100	-	100	-	100	-	100	-	100	-	100
PL	-	100	-	100	-	100	-	100	-	100	-	100
RO	-	100	-	100	-	100	-	100	-	100	-	100
SE	-	100	-	100	-	100	-	100	-	100	-	100
UK	-	-	-	-	-	-	-	-	-	-	-	-

Source: ECB.

Table A.1.7.6

Average relative explained changes for financial account sub-components

Consistency between positions and flows as a percentage of underlying i.i.p. item

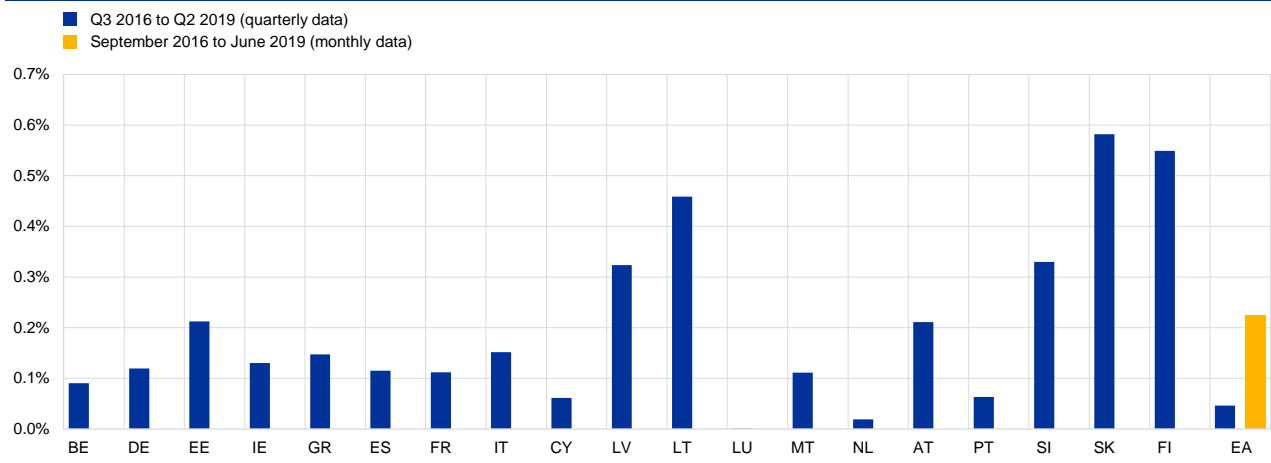
(Q3 2018 to Q2 2019)

	Direct investment		Portfolio investment		Other investment	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Euro area						
BE	100	100	100	100	100	100
DE	100	100	100	100	100	100
EE	100	100	100	100	100	100
IE	100	100	100	100	100	100
GR	100	100	100	100	100	100
ES	100	100	100	100	100	100
FR	100	100	100	100	100	100
IT	100	100	100	100	100	100
CY	100	100	100	100	100	100
LV	100	100	100	100	100	100
LT	100	100	100	100	100	100
LU	100	100	100	100	100	100
MT	-	-	-	-	-	-
NL	100	100	100	100	100	100
AT	100	100	100	100	100	100
PT	100	100	100	100	100	100
SI	100	100	100	100	100	100
SK	100	100	100	100	100	100
FI	100	100	100	100	100	100
Euro area median	100	100	100	100	100	100
Euro area	100	100	100	100	100	100
Non-euro area						
BG	99	99	100	100	100	100
CZ	100	100	100	100	100	100
DK	97	95	99	99	99	98
HR	-	-	-	-	-	-
HU	100	100	100	100	100	100
PL	-	-	-	-	-	-
RO	100	100	100	100	100	100
SE	-	-	-	-	-	-
UK	-	-	-	-	-	-

Source: ECB.

Chart A.1.7.1

Average net errors and omissions relative to average international investment position



Source: ECB.

A.1.8 Coherence with international trade in goods statistics

Table A.1.8.1

Directional consistency for b.o.p. total goods and ITGS (merchandise trade)

Percentage of analysed period (Q3 2015 to Q2 2018)				
	Exports/goods credits		Imports/goods debits	
	Rest of the world	Extra-euro area	Rest of the world	Extra-euro area
Euro area				
BE	91	73	100	82
DE	100	100	100	100
EE	73	82	73	100
IE	91	45	91	73
GR	91	100	91	91
ES	91	100	91	100
FR	100	91	100	100
IT	100	100	100	100
CY	100	100	100	91
LV	100	100	100	91
LT	100	100	100	100
LU	100	73	100	100
MT	55	73	55	45
NL	91	82	91	82
AT	91	82	91	73
PT	100	82	100	100
SI	100	91	100	91
SK	100	100	100	100
FI	91	91	91	91
Euro area median	100	91	100	91
Euro area	-	100	-	100
Non-euro area				
BG	100	-	100	-
CZ	100	-	100	-
DK	82	-	82	-
HR	91	-	91	-
HU	73	-	73	-
PL	91	-	91	-
RO	82	-	82	-
SE	91	-	91	-
UK	82	-	82	-

Source: ECB.

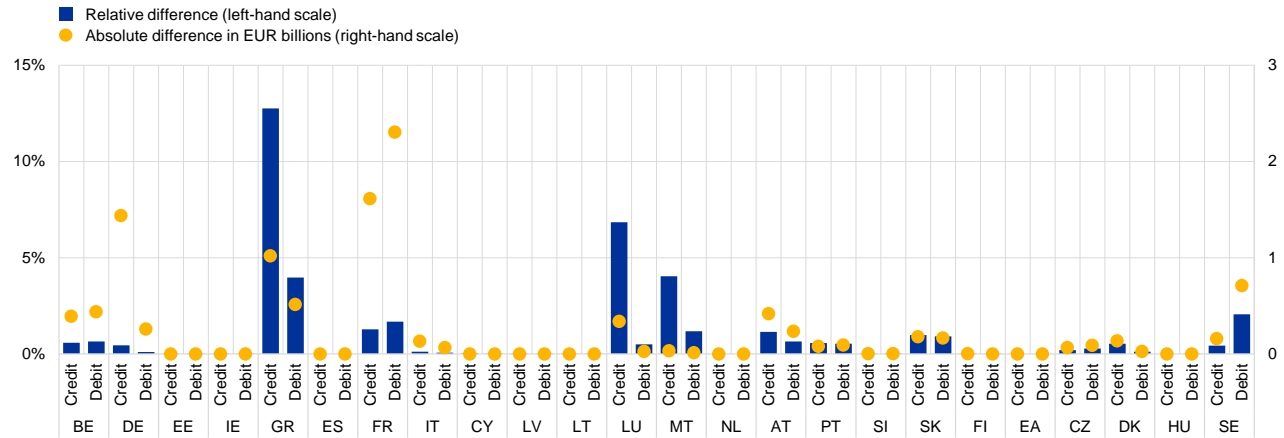
A.1.9 Consistency with sectoral accounts

Chart A.1.9.1

Discrepancies in goods between b.o.p. and RoW account

Average absolute and relative differences (as a percentage of respective b.o.p. and RoW account item)

(Q3 2016 to Q2 2019)



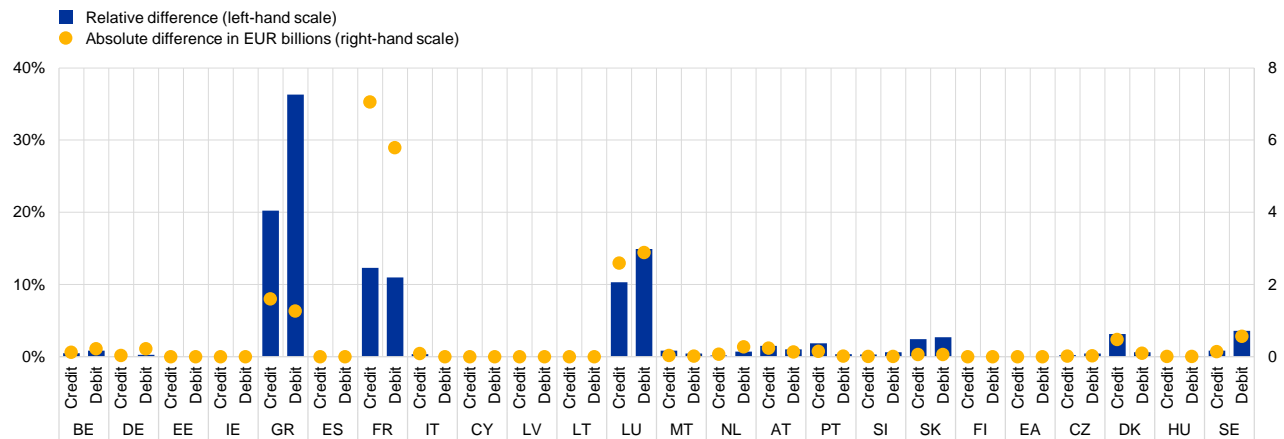
Source: ECB.

Chart A.1.9.2

Discrepancies in services between b.o.p. and RoW account

Average absolute and relative differences (as a percentage of respective b.o.p. and RoW account item)

(Q3 2016 to Q2 2019)



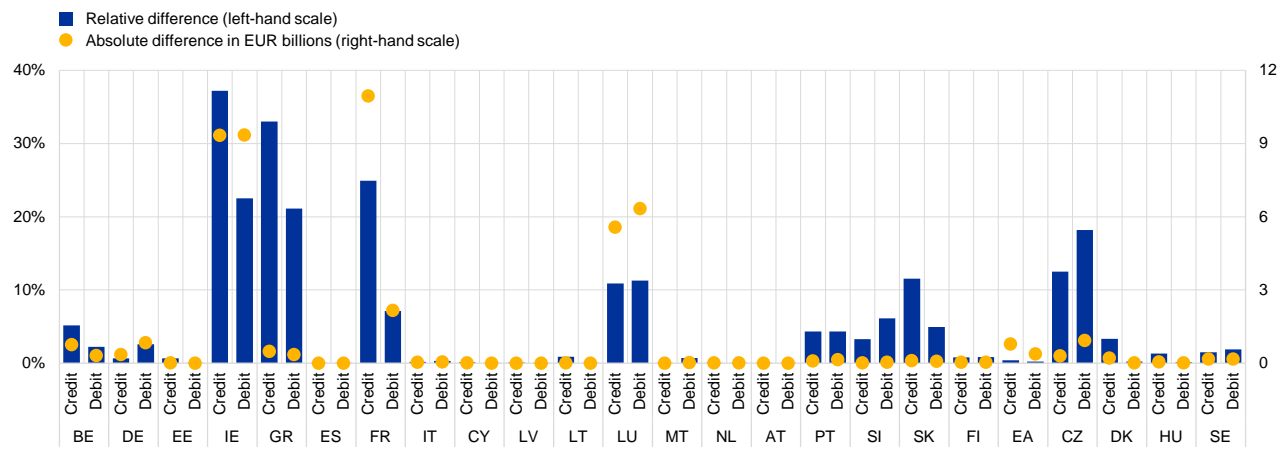
Source: ECB.

Chart A.1.9.3

Discrepancies in primary income between b.o.p. and RoW account

Average absolute and relative differences (as a percentage of respective b.o.p. and RoW account item)

(Q3 2016 to Q2 2019)



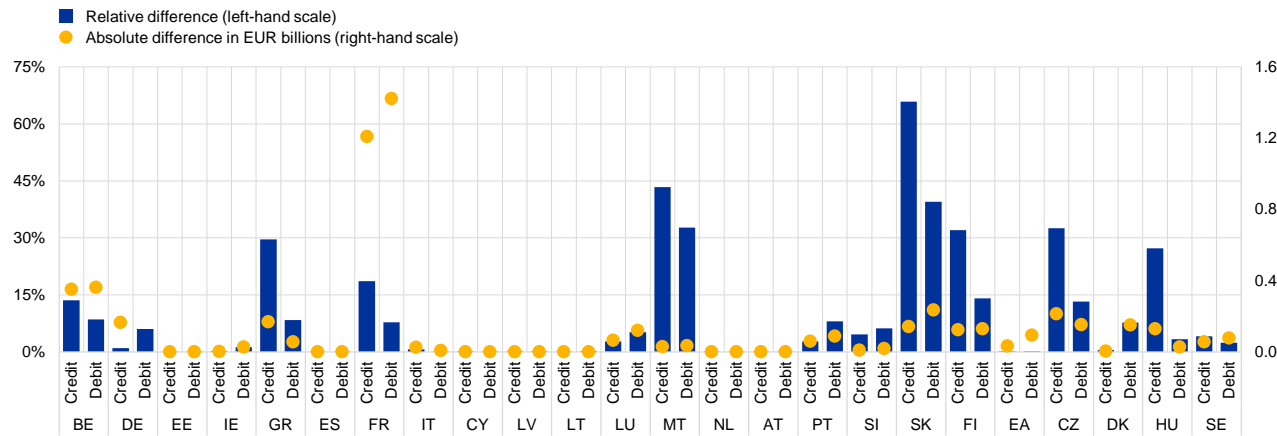
Source: ECB.

Chart A.1.9.4

Discrepancies in secondary income between b.o.p. and RoW account

Average absolute and relative differences (as a percentage of respective b.o.p. and RoW account item)

(Q3 2016 to Q2 2019)



Source: ECB.

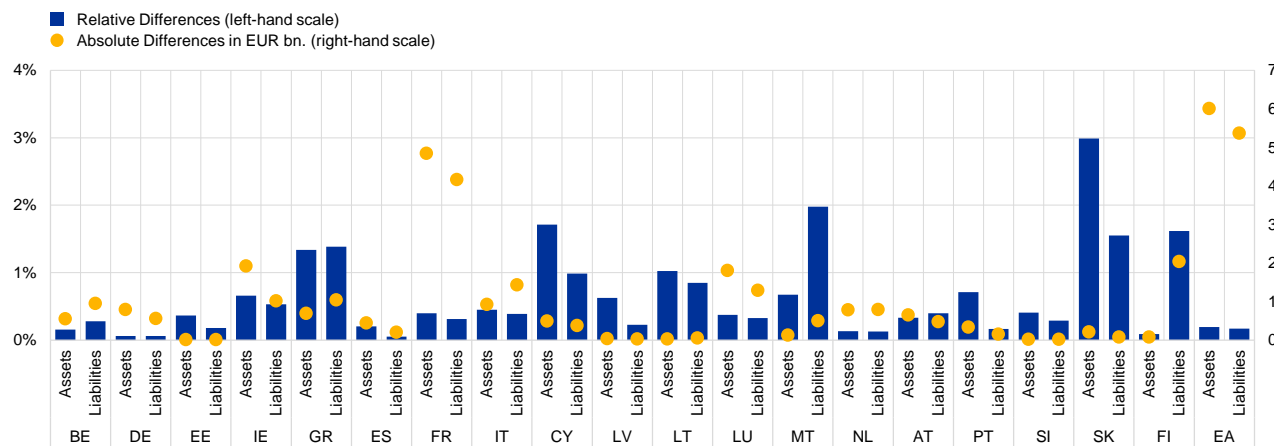
A.1.10 Coherence with MFI balance sheet data

Chart A.1.10.1

Loans and deposits transactions discrepancies between b.o.p. and BSI – quarterly data (MFI excluding Eurosystem)

Average absolute and relative differences (as a percentage of respective i.i.p. and BSI positions)

(Q3 2016 to Q2 2019)



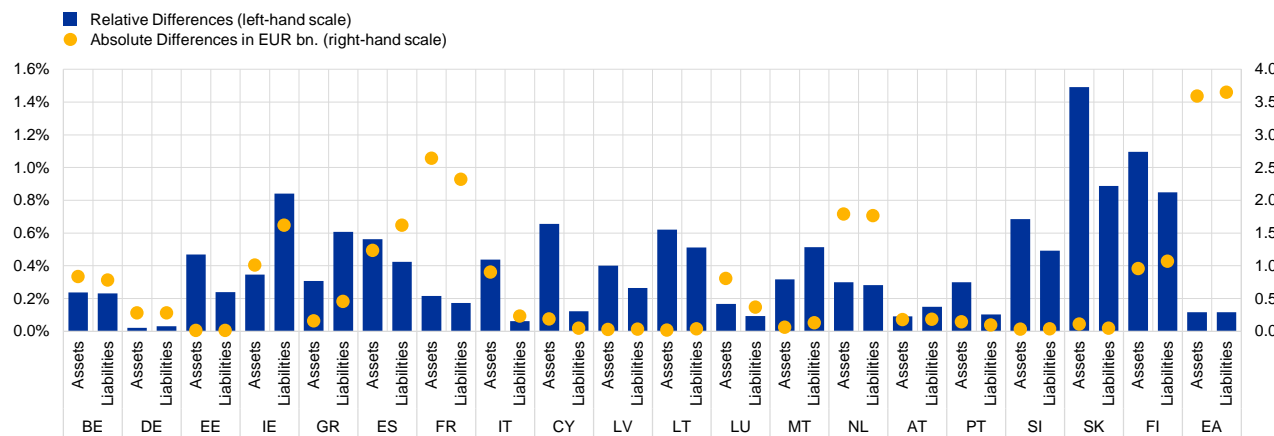
Source: ECB.

Chart A.1.10.2

Loans and deposits transactions discrepancies between b.o.p. and BSI – monthly data (MFI excluding Eurosystem)

Average absolute and relative differences (as a percentage of respective i.i.p. and BSI positions)

(Q3 2016 to Q2 2019)



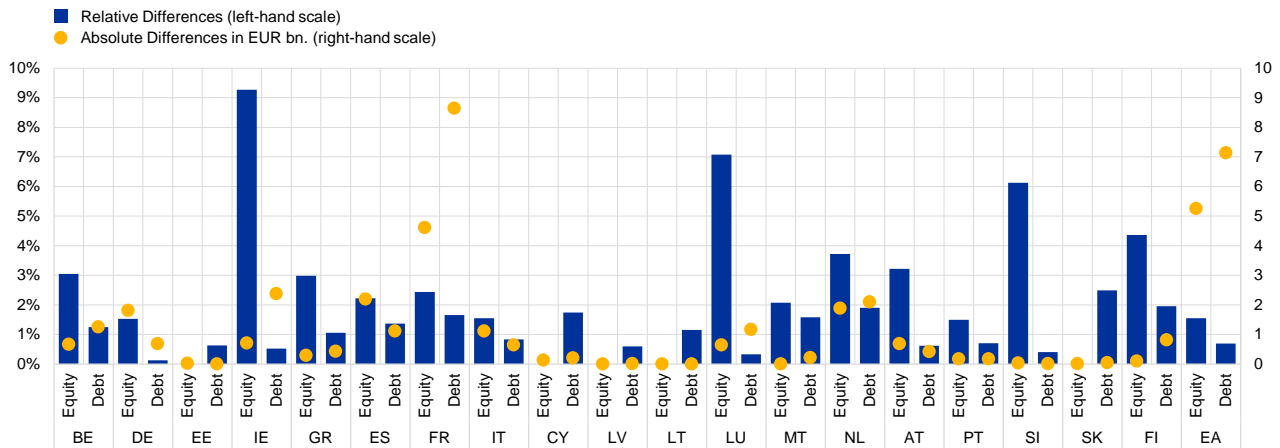
Source: ECB.

Chart A.1.10.3

Equity and debt securities assets transactions discrepancies between b.o.p. and BSI – quarterly data (MFI excluding Eurosystem)

Average absolute and relative differences (as a percentage of respective i.i.p. and BSI positions)

(Q3 2016 to Q2 2019)



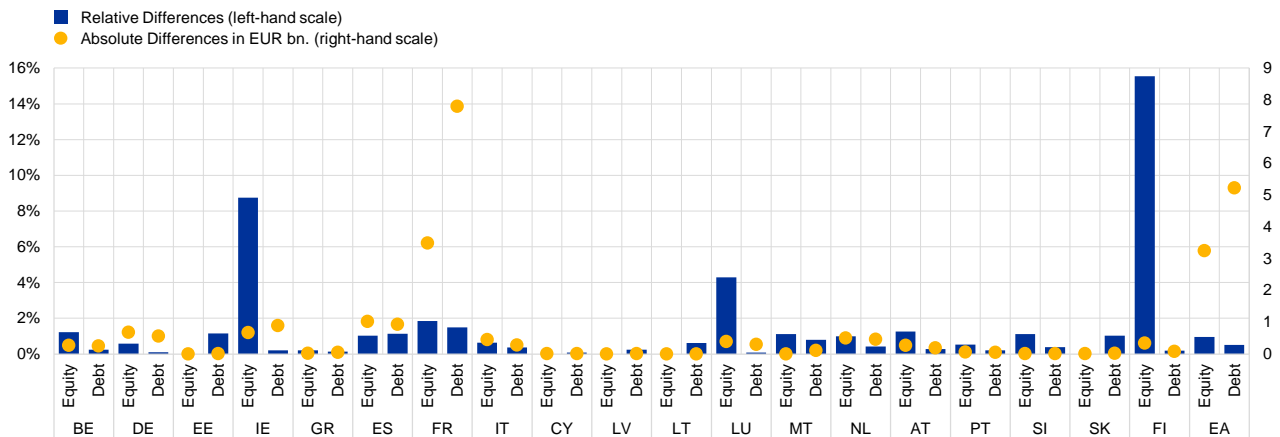
Source: ECB.

Chart A.1.10.4

Equity and debt securities assets transactions discrepancies between b.o.p. and BSI – monthly data (MFI excluding Eurosystem)

Average absolute and relative differences (as a percentage of respective i.i.p. and BSI positions)

(Q3 2016 to Q2 2019)



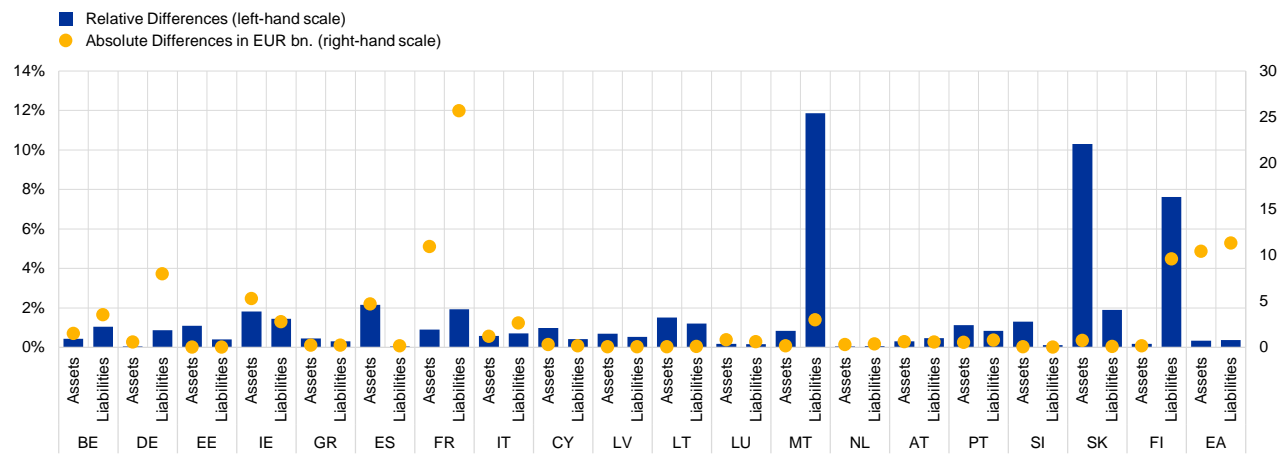
Source: ECB.

Chart A.1.10.5

Loans and deposits positions discrepancies between i.i.p. and BSI – quarterly data (MFI excluding Eurosystem)

Average absolute and relative differences (as a percentage of respective i.i.p. and BSI positions)

(Q3 2016 to Q2 2019)



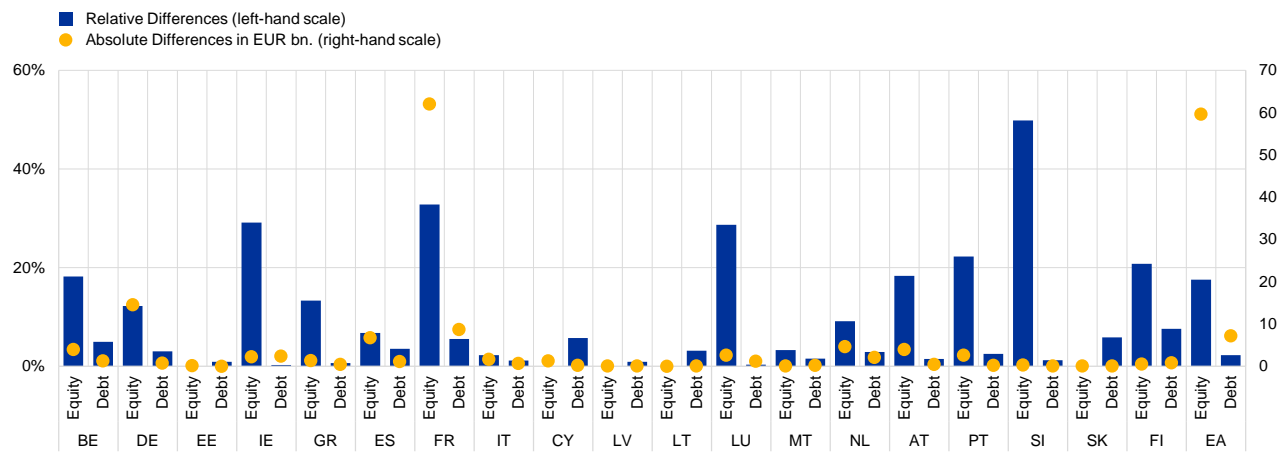
Source: ECB.

Chart A.1.10.6

Equity and debt securities assets positions discrepancies between i.i.p. and BSI – quarterly data (MFI excluding Eurosystem)

Average absolute and relative differences (as a percentage of respective i.i.p. and BSI positions)

(Q3 2016 to Q2 2019)



Source: ECB.

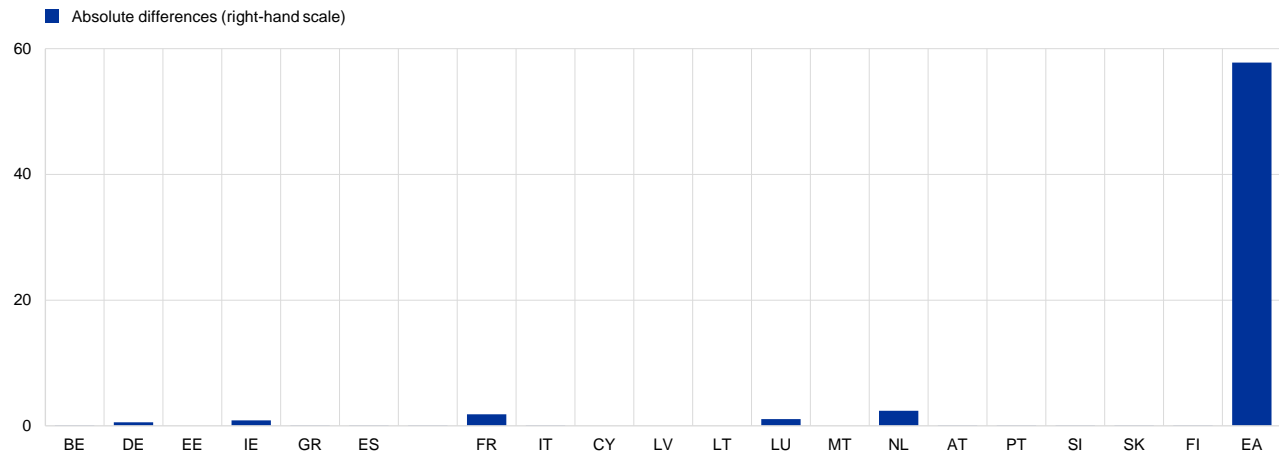
A.1.11 Coherence with money market fund statistics

Chart A.1.11.1

MMF shares liabilities positions discrepancies between i.i.p. and MMF statistics

Average absolute difference

(Q3 2016 to Q2 2019)



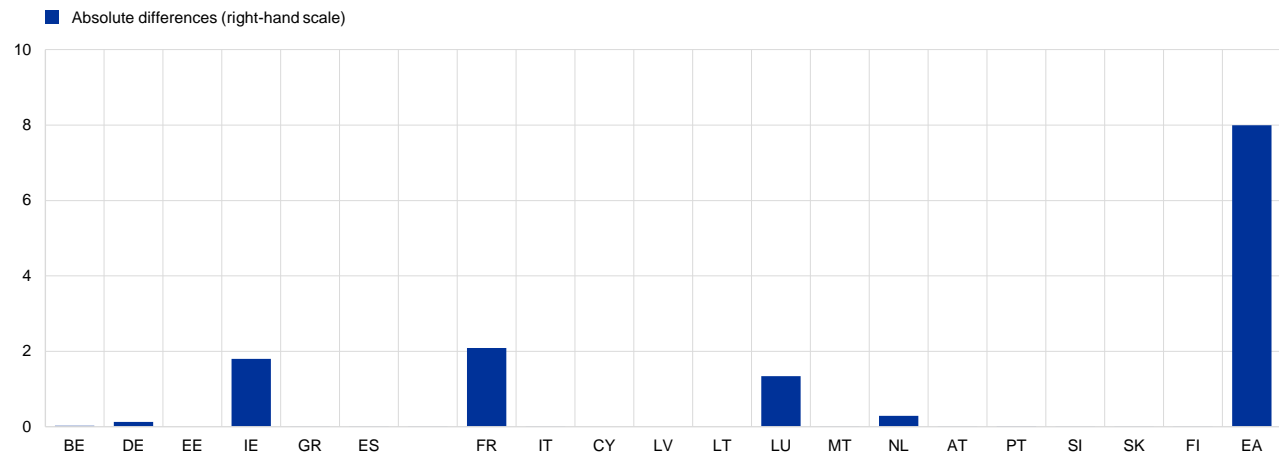
Source: ECB.

Chart A.1.11.2

MMF shares liabilities transactions discrepancies between b.o.p. and MMF statistics

Average absolute difference

(Q3 2016 to Q2 2019)



Source: ECB.

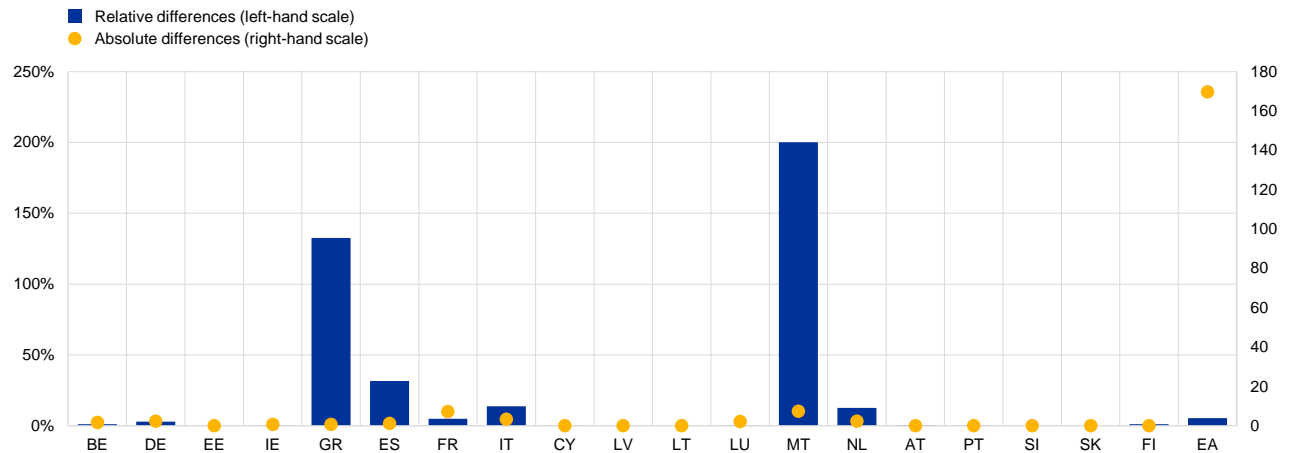
A.1.12 Coherence with investment fund statistics

Chart A.1.12.1

IVF positions liabilities discrepancies between i.i.p. and IF statistics

Average absolute and relative differences (as a percentage of respective i.i.p. and IF positions)

(Q3 2016 to Q2 2019; left-hand scale: percentages; right-hand scale: EUR billions)



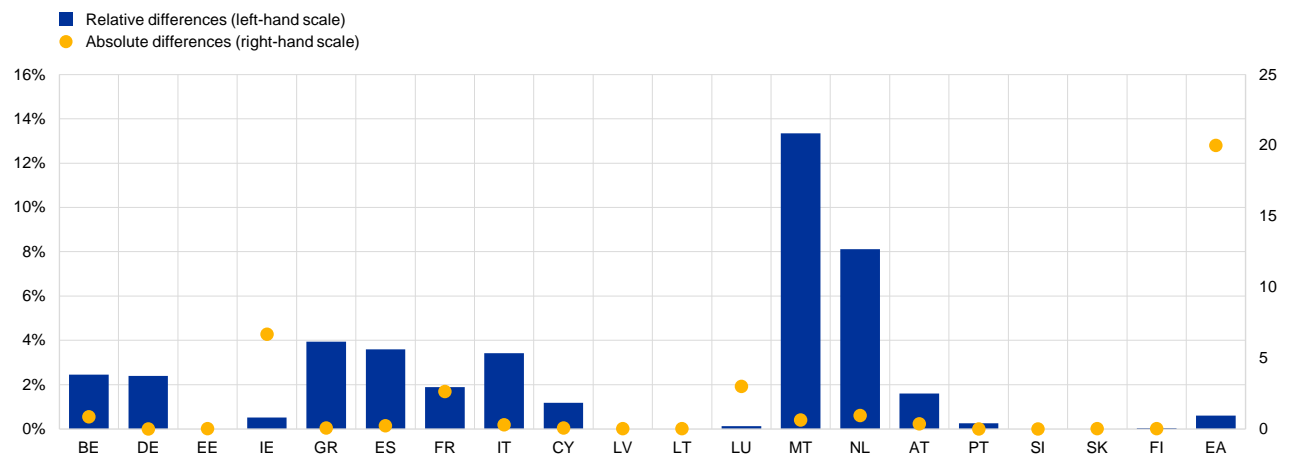
Source: ECB.

Chart A.1.12.2

IVF transaction liabilities discrepancies between b.o.p. and IF statistics

Average absolute and relative differences (as a percentage of respective i.i.p. and IF positions)

(Q3 2016 to Q2 2019; left-hand scale: percentages; right-hand scale: EUR billions)



Source: ECB.

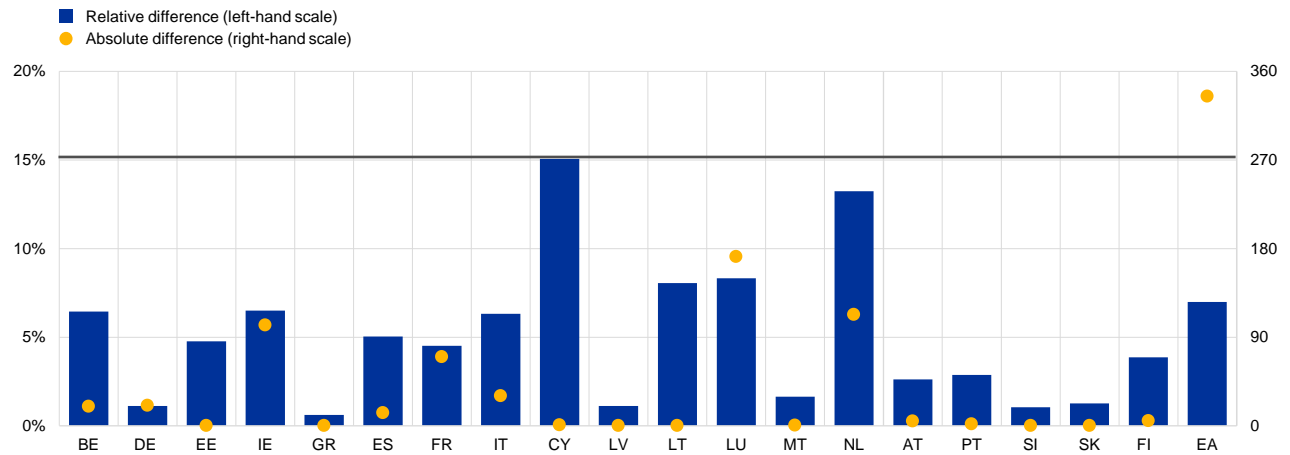
A.1.13 Coherence with securities holdings statistics

Chart A.1.13.1

Portfolio investment debt securities positions discrepancies between i.i.p. and SHSS statistics

Average absolute and relative differences (as a percentage of respective i.i.p. and SHSS positions)

(Q3 2016 to Q2 2019; left-hand scale: percentages; right-hand scale: EUR billions)



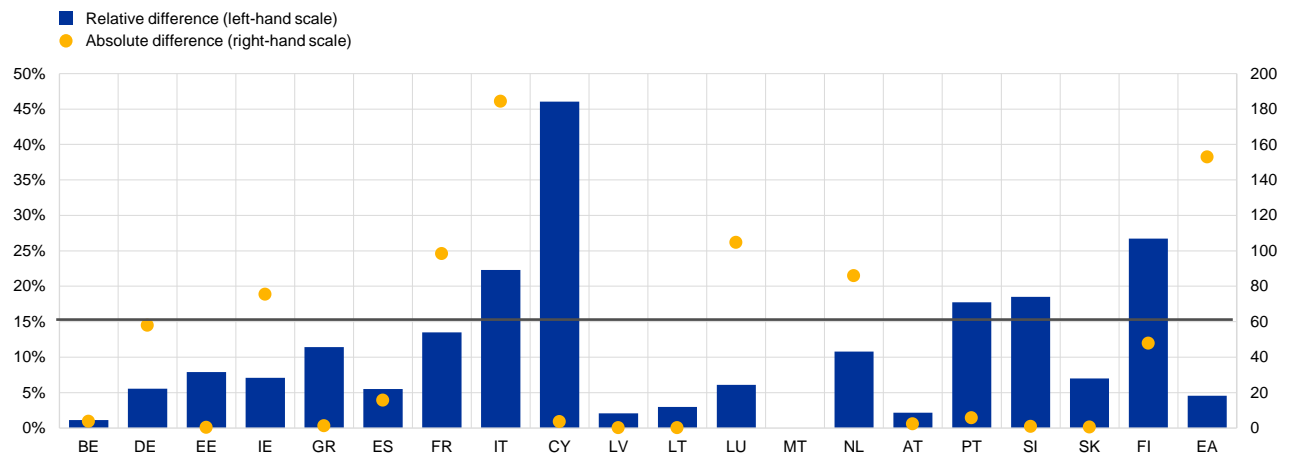
Source: ECB.

Chart A.1.13.2

Portfolio investment equity (listed shares and investment funds shares) positions discrepancies between i.i.p. and SHSS statistics

Average absolute and relative differences (as a percentage of respective i.i.p. and SHSS positions)

(Q3 2016 to Q2 2019; left-hand scale: percentages; right-hand scale: EUR billions)



Source: ECB.

A.1.14 Summary indicators on bilateral asymmetries

Table A.1.14.1

Internal geographical quality indicator, foreign direct investment transactions

(Q3 2016 to Q2 2019)

Date	AT	BE	CY	DE	EE	ES	IE	IT	LT	LV	MT	NL	PT	SI	FI	FR	GR	LU	SK
2016Q3	0.75	0.70	0.79	0.60	0.72	0.37	0.68	0.56	0.74	0.46	-	0.72	0.45	0.57	0.59	0.49	-	0.51	-
2016Q4	0.22	0.40	0.86	0.49	0.81	0.28	0.57	0.37	0.83	0.94	0.91	0.47	0.56	0.75	0.70	0.49	-	0.50	-
2017Q1	0.42	0.38	0.77	0.28	0.72	0.31	0.58	0.42	0.80	0.70	0.83	0.53	0.68	0.33	0.40	0.48	-	0.37	-
2017Q2	0.57	0.66	0.62	0.35	0.43	0.31	0.61	0.15	0.54	0.79	0.85	0.59	0.46	0.38	0.89	0.37	-	0.45	-
2017Q3	0.34	0.55	0.72	0.37	0.66	0.72	0.86	0.47	0.58	0.68	0.90	0.67	0.80	0.52	0.60	0.51	-	0.78	-
2017Q4	0.26	0.42	0.53	0.27	0.70	0.64	0.80	0.34	0.90	0.87	0.88	0.55	0.54	0.54	0.67	0.63	-	0.53	-
2018Q1	0.50	0.74	0.81	0.50	0.75	0.77	0.57	0.55	0.81	-	-	0.31	0.60	0.61	0.44	0.57	-	0.45	-
2018Q2	0.57	0.50	0.89	0.20	0.69	0.34	0.61	0.47	0.55	0.87	-	0.36	0.62	0.60	0.65	0.33	-	0.79	-
2018Q3	0.53	0.55	0.95	0.47	0.47	0.46	0.78	0.53	0.77	0.64	-	0.25	0.57	0.63	0.84	0.51	-	0.28	-
2018Q4	0.83	0.51	0.96	0.48	0.91	0.32	0.80	0.29	0.67	0.75	-	0.49	0.82	0.54	0.68	0.23	-	0.35	-
2019Q1	0.71	0.57	0.95	0.65	0.27	0.52	0.81	0.47	0.21	-	-	0.54	0.66	0.48	0.49	0.32	-	0.58	-
2019Q2	0.63	0.68	0.83	0.47	0.62	0.34	0.69	0.57	0.69	-	0.84	0.60	0.59	0.77	0.46	0.52	-	0.79	-

Source: ECB.

Table A.1.14.2

External geographical quality indicator, foreign direct investment transactions

(Q3 2016 to Q2 2019)

Date	AT	BE	CY	DE	EE	ES	IE	IT	LT	LV	MT	NL	PT	SI	FI	FR	GR	LU	SK
2016Q3	0.39	0.12	0.35	0.32	0.43	0.23	0.43	0.12	0.43	0.12	-	0.33	0.15	0.08	0.02	0.19	-	0.36	-
2016Q4	0.05	0.17	0.47	0.21	0.30	0.04	0.23	0.18	0.38	0.26	0.63	0.10	0.36	0.26	0.58	0.05	-	0.07	-
2017Q1	0.03	0.33	0.34	0.13	0.43	0.12	0.51	0.12	0.45	0.38	0.43	0.28	0.38	0.12	0.31	0.28	-	0.27	-
2017Q2	0.28	0.29	0.25	0.15	0.26	0.02	0.57	0.03	0.10	0.53	0.11	0.28	0.21	0.22	0.37	0.11	-	0.28	-
2017Q3	0.19	0.17	0.41	0.10	0.14	0.42	0.11	0.27	0.14	0.10	0.07	0.34	0.18	0.21	0.09	0.13	-	0.14	-
2017Q4	0.08	0.08	0.22	0.07	0.56	0.59	0.67	0.12	0.06	0.52	0.82	0.15	0.31	0.09	0.35	0.33	-	0.43	-
2018Q1	0.27	0.52	0.46	0.35	0.11	0.45	0.45	0.22	0.44	-	-	0.07	0.36	0.33	0.14	0.27	-	0.30	-
2018Q2	0.15	0.33	0.41	0.01	0.42	0.14	0.37	0.19	0.28	0.27	-	0.05	0.50	0.24	0.24	0.12	-	0.43	-
2018Q3	0.45	0.10	0.55	0.23	0.09	0.38	0.01	0.27	0.31	0.40	-	0.07	0.06	0.37	0.19	0.34	-	0.21	-
2018Q4	0.25	0.36	0.31	0.33	0.32	0.14	0.45	0.18	0.28	0.66	-	0.40	0.27	0.14	0.52	0.11	-	0.05	-
2019Q1	0.10	0.40	0.79	0.33	0.24	0.20	0.29	0.32	0.05	-	-	0.36	0.10	0.43	0.13	0.18	-	0.26	-
2019Q2	0.23	0.59	0.66	0.41	0.43	0.14	0.38	0.30	0.31	-	0.76	0.15	0.49	0.21	0.29	0.11	-	0.48	-

Source: ECB.

Table A.1.14.3

Internal geographical quality indicator, foreign direct investment positions

(Q3 2016 to Q2 2019)

Date	AT	BE	CY	DE	EE	ES	IE	IT	LT	LV	MT	NL	PT	SI	FI	FR	GR	LU	SK
2016Q3	0.13	0.10	0.21	0.09	0.35	0.07	0.21	0.09	0.19	0.33	0.36	0.10	0.13	0.26	0.20	0.08	-	0.13	-
2016Q4	0.14	0.10	0.19	0.08	0.34	0.06	0.22	0.09	0.24	0.37	0.45	0.11	0.15	0.27	0.18	0.07	-	0.13	-
2017Q1	0.14	0.10	0.20	0.09	0.36	0.07	0.18	0.10	0.25	0.38	0.47	0.10	0.15	0.26	0.18	0.07	-	0.12	-
2017Q2	0.14	0.09	0.20	0.10	0.36	0.07	0.18	0.09	0.25	0.34	0.49	0.09	0.15	0.25	0.28	0.07	-	0.11	-
2017Q3	0.14	0.09	0.24	0.10	0.36	0.07	0.19	0.09	0.25	0.34	0.49	0.10	0.15	0.27	0.27	0.08	-	0.12	-
2017Q4	0.15	0.10	0.27	0.10	0.30	0.06	0.26	0.08	0.24	0.33	0.51	0.11	0.16	0.27	0.11	0.08	-	0.15	-
2018Q1	0.15	0.09	0.29	0.08	0.31	0.07	0.25	0.09	0.25	0.35	0.51	0.11	0.15	0.26	0.13	0.10	-	0.15	-
2018Q2	0.14	0.08	0.27	0.08	0.32	0.07	0.28	0.09	0.24	0.36	0.53	0.11	0.15	0.26	0.14	0.10	-	0.17	-
2018Q3	0.15	0.07	0.28	0.07	0.32	0.07	0.27	0.09	0.23	0.33	0.53	0.10	0.15	0.28	0.15	0.10	-	0.16	-
2018Q4	0.15	0.08	0.26	0.07	0.30	0.06	0.23	0.09	0.22	0.32	0.51	0.09	0.14	0.28	0.20	0.09	-	0.16	-
2019Q1	0.13	0.08	0.29	0.08	0.29	0.08	0.25	0.10	0.19	0.33	0.50	0.11	0.16	0.29	0.19	0.08	-	0.16	-
2019Q2	0.13	0.09	0.31	0.08	0.28	0.08	0.27	0.10	0.19	0.32	0.49	0.11	0.16	0.29	0.19	0.08	-	0.16	-

Source: ECB.

Table A.1.14.4

External geographical quality indicator, foreign direct investment positions

(Q3 2016 to Q2 2019)

Date	AT	BE	CY	DE	EE	ES	IE	IT	LT	LV	MT	NL	PT	SI	FI	FR	GR	LU	SK
2016Q3	0.11	0.05	0.13	0.04	0.25	0.03	0.18	0.08	0.12	0.20	0.12	0.05	0.08	0.21	0.12	0.05	-	0.08	-
2016Q4	0.09	0.05	0.12	0.05	0.23	0.02	0.19	0.07	0.13	0.16	0.13	0.06	0.07	0.22	0.09	0.04	-	0.10	-
2017Q1	0.09	0.04	0.12	0.05	0.25	0.03	0.17	0.07	0.13	0.18	0.14	0.05	0.07	0.21	0.07	0.04	-	0.08	-
2017Q2	0.10	0.03	0.11	0.05	0.25	0.03	0.17	0.07	0.13	0.21	0.14	0.04	0.08	0.21	0.11	0.03	-	0.08	-
2017Q3	0.10	0.03	0.14	0.05	0.25	0.03	0.19	0.07	0.13	0.21	0.15	0.05	0.09	0.21	0.11	0.03	-	0.08	-
2017Q4	0.12	0.04	0.15	0.06	0.20	0.02	0.25	0.07	0.11	0.17	0.22	0.05	0.10	0.22	0.06	0.06	-	0.11	-
2018Q1	0.11	0.03	0.17	0.05	0.20	0.04	0.22	0.06	0.13	0.16	0.23	0.05	0.09	0.22	0.07	0.07	-	0.10	-
2018Q2	0.11	0.03	0.15	0.05	0.21	0.03	0.24	0.06	0.11	0.16	0.23	0.05	0.09	0.22	0.06	0.07	-	0.12	-
2018Q3	0.11	0.04	0.17	0.04	0.22	0.03	0.23	0.06	0.13	0.16	0.23	0.04	0.08	0.25	0.06	0.06	-	0.12	-
2018Q4	0.11	0.07	0.14	0.04	0.20	0.03	0.21	0.07	0.12	0.20	0.26	0.03	0.08	0.25	0.11	0.06	-	0.12	-
2019Q1	0.07	0.04	0.18	0.04	0.21	0.04	0.23	0.09	0.09	0.18	0.24	0.03	0.10	0.27	0.09	0.05	-	0.12	-
2019Q2	0.08	0.07	0.20	0.05	0.19	0.05	0.23	0.08	0.10	0.19	0.23	0.03	0.08	0.26	0.09	0.05	-	0.12	-

Annex 2: Methodological documentation for quality indicators

A.2.1 Data availability

Completeness

BPM6 requirements are broken down into three types: mandatory series, agreed by the WG ES/WG BOP and voluntary series. Any indicator related to data completeness should strictly take into account the mandatory series in accordance with Guideline ECB/2011/23 and Regulation (EC) 184/2005.

The recommended indicator to be used to measure data availability for all datasets considers the average number of reported observations per period by the number of total mandatory series requested (ACR – average completeness ratio).

There should be a breakdown by dataset (DSET): monthly b.o.p. (MBOP), quarterly b.o.p. (QBOP), quarterly i.i.p. (QIIP) and quarterly revaluations.

$$ACR_{DSET} = \frac{\sum_{t=1}^N \text{mandatory observations transmitted} / N}{\sum_{t=1}^N \text{Total no. of observations required per dataset per period} / N}$$

where N stands for the number of periods.

As the indicator only takes into account the number of mandatory series, the target value for the indicator is 100%.

Accessibility

Accessibility refers to the conditions by which users can obtain, use and interpret data, ultimately reflecting how easy it is for users to access the data and the extent to which confidentiality constraints hamper data availability. Council Regulation No 2533/98 concerning the collection of statistical information by the ECB defines the ESCB statistical confidentiality regime. In addition, the so-called ECB Confidentiality Guideline⁶⁶ defines the common rules and minimum standards to protect the confidentiality of the individual statistical information collected by the ECB assisted by the NCBs.

Regulation 2015/759 of 29 April 2015, amending Regulation (EC) No 223/2009 on European statistics of 11 March 2009 (recital 24 and Article 20(4)), stipulates the need

⁶⁶ See Guideline of the ECB of 22 December 1998 concerning the common rules and minimum standards to protect the confidentiality of the individual statistical information collected by the ECB assisted by the national central banks ([ECB/1998/NP28](#)).

to establish common principles and guidelines ensuring the confidentiality of data used for the production of European statistics and the access to those data.

In line with this legal framework, all data must be sent with a flag indicating its confidentiality level. There are clear guidelines on how to use these confidentiality flags. The ECB and Eurostat encourage national compilers to make as much data available to users (i.e. mark observations “free for publication”) as possible and ensure that flags are appropriately used.

The recommended indicator in this domain is the average share of observations (obs.) marked as “free for publication” per period and per dataset:

$$\text{Average share of free obs.}_{DSET} = \frac{\sum_{t=1}^N \text{No. of obs. marked as free}}{\sum_{t=1}^N \frac{\text{No. of obs. required per dataset per period}}{N}}$$

A.2.2 Accuracy and reliability (including stability)

Upward revisions ratio

In principle, positive and negative revisions should occur with roughly the same frequency. If the revisions are, for example, systematically positive, this may point to under-coverage in early estimates, which needs to be corrected. A simple indicator for this phenomenon is the ratio between upward revisions and the number of observations considered (N).

$$\text{Upward revisions ratio} = (\# \text{ upward revisions}) / N$$

The number of observations considered should exclude near-zero revisions, defined as revisions that are lower than 0.5% of the later assessment of the series for current account items and financial account positions, and 0.01% of the underlying positions for financial account transactions.

Since positive and negative revisions should occur with roughly the same frequency, around half of the revisions should be upward. The prescriptive target for this indicator is therefore between 40% and 60%.

Directional reliability indicator

To assess whether the information on the direction of changes as contained in earlier estimates has been altered by the revisions, a two-by-two contingency table can be used. In this contingency table, the columns consist of positive and negative first differences in the initial estimates:

$$\Delta x_{tI} = x_{tI} - x_{(t-1)I}$$

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

$$\Delta x_{tL} = x_{tL} - x_{(t-1)L}$$

Table A.2.2.1

Contingency table for directional reliability

	$\Delta x_{tL} > 0$	$\Delta x_{tL} \leq 0$	<i>Subtotal</i>
$\Delta x_{tL} > 0$	n_{11}	n_{12}	$n_{11} + n_{12}$
$\Delta x_{tL} \leq 0$	n_{21}	n_{22}	$n_{21} + n_{22}$
<i>Subtotal</i>	$n_{11} + n_{21}$	$n_{12} + n_{22}$	N

The directional reliability indicator (Q) is then defined as follows:

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

When the changes either in the initial or latest assessments are near zero, these observations should be excluded from the calculation of the indicators. Near-zero changes are defined in the same way as near-zero revisions (see previous section on upward revisions).

This coefficient Q is equal to one if the changes following the first and latest estimates always have the same sign ($n_{11} + n_{22} = N$), and is equal to zero when there is a total dissociation ($n_{11} + n_{22} = 0$). Higher values of this indicator are therefore preferred.

Since revisions should not substantially alter the economic message of the first assessments, the prescriptive target for the directional reliability indicator is somewhat high at 80%. This would mean that in at least eight out of ten cases, the first assessments correctly predicted the movement of the series between two consecutive observations.

Relative size: mean absolute percentage error (MAPE)

In the case of strictly positive data, the relative revision equals the percentage change of the initial assessment:

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

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

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

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

The existing research oscillates between two alternative definitions of the indicator: (a) an average of the ratios and (b) a ratio of averages. This second definition has a significant advantage over the first: if a single data point of the denominator is close to zero, the indicator according to definition (a) will be artificially magnified, but not necessarily in the case of definition (b). An additional advantage of using the ratio of averages is, according to van Kempen and van Vliet⁶⁷, that its expectation is asymptotically unbiased, while the average of the ratio is biased.

$$MAPE_{average\ of\ ratios} = \frac{1}{T} \sum_{t=1}^T \left| \frac{x_t^L - x_t^I}{x_t^I} \right|$$

$$MAPE_{ratio\ of\ averages} = \frac{\sum_{t=1}^T |x_t^L - x_t^I| / T}{\sum_{t=1}^T |x_t^I| / T}$$

It is therefore recommended to calculate the mean absolute percentage error as a ratio of averages.

The prescriptive target should be a suitable measure of central tendency for all EU or euro area countries for each item. The median would provide a more robust measure, the arithmetic mean would potentially be sensitive to outlying observations, and extreme values would need to be removed.

Relative size: symmetric mean absolute percentage error (SMAPE)

MAPE is an asymmetric indicator. Consider the example used by Makridakis⁶⁸ for forecast errors: if the actual value is 150 and the forecast is 100, MAPE would yield a result of 33.33%; however, if the actual value is 100 and the forecast is 150, MAPE would yield a result of 50% (MAPE is defined over the actual value). If, on average, revisions are positive, MAPE would be higher than if those revisions were negative. In the case of the denominator being defined in terms of the latest estimates, the result would be the opposite.

Symmetric mean absolute percentage error (SMAPE) was proposed in order to get a symmetric indicator. According to Makridakis, this indicator would be (with a couple of modifications from Makridakis' proposal):

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

Compared with MAPE, this indicator fixes the previous issue of asymmetry and is bounded between 0 and 1 (or 100%), while MAPE is not bounded on the upper side. However, SMAPE shows a different class of asymmetry. Following Goodwin and Lawton⁶⁹, if the actual value is 100 (again using forecast errors as an example) and the

⁶⁷ van Kempen, G.M.P. and van Vliet, L.J., "Mean and variance of ratio estimators used in fluorescence ratio imaging", *Cytometry*, Vol. 39, No 4, 2000, pp. 300-305.

⁶⁸ Makridakis, S., "Accuracy measures: theoretical and practical concerns", *International Journal of Forecasting*, Vol. 9, Issue 4, 1993, pp. 527-529.

⁶⁹ Goodwin, P. and Lawton, R., "On the asymmetry of the symmetric MAPE", *International Journal of Forecasting*, Vol. 15, Issue 4, 1999, pp. 405-408

forecast error is +10 or -10, SMAPE would result in 4.7% in the first case and 5.2% in the second. Conversely, MAPE would result in 10% in both cases. In other words, SMAPE gives relevance to the initial observation (the forecast of the initial estimates), while MAPE does not.

Relative size: mean absolute comparative error (MACE)

To overcome the fact that transactions in financial assets and liabilities can be positive and negative, and therefore not usable in the denominator, revisions to financial assets and liabilities can be related to the respective i.i.p. item for assessing their relative size. The indicator will be expressed as $\frac{R}{P}$, where P is the related i.i.p. item. As for the strictly positive data, an average of the absolute value of this ratio can be taken over time in order to avoid revisions of opposite signs cancelling each other out in the resulting indicator.

Mean absolute comparative error (MACE) is defined as:

$$MACE_{average\ of\ ratios} = \frac{1}{T} \sum_{t=1}^T \left| \frac{x_t^L - x_t^I}{p_t^L} \right|$$

Likewise, the recommendation would be to calculate MACE as a ratio of averages.

$$MACE_{ratio\ of\ averages} = \frac{\sum_{t=1}^T |x_t^L - x_t^I| / T}{\sum_{t=1}^T |p_t^L| / T}$$

As the i.i.p. is not available at a monthly frequency, MACE calculations for revisions to monthly b.o.p. data use the i.i.p. level at the end of the corresponding quarter.

Relative size: indicators assessing revisions for balance/net items

In the case of balance/net time series, revisions cannot be properly related to the series value itself because the observations may have different signs and, more importantly, the values of the series may often be close to zero. As the revision of these balance/net data cannot meaningfully be related to the size of the variable itself, alternative dimensional measures of the series must be used. To enhance understanding of the size of the revisions for the balance/net items, the revisions can be related to average current account flows or the underlying positions of financial assets/liabilities, as applicable. The indicators are named net relative revisions (NRR):

$$NRR_{CA} = \frac{\sum_{t=1}^T |x_t^L - x_t^I| / T}{\frac{1}{2} \sum_{t=1}^T (x_t^{L\ credit} + x_t^{L\ debit}) / T}$$

$$NRR_{FA} = \frac{\sum_{t=1}^T |x_t^L - x_t^I| / T}{\frac{1}{2} \sum_{t=1}^T (p_t^{L\ assets} + p_t^{L\ liabilities}) / T}$$

The following table shows which measures of revisions for the b.o.p./i.i.p. are to be used in the annual quality report:

Table A.2.2.2

Measures of b.o.p./i.i.p. revisions

	Current account	Financial account – transactions	Financial account – positions
Debits	SMAPE	-	-
Credits	SMAPE	-	-
Net	NRR	-	-
Assets	-	MACE	SMAPE
Liabilities	-	MACE	SMAPE
Balance	-	NRR	NRR

A.2.3 Internal consistency

Validation/integrity rules

National compilers perform data validation to ensure full accounting consistency of their data. The ECB and Eurostat provide a comprehensive record (Booklet and Vademecum) of all the validations and rules that BPM6 data are subject to upon data reception. Therefore, this section of the quality report should focus on the extent to which national datasets comply with these linear accounting constraints and consistency checks. For an overview of the linear constraints applied upon data reception by the ECB, please see below:

CONS: time consistency (monthly data summed up should be equal to data reported on a quarterly basis);

GEO2,3,4: geographical breakdown, e.g. intra- and extra-euro area/EU transactions should sum up to transactions vis-à-vis the rest of the world;

RS: reference sector (total economy should be consistent with the sum of the sub-sectors (S121, S12T, S13, S1P));

CS: counterpart sector (follows the same intuition as the reference sector type);

REC: position/flow reconciliation (positions, transactions and other flows are interlinked: position in period t is equal to position in period t-1 plus transactions in period t plus other flows in period t);

ACC: accounting item, e.g. the balance should be equal to credit minus debit;

IAI: international accounts item, e.g. the current account is equal to the sum of its components (goods, services, primary and secondary income);

FUNC: functional category (equality between the financial account and its sub-account following BPM6 conventions);

STR: instrument and assets classification, e.g. gross external debt is equal to the sum of its sub-components;

MAT: maturity classification, e.g. long-term and short-term maturities add up to all original maturities;

CURR: currency classification, e.g. the currency breakdown of debt securities adds up to the total;

RSCS: resident sector – counterpart issuer sector consistency (rule ensuring that total portfolio investment by resident and counterpart issuer sectors is identical in the case of intra- and extra-euro area transactions);

Multidimensional checks: ensure, for example, that for other investment the sum of instruments by sector is smaller than or equal to total other investment for that sector. This only applies to positions.

An indicator can be devised per type of validation rule in the following manner (average share of satisfied validations – ASSV):

$$ASSV_{DSET}^{TYPE} = 1 - \frac{(\sum_{t=1}^N \text{Total no. of validations not satisfied} / N)}{(\sum_{t=1}^N \text{Total no. of validations to be satisfied} / N)}$$

where TYPE refers to the type of validation, DSET to the dataset in question and N to the number of observations for the period under analysis.

Since the indicator is applied only to mandatory series, national compilers are expected to provide fully validated data and/or explanations when the target is not met. The recommended target should therefore be 100%.

Consistency across frequencies

Consistency between monthly and quarterly datasets is normally ensured by national compilers. However, some national compilers only produce monthly data for the compilation of euro area aggregates, usually following a simplified compilation approach (e.g. only partial accrual accounting). In some periods, quarterly and monthly data are thus not necessarily fully reconciled. An indicator assessing the monthly/quarterly consistency should be compiled as the ATC:

$$ATC = 1 - \frac{\sum_{t=1}^N [Q_t - SUM(M_{t_1}, M_{t_2}, M_{t_3})] / N}{\sum_{t=1}^N |Q_t| / N}$$

where Q_t represents the quarterly value for a given item and $M_{t_1}, M_{t_2}, M_{t_3}$ the corresponding monthly observations.

For the financial account, because transactions can be zero, the indicator should use the respective position series as a denominator (similar to the MACE indicator for revisions).

As national compilers should make an effort to provide fully consistent data across monthly and quarterly frequencies, the recommended target is 100%.

Reconciliation between positions and flows

The position/flow reconciliation equation⁷⁰ ensures that b.o.p. and i.i.p. data are consistent. In order to ensure comparability between countries, the average relative explained changes can be expressed as a percentage of the corresponding i.i.p. item.

$$AREC = 1 - \frac{(\sum_{t=1}^N |(LE(t) - LE(t-1) + T(t) + K7A(t) + K7B(t) + KA(t))|) / N}{\sum_{t=1}^N LE(t) / N}$$

It is important to note that the degree to which the data are reconciled can only be performed for the “rest of the world” counterpart area, as the other changes in volume are only requested (as agreed by the WG ES and WG BOP) with the rest of the world (“W1”) as the counterpart area.

Position/flow consistency is one of the core features of the accounting framework and a necessary condition for a quality dataset. Full reconciliation (i.e. 100%) between positions and flows should therefore be the target.

Net errors and omissions

Average relative error for current account

The average relative error (ARE) for the current account can be calculated in the following manner:

$$ARE(EO)_{CA} = \frac{(\sum_{t=1}^N |EO_t|) / N}{\frac{1}{2} \sum_{t=1}^N ([CA, t]_C^{W1} + [CA, t]_D^{W1}) / N}$$

where EO_t represents net errors and omissions in reference quarter t, N is the number of periods analysed (12 quarterly observations over three years), $[CA, t]_C^{W1}$ is the current account in reference quarter t for credit vis-à-vis the rest of the world (W1) and $[CA, t]_D^{W1}$ represents the corresponding current account debit entry.

Since n.e.o. are a residual (error) item in b.o.p., they are expected to be relatively small and not persistently positive or negative. ARE assesses the absolute size of the n.e.o. in relation to the current account. The choice of the target is subjective as n.e.o. are not a direct result of the current account but of the inconsistencies between all the accounts. The prescriptive target should be the median of all EU countries.

Average relative error for i.i.p.

The average relative error for the i.i.p. can be calculated in the following manner:

⁷⁰ $LE(t) = LE(t-1) + T(t) + K7A(t) + K7B(t) + KA(t)$; LE – positions, T – transactions, K7A – exchange rate changes, K7B – other price changes, KA – other changes in volume.

$$ARE(EO)_{i.i.p.} = \frac{(\sum_{t=1}^N |EO_t|)/N}{\frac{1}{2} \sum_{t=1}^N ([FA_{LE,t}]_A^{W1} + [FA_{LE,t}]_L^{W1}) / N}$$

where EO_t represents net errors and omissions in reference quarter t, N is the number of periods analysed (12 quarterly observations over three years), $[FA_{LE,t}]_A^{W1}$ is the i.i.p. in reference quarter t for assets vis-à-vis the rest of the world (W1) and $[FA_{LE,t}]_L^{W1}$ represents the corresponding liabilities entry.

Cumulative net errors and omissions in relation to the current account/i.i.p.

Cumulative relative error (CRE) can be expressed as follows:

$$CRE(EO)_{CA}^T = \frac{\sum_{t=1}^N EO_t}{([CA,T]_C^{W1} + [CA,T]_D^{W1})/2}$$

where T is a given time period and CA the current account.

Likewise, this indicator can be calculated in relation to the i.i.p. The denominator is defined as $([FA_{LE,t}]_A^{W1} + [FA_{LE,t}]_L^{W1})/2$ in this case.

This indicator should be presented for several time periods (e.g. one year, five years, ten years) in order to show long-term behaviour and to isolate sensitivity to significant outliers.

This indicator tests the persistency of the sign of n.e.o. or the bias. A value of zero would therefore be expected in the medium to long term. This target assumes that n.e.o. should be a white noise process, i.e. one with a zero mean and no correlation between its values at different times. Cumulated errors and omissions should therefore tend to zero in the long run.

A.2.4 Asymmetries

Bilateral asymmetries

Several measures can summarise the level of geographical quality by country. Here we make use of two indicators, each aimed at capturing different aspects of geographical quality:

1. internal country geographical indicator (ICQG), providing information on the quality of the pure bilateral data;
2. external country geographical quality indicator (XCGQ), providing information on country totals vis-à-vis the overall mirror data.

Given the following notation, the formulas for the two measures are listed below:

i is the index of the country to which the quality index applies, c is the index of the counterpart country, w is a predefined weight that applies to all countries, which by default is equal to 0.5, and $\sum_c |A_{i,c}|$ reflects the sum of absolute values of the assets

reported by country i (positions or transactions), broken down by counterpart country c . Likewise, $\sum_c |L_{i,c}|$ reflects the sum of absolute values of the liabilities reported by country i . $\sum_c |A_{i,c} - L_{c,i}|$ measures the sum of absolute values of the bilateral asymmetries of the assets of country i vis-à-vis its counterparts, and $\sum_c |L_{i,c} - A_{c,i}|$ represents the sum of absolute values of the bilateral asymmetries of the liabilities of the same country i vis-à-vis its counterparts.

The ICGQ is expressed as follows:

$$ICGQ_i = \left[w \cdot \frac{\sum_c |A_{i,c} - L_{c,i}|}{\sum_c |A_{i,c}| + \sum_c |L_{c,i}|} + (1 - w) \cdot \frac{\sum_c |L_{i,c} - A_{c,i}|}{\sum_c |L_{i,c}| + \sum_c |A_{c,i}|} \right]$$

The ICGQ is constrained to be within the range [0, 1], with zero being optimal and one being the worst score.

It assesses the quality of the geographical breakdown vis-à-vis each of the countries that also provide geographical information, calculating the accuracy of the geographic classification within the sample of countries where bilateral data are provided by aggregating the absolute bilateral asymmetries. It could have higher values even when a country on balance reports a correct aggregate intra-euro area estimate, but would be challenged in obtaining the right allocation across individual counterpart countries.

The XCGQ takes the absolute difference between the total values reported and the total available mirror data. The purpose of the XCGQ is to assess how well a country's intra-EU or intra-euro area aggregate is reflected in mirror data, thus providing an indicator of the quality of a country's intra-/extra-breakdown. XCGQ is in the range [0, 1], with values close to zero indicating a good value and values close to one indicating low quality, and one component being over or underestimated vis-à-vis the other:

$$XCGQ_i = \left[w \cdot \frac{|\sum_c A_{i,c} - \sum_c L_{c,i}|}{\sum_c |A_{i,c}| + \sum_c |L_{c,i}|} + (1 - w) \cdot \frac{|\sum_c L_{i,c} - \sum_c A_{c,i}|}{\sum_c |L_{i,c}| + \sum_c |A_{c,i}|} \right]$$