EUROPEAN CENTRAL BANK

EUROSYSTEM

Euro area and national balance of payments and international investment position statistics

Quality report 2017

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Contents

Executive summary

This annual report provides a quality review of the national balance of payments (b.o.p.), international investment position (i.i.p.) and the international reserves template of the Eurosystem (international reserves), as well as the associated euro area aggregates.[1] The report fulfils the formal requirement of the ECB Executive Board to inform the Governing Council of the quality of these statistics, as set out in Article 6(1) of Guideline ECB/2011/23 (hereafter the "ECB Guideline").[2] Furthermore, the report provides information supporting the Macroeconomic Imbalances Procedure (MIP) data quality assurance process as laid down in the "Memorandum of Understanding between Eurostat and the ECB/DG-S on the quality assurance of statistics underlying the MIP" ("the MoU").

The main principles and elements guiding the production of ECB statistics are contained in the Statistics Quality Framework (SQF)[3] and quality assurance procedures, published on the ECB's website. On that account, this report provides a quality analysis of the statistical output, covering the elements of: methodological soundness, compliance with timeliness, reliability and stability, internal consistency (completeness and validation, and net errors and omissions) and external consistency/coherence with other comparable statistical domains (euro area accounts, foreign trade in goods statistics, MFI balance sheet items, money market funds, investment funds and securities holding statistics).

The descriptive and quantitative indicators used throughout this report are based on monthly data from September 2014 to June 2017 (unless otherwise indicated), and on quarterly data from the third quarter of 2014 until the second quarter of 2017 (unless otherwise indicated). Data and revisions published up to 16 October 2017 are included. Supporting tables/charts and detailed information on how the indicators are computed can be found, respectively, in Annexes to this report. A list of the common abbreviations is presented at the end of the report.

Given the specific requirements of the Macroeconomic Imbalances Procedure (MIP) and the responsibilities entrusted to the ECB in the context of the MoU, some indicators on the fitness for purpose of the data are presented in a box at the end of the report for all EU countries. The box draws on annual data up to 2016 and annual revisions up to 2015 and focuses on the following quality dimensions: data availability, revisions, errors and omissions and external consistency with sector accounts.

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1 The principles underpinning this report can be found in the "Public commitment on European Statistics by the ESCB", available on the ECB's website: http://www.ecb.europa.eu/stats/ecb_statistics/governance_and_quality_framework/html/escb_public_commitment_on_european_statistics.en.html. The ECB's Statistics Quality Framework (SQF) and quality assurance procedures, published in April 2008, builds upon the ESCB public commitment: http://www.ecb.int/stats/html/sqf.en.html

2 Recast of Guideline ECB/2004/15, of 16 July 2004 (as amended).

3 The SQF is available at: http://www.ecb.europa.eu/stats/html/sqf.en.html

Statistical developments between 2016 and 2017

Some euro area countries[4] have continued their efforts towards completing the implementation of the sixth edition of the International Monetary Fund's (IMF's) Balance of Payments and International Investment Position Manual (BPM6) and the respective ECB data requirements. This has enabled national central banks (NCBs) to report and make publicly available relevant data with sufficient accuracy and within the agreed deadlines. Nevertheless, some additional efforts are still needed to disseminate more quality data and improve comparability and consistency.

In terms of methodological soundness, Malta and Cyprus are encouraged to continue working to increase the coverage of Special Purpose Entities (SPEs). Greece should start reporting data for financial intermediation services indirectly measured (FISIM) and Belgium should start reporting financial derivatives' positions/transactions for general government. Regarding foreign direct investment, some countries should make an extra effort to correctly report transactions (and associated positions) in debt securities and trade credits between companies engaged in foreign direct investment relationships in the appropriate functional category. The Netherlands should correctly identify transactions and positions between fellow enterprises, particularly as regards debt instruments.

The majority of the countries have complied on a continuous basis with the deadlines for data transmission, with few exceptions. Finland should ensure that such limited occurrences do not recur. In terms of data availability, Malta should take the necessary steps to start reporting quarterly other flows as soon as possible.

While the majority of countries flag all or most of the observations as free for publication, rendering the data available to the general public, Finland should make additional efforts to increase the share of publically available information.

Regarding accuracy and reliability, most countries record regular revisions that do not fundamentally change the economic assessment of first vintages. However, countries are encouraged to regularly report to the ECB information on major events and revisions (by means of the so-called metadata template) and hence increase transparency and the analytical value of the data for policy use.

As concerns internal consistency, the large majority of the countries provide fully consistent data to the ECB. Austria should however try to improve consistency between monthly and quarterly data; Belgium and Finland should ensure that quarterly stocks and flows are reconciled for all periods.

With regard to consistency/coherence with other datasets, overall b.o.p./i.i.p. data are in line with other datasets, thus ensuring comparability across statistical domains. However, it is of utmost importance that all countries follow the agreed steps to ensure full consistency vis-à-vis sectoral accounts. Regarding other datasets, the ECB encourages b.o.p./i.i.p. colleagues to interact with their

[4] This includes both ,ntional central banks and some national statistical institutes responsible for the compilation of b.o.p./i.i.p. statistics.

counterparts to structurally reduce discrepancies and/or to reconcile the differences between the datasets when there are objective methodological differences.

On the basis of this report, a list of notable issues affecting certain euro area countries, alongside the respective scope for improvement, is provided in Table 1 below.

Table 1

Notable issues and scope for improvement (euro area countries)

Concept	Ref.	Recommendation description	Applicable countries/NCBs
Methodological soundness and statistical procedures (section 2)			
Residency	A1.1	Continue improving SPEs coverage and geographical detail.	Cyprus
	A1.2	Increase SPEs coverage and provide accurate counterpart geographical detail.	Malta
Services	A2.1	Start reporting FISIM data.	Greece
	A2.2	Improve the coverage of international shipping companies in the compilation of sea transport services	Greece
	A2.3	Include service margins on buying and selling financial assets[1)]	Guidance from WG ES
Portfolio investment	A3	Follow the accrual principle when reporting financial account transactions for portfolio investment.	France, Germany
Financial derivatives	A4	Report correctly financial derivatives transactions for the government sector.	Belgium
Foreign direct investment	A5.1	Report transactions (and associated positions) in debt securities between companies engaged in a direct investment relationship under the appropriate functional category.	Guidance from WG ES[2)]
	A5.2	Classify trade credits between companies in a direct investment relationship in direct investment instead of other investment.[3)]	Belgium, Spain,
	A5.3	Assess and confirm whether the transactions/positions between fellow enterprises in equity are negligible.	Belgium
	A5.4	Correctly report transactions/positions between fellow enterprises for debt instruments.	The Netherlands
Other investment	A6.1	Report correctly assets and liabilities of insurance, pension and standardised guarantee schemes.	Ireland (assets), Finland, Malta
	A6.2	Start reporting intra-Eurosystem technical balances and/or ensure that they are reported without errors and consistent with ECB balance sheet figures.	Ireland, Malta, Finland
Reconciliation of stocks and flows	A7	Improve the breakdown between price changes, exchange rate changes and other volume changes in order to ensure a realistic reconciliation of stocks and flows.	Ireland
Illegal activities	A8	Include estimation for illegal activities (trade).	France, Portugal
Timeliness and punctuality (section 3)			
Timeliness	B1	Put measures in place to avoid future instances of non-compliance.	Finland
Data and metadata availability (section 4)			
Non-compliance (data availability)	C1	Start reporting quarterly other flows.[4)]	Malta
	C2	Start reporting equity by type: listed, unlisted and investment fund shares	Malta
	C3	Increase the average share of “free for publication” observations for the main items.	Finland
Internal consistency (sections 6.1 and 6.2)			
Validation and integrity rules	D1	Decrease the discrepancies between monthly and quarterly data.	Austria
	D2	Ensure that the quarterly stocks and flows are appropriately reconciled.	Belgium, Malta, Finland
Net errors and omissions (n.e.o.)	D3	Investigate the negative bias in n.e.o. as well as the increasing n.e.o.	Finland

External consistency: B.o.p./i.i.p. data euro area sector accounts (section 7.2)			
B.o.p./i.i.p. with RoW data	E1	All countries should continue following the agreed implementation timetable to solve pending discrepancies as agreed in the ESCB Statistics Committee (STC) work programme.	See Charts 9-11 for more details
External coherence: B.o.p./i.i.p. data with MFI balance sheet data (section 7.3)			
B.o.p./i.i.p. with MFI data	F1	BSI and BOP colleagues to continue regularly assessing the difference between the two datasets and their development.	All countries
External coherence: B.o.p./i.i.p. data with other investment fund data (section 7.4)			
B.o.p./i.i.p. with IVF data	G1	Start reporting investment fund data, as reported in analogous Investment Funds Balance Sheet Statistics (IVF)	Malta
	G2	Investigate why the data reported in the IVF dataset is consistently higher than the data reported in the b.o.p. dataset.	Italy
Asymmetries (sections 8.1 and 8.2)			
Asymmetries	H1	All countries to make efforts to continue (or start) providing bilateral data on a voluntary basis to better address asymmetries.	All countries

Notes:
1) According to BPM6 standards, margins on buying and selling financial assets should be included in the service account. However, due to the complex nature of including this item in the accounts, the WG ES will provide guidance to the countries before September 2019.
2) The WG ES is committed to provide guidance on the determination of the functional category for hybrid instruments. However, as a general rule and as clearly specified in BPM6, transactions and positions in debt securities between companies engaged in a direct investment relationship should be recorded in direct investment.
3) The implementation of this recommendation can be linked to the update of the ECB Guideline which requires a breakdown of debt instruments in direct investment (including debt securities, loans, trade credits and other).
4) This also applies to the Central Bank of Malta, in terms of the completeness and validation checks. Malta intends to start reporting these requirements by the end of 2018.

Statistical issues affecting MIP indicators

While some of the quality dimensions addressed in the report are also relevant for assessing the quality of the data for MIP purposes (e.g. the majority of the methodological issues cited previously ranging from A1 to A11, including those in Table 1), the particularities of the annual data and of the process, as well as the scope of the ECB responsibilities in the context of the MoU on the MIP (all EU NCBs responsible for the compilation of b.o.p./i.i.p. statistics), create special analytical needs. In particular, longer time series (up to 15 years) are necessary for an accurate construction and analysis of the main MIP scoreboard indicators. All necessary data are available for the calculation of the main indicators; however, further data would be needed for the calculation of the auxiliary indicators from Cyprus, Italy, Malta, Croatia and Bulgaria.

Regarding revisions, all in all, the impact of revisions on the direction (information) of first assessments was relatively minor. National errors and omissions have in general remained stable in the last review period, however they are on average still above 2% of GDP in Bulgaria, Cyprus, Malta, Sweden, Slovakia and Finland (see Chart MIP 1). Furthermore, a bias (higher than 2% of national GDP in the period 2014-16) can be identified in the net errors and omissions of Denmark, Sweden, Slovakia and Finland. Last but not least, the analysis shows that in several countries discrepancies between b.o.p./i.i.p. statistics and sectoral account persist, affecting negatively the analytical combination of the two data sets as well as indicating a lack of reliability or adequacy to the methodology of one of the two statistics. For more information, on assessing data quality for MIP purposes please see the MIP box at the end of the main body of the report.

1 Introduction

This annual report provides a quality review of statistics on the balance of payments (b.o.p.), international investment position (i.i.p.) and the international reserves template of the Eurosystem (international reserves).[5] It fulfils the formal requirement of the ECB Executive Board to inform the Governing Council of the quality of these statistics, as set out in Article 6(1) of Guideline ECB/2011/23 (hereafter the "ECB Guideline").[6] Furthermore, the report provides information supporting the Macroeconomic Imbalances Procedure (MIP) data quality assurance process as laid down in the "Memorandum of Understanding between Eurostat and the ECB/DG-S on the quality assurance of statistics underlying the MIP". The report follows the recommendations of adopted by the Committee on Monetary, Financial and Balance of Payments Statistics (CMFB) Task Force on the harmonisation of the "level 2" quality report for b.o.p. /i.i.p. statistics.

The focus of the report is on national data and euro area aggregates. Data for EU Member States are commented upon in the MIP box at the end of the report and are also available in the annex tables[7].

1.1 Scope of data coverage and structure of the report

This report analyses a number of aspects by which data quality can be measured. This includes (following the order as they are presented in the report): (i) a review of methodological issues where national compilers depart from statistical standards; (ii) an assessment of NCBs' compliance with their obligations to transmit data to the ECB, in terms of timeliness and coverage; (iii) the reliability of the statistical data; (iv) the internal consistency of the statistics, particularly as regards consistency over time, across frequencies and between accounts (net errors and omissions); and, (v) the external consistency/coherence, i.e. the consistency vis-à-vis other statistical domains/datasets, namely foreign trade statistics, euro area (sector) accounts, monetary financial institutions (MFI) balance sheet statistics, investment fund statistics and securities holding statistics.

The analysis covers quarterly and (in the case of euro area aggregates) monthly data. Sections 3 (Timeliness and punctuality), 4 (Data and metadata availability) and 6.1 (Validation/integrity rules) focus on one year of observations (July 2016/2016Q3 to June 2017/2017Q2). Section 5 (Accuracy and reliability) analyses the impact of

5 The principles underpinning this report can be found in the "Public commitment on European Statistics by the ESCB" on the ECB's website. The ECB's Statistics Quality Framework (SQF) and quality assurance procedures, published in April 2008, build upon the ESCB public commitment.

6 Recast of Guideline ECB/2004/15, of 16 July 2004 (as amended).

7 While Eurostat published a similar report assessing the quality of the same data, the calculation of the indicator yielded sometimes marginally different results owing to different vintages used. Both reports cover Rest of the World figures. Additionally the ECB analyses extra euro area.

two years of revisions (2015Q2/April 2015-2017Q1/March2017) and the remainder of the sections focus on three years of data (2014Q3-2017Q2).

The dataset used throughout the report is the one available as of 16 October 2017 and the country coverage is the EU 28, although the body of the report only addresses the quality of the data for the 19 countries of the euro area.

Given the specificities of the MIP process, some indicators on the fitness for purpose of the data are presented in a box at the end of the report for all European Union Member States. The need for such a box arises from the fact that annual data displays different properties compared with monthly and quarterly data, as well as from the need to assess the quality of data from non-euro area EU countries. The box draws on annual data up to 2016 and focuses on (i) data availability, (ii) revisions, (iii) errors and omissions, and (iv) external consistency with sector accounts, i.e. MIP relevant data quality dimensions. All indicators presented in the MIP box are in relation to national GDP to facilitate the analysis in relation to the actual MIP scoreboard indicators.

2 Methodological soundness and statistical procedures

Methodological soundness means that concepts and definitions used to compile b.o.p./i.i.p. statistics are in broad conformity with the principles and guidelines outlined in BPM6 and take into consideration the agreements of the ESCB Statistics Committee (and respective sub-structures) for the compilation of euro area aggregates.

Since the start of the BPM6 changeover, the focus has been on producing complete and consistent BPM6 data. One of the key elements of compiling consistent data is to adhere to the agreed standards and to transparently describe deviations. A detailed and up-to-date description of the data sources and compilation methods used by all Member States is available on the ECB's website[8]. Most of the assessment included in this section is based on this ECB publication, as well as on the regular ECB contacts with countries regarding general data quality issues.[9]

In this quality report a succinct overview of the methodological soundness of b.o.p. and i.i.p. data is provided for the following basic dimensions/principles:

2.1 Residency

The residency of institutional units should be defined in conformity with BPM6, particularly taking into account whether they have a predominant centre of economic interest in the country. This applies in particular to special purpose entities (SPEs), which are considered to be resident in the economy where they are incorporated.

Most countries are correctly applying the residency concept. In 2017 Cyprus considerably revised its foreign direct investment positions, with an improvement in the coverage of resident SPEs, however the quality of the counterpart geographical detail still needs further improvement as shown by the bilateral asymmetry indicators (see Section 8.2). Luxembourg has gradually improved its SPEs survey resulting in an exhaustive coverage of SPEs with a balance sheet of over € 500 million. The Netherlands has also improved the coverage of SPEs, however it is still not optimal as the grossing-up method renders irregular revisions. On the other side Malta made some improvements in the coverage of its resident SPEs in 2015 with the implementation of the BPM6 requirements; however, there have been no further improvements since then. In particular the counterpart geographical detail does not reflect the coverage improvement of 2015. This is evident in the i.i.p., where around 80% of the extra euro area positions are not allocated geographically and the

8 European Union Balance of Payments and International Investment Position statistical sources and methods

9 The ECB and Eurostat are also initiating country visits to better understand output quality and the respective contributing factors.

positions vis-à-vis other euro area countries show a clear and systematic under-coverage.

2.2 Functional classification

Broadly speaking, most countries are classifying balance of payments. transactions and international investment positions by function in conformity with BPM6 methodology. However, room for improvement.

Regarding foreign direct investment (FDI), a number of countries (including Germany, Greece, France, Luxembourg and the Netherlands) classify transactions (and related positions) in debt securities between companies in a direct investment relationship, under portfolio investment. This deviation generates internal inconsistencies at the euro area level owing to the residual approach used to calculate the euro area portfolio investment liabilities. Similarly, trade credits between companies in a direct investment relationship are included in other investment by Belgium and Spain.

Transactions and positions between fellow enterprises are not fully recorded under foreign direct investment. In particular, the Netherlands does not yet identify transactions and positions in both, equity and debt instruments, while Belgium, Germany, Greece, France, Latvia, Malta, Austria, Slovenia and Slovakia do not include transactions and positions in equity.[10]Moreover, Austria does not identify reverse direct investment in equity.

2.3 Coverage

Regarding financial services, financial intermediation services indirectly measured (FISIM) are not yet classified in the services account in Greece, remaining instead with income. Similarly, service margins on buying and selling financial assets are not yet recorded by some countries. The countries that have pointed this issue out in their respective "B.o.p./i.i.p. Book" chapter or other available metadata are Belgium, Germany, Greece, Spain, France, Malta, the Netherlands and Slovakia. Given the complexities of this issue the Working Group on External Statistics (WG ES) will further investigate practical approaches in order to provide assistance on best practices to the countries who have not yet implemented this requirement.

Greece is working on an estimation method to improve the coverage of international shipping companies in the compilation of sea transport services. The new estimation model will be implemented by September 2018.

[10] In most cases the extemt of transactions and positions in equity between fellow enterprises is negligible according to information provided by the relevant NCBs. However, the status of this information is due to be assessed periodically.

In 2017, Belgium improved the recording of financial derivatives from 2014 onwards for most of the relevant sectors; however, data quality for the government sector should be improved as transactions are directly derived from positions.

In April 2015, the STC approved a new treatment for the recording of transactions and positions in euro currency in b.o.p./i.i.p. statistics. Most euro area countries follow the new guidance in a timely and accurate manner, at least from the reference period of January 2014 onwards – with exception of, Ireland[11], Malta[12] and Finland. Since 2016, Belgium, Greece and Luxembourg have started correctly complying with the agreed treatment.

Ireland (for the financial corporations other than MFIs sector) does not cover assets related to insurance, pension schemes and standardised guarantee schemes, while Finland and Malta do not cover either assets or liabilities.

Furthermore, Malta keeps reporting within its b.o.p. and i.i.p. statistics zero holdings of listed shares and investment funds shares.

In general, most countries have difficulties in producing an accurate estimation of b.o.p. transactions and i.i.p. for the households sector; this under coverage is believed to be relevant in particular for assets held (including with custodians) outside the euro area. Most of the euro area countries use mirror data from the BIS locational banking statistics to cover deposits and loans vis-à-vis non-resident banks and third party holdings of Security holding statistics to cover securities held with euro area custodians. Finland mentions in their metadata that they are not including any adjustment for household assets. The Netherlands does not observe securities held by households with custodians outside the Netherlands. Additionally, Germany does not collect information on securities held in custody abroad by non-bank enterprises and they do not include any estimation. Many countries also have difficulties in accounting for real estate holdings, both of euro area households abroad and non-resident households in the euro area.

The majority of euro area countries are to varying degrees estimating illegal activities. According to the b.o.p./i.i.p. book and bilateral communication France and Portugal[13] do not currently include any estimation regarding illegal activities (smuggling, trafficking, illegal drugs).

2.4 Other methodological issues (instruments)

The horizontal and vertical problems shown in the i.i.p. data of Malta prevent the ECB from validating the figure for net external debt, which has an impact on the

[11] Ireland does not report correct values technical claims on a monthly basis. First estimations of currency holdings based on available sources from different sectors reveal quite not significant amounts. The model is still under study.

[12] Malta has included the intra-Eurosystem technical claims/liabilities in the monthly and quarterly b.o.p. and in the i.i.p.. However, it does not yet provide an estimate for exports/imports of EUR banknotes.

[13] Portugal intends to include illegal activities in its accounts by the time of the benchmark revision of 2019.

availability of the net external debt presentation by sector, instrument and original maturity.

France and Germany estimate accrued interest for debt securities under portfolio investment income on a security-by-security basis; however, no equivalent entry is recorded in the underlying instrument in the financial account.

Other volume changes owing to changes in methodology or coverage are in some cases mixed up with exchange rate and price revaluations which show unreliable stock/flow reconciliation for Ireland.

3 Timeliness and punctuality

Non-compliance is defined with regard to timeliness/punctuality (transmission) and quality standards vis-à-vis the requirements laid down in the ECB Guideline ECB/2011/23 (as amended).[14]

In the period under review (ref. period from July 2016 to June 2017), a persistent non-compliance case was recorded in the case of the Central Bank of Malta, for not reporting data on the breakdown of quarterly “other flows”. In addition, the following ad-hoc cases of non-compliance were recorded:

Suomen Pankki – Finlands Bank sent data one week after the deadline for reference period 2017Q1. The data were reported with serious data quality issues. The monthly balance of payments data for the reference period May 2017 was also below the expected quality standards. For the reference period 2017Q2 eight mandatory series (as required by the ECB Guideline) were sent with more than two days of delay. These problems of reliability have meanwhile been corrected. They were primarily attributed to a major revamping of the Finnish b.o.p./i.i.p. compilation system.

[14] The ECB prepares bi-annual “Compliance reports” to the ECB’s Internal Compliance Coordination Group, which is submitted to the ECB’s Governing Council.

4 Data and metadata availability

4.1 Completeness

For the reference periods from July 2016 to June 2017, the production of b.o.p., i.i.p and international reserves statistics was overall smooth (with the exceptions mentioned in section 3).

In terms of completeness, the large majority of the countries have submitted all the mandatory items, albeit with delays sometimes (thus giving rise to cases of non-compliance - see section 3 above). While complete datasets were eventually transmitted to the ECB, some delays in the correction of data quality issues detected during the data validation phase have adversely influenced the production process and in some cases created obstacles to the publication of timely and accurate euro area aggregates.

4.2 Accessibility and clarity

Accessibility refers to the conditions by which users can obtain, use and interpret data, ultimately reflecting how straightforward it is to access them and the extent to which confidentiality constraints hamper the analytical work.

In line with the ECB legal framework on data confidentiality,[15] all national data must be transmitted with a flag indicating its level of confidentiality. The ECB encourages national compilers to make as much data available as possible to final users (i.e. by marking observations as “free for publication”) and to ensure that confidentiality flags are appropriately used.

Table 2 below summarises the share of observations marked as “free for publication” for the data requested under Tables 2A and 4A of Annex II of the ECB Guideline[16] (i.e. “main items”). The shares are calculated at dataset level for the reference period 2016Q3 to 2017Q2 and give an assessment of how much of the data are available to users. Table A1.1 shows the same indicator for “all (mandatory) items” transmitted under the ECB Guideline.

[15] 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 Guideline” – i.e. 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) defines 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.

[16] The ECB Guideline recommends that all items contained in Tables 2A and 4A should be marked as “free for publication”. The provision applies to data as of reference period 2014Q1.

Table 2

Average share of observations marked as “free for publication” per dataset (main items), for the period 2016Q3-2017Q2

Country	Quarterly b.o.p. main items	Quarterly i.i.p. main items
BE	100	100
DE	100	100
EE	100	100
IE	94	91
GR	100	100
ES	90	95
FR	100	100
IT	100	100
CY	94	93
LV	100	100
LT	100	100
LU	100	100
MT	93	89
NL	100	100
AT	100	100
PT	99	100
SI	100	100
SK	100	100
FI	61	67

Sources: ECB

The majority of euro area countries (Belgium, Germany, Estonia, Greece, France, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Austria, Slovenia and Slovakia) are releasing to the general public the full detail of the “main items”, while the remaining countries (Ireland, Spain, Cyprus, Malta and Portugal) release more than 90% of that data set. Only Finland releases less than 70% of the observations related to Table 2A and 4A of Annex II of the ECB Guideline. It is important to note that some of these observations cannot be released to the general public due to statistical confidentiality constraints.

Concerning the full extent of data transmitted to the ECB (Tables 2A and 4A being only a small subset), for monthly data, due to national dissemination policies, full monthly b.o.p. datasets are flagged as “non-publishable” or “confidential” by Ireland, Cyprus, Netherlands and Austria. For quarterly b.o.p., seven euro area countries and for quarterly i.i.p. eight euro area countries have made all their data required in the legal act available to final users (see Table A1.1).

Clarity refers to the “information environment” of the data, i.e. whether the data are accompanied by relevant and pertinent metadata, illustrations (such as charts), information on their quality and potential limitations as to their use and background information (sources and methods).

The ECB publishes monthly and quarterly b.o.p. and quarterly i.i.p., price revaluations and other changes in volume for the euro area as a single economic area. Twelve monthly and four quarterly press releases, outlining the latest data and relevant economic developments, are published through wire services and on the ECB's website. Furthermore, dissemination dates for all press releases are announced at the beginning of each calendar year in the Statistical Calendars of the ECB.

The concepts and definitions used in the euro area b.o.p. and i.i.p. statistics are in line with international statistical standards. The "B.o.p. and i.i.p. book", made available on the ECB website, aims at providing users with an overview of the main features of the b.o.p. and i.i.p. methodological framework and of the data sources and compilation methods used by the ECB (for the euro area) and in individual EU Member States.

The data can be accessed via ECB's Statistical Data Warehouse or Statistics Bulletin's section on External Transactions and Positions. Furthermore, the ECB has a Statistical Information Request facility for external users of statistics which helps users accessing and analysing the data.

A subset of the statistics produced under the ECB Guideline can also be accessed via the Euro area statistics website. The aim of this dedicated website is to facilitate the understanding, use and comparison of euro area and national statistics by presenting the data in a user-friendly manner. Another feature of the website is the possibility of easily downloading or sharing data by embedding the graphics into other websites, e-mails or social media. Finally, this Quality Report on balance of payments and international investment position statistics will be published on an annual basis starting in 2018. Previously, quality reports on euro area data were published on a biennial basis.

Table A1.2 presents a summary of the national practices regarding data and metadata accessibility. Similarly to the ECB, all the euro area countries allow the users to download data in different formats (Excel tables, CSV files, PDF documents or via interactive statistical databases). Furthermore, the majority of the euro area countries have Statistical and/or Economic Bulletins providing a visual representation of the data in the form of charts, graphs and/or tables. What is more, most of the euro area countries publish regular press release updates on their websites: some with quarterly and monthly frequency (e.g. Spain and Finland), while others either quarterly (e.g. Malta and Ireland) or monthly (e.g. Germany and Italy). Last but not least, all countries present extensively the institutional environment and statistical processes in the "B.o.p. and i.i.p. Book" as well as on their national websites.

4.3 Availability of metadata

Last but not least, the ECB Guideline requires that the "data shall be accompanied by readily available information on single major events and on reasons for revisions, when the magnitude of the change to data caused by such single major events or

revisions is significant […]". Therefore national compilers are encouraged to make regular and consistent use of the metadata template in all production cycles.

5 Accuracy and reliability (including stability)

This section reviews the stability of the data in terms of revisions to the "first assessment" or "first vintage". In general, revisions are necessary to improve the accuracy of the data as first assessments may be based on incomplete, late or erroneous responses by reporting agents. However, large recurrent (biased) revisions may indicate low quality in data sources and/or methods that needs to be addressed. On the other hand, the fact that there may be minimal or no revisions does not necessarily mean that the first assessment has been of high quality; it may simply indicate a national preference for not revising the data.

In this report, quarterly revisions (for all euro area countries and for the euro area as a whole) and monthly revisions (for the euro area as a whole only) are assessed using indicators based on the comparison between first and "last"/most recent assessments.

Different indicators are applied depending on the features of the time series in question. Two basic types of indicators are used:[17]

Relative size indicators measure the difference between the first and the last assessments either in relation to the underlying series (when strictly positive) (symmetric means absolute percentage error - SMAPE) or otherwise in relation to a reference series (e.g. GDP or the underlying outstanding amounts for b.o.p. financial transactions) (mean absolute comparative error - MACE). In the case of non-strictly positive (net/balance) time series, revisions cannot be properly related to the series value itself because observations may have different signs and, even more importantly, the value of the series may be close to zero. Therefore, for net/balance series the indicator used is the net relative revisions (NRR). The NRR puts the absolute revisions in relation to the average underlying gross flows for current account items and average stocks of assets and liabilities for financial account transactions and positions. Owing to the different denominators employed the SMAPE, MACE and NRR are not directly comparable.

Directional stability/reliability indicators measure how frequently first assessments are revised in the same direction (the upward revisions ratio and the directional reliability indicator).[18]

All charts depict the indicators calculated for a revision window of two years (2015Q2 to 2017Q1 for national and euro area aggregates - quarterly series - and April 2015 to March 2017 for euro area aggregates - monthly series).

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17 The indicators are explained in more details in Annex 9.2.

18 In this report directional stability/reliability indicators are only used to complement the analysis based on the relative size indicators.

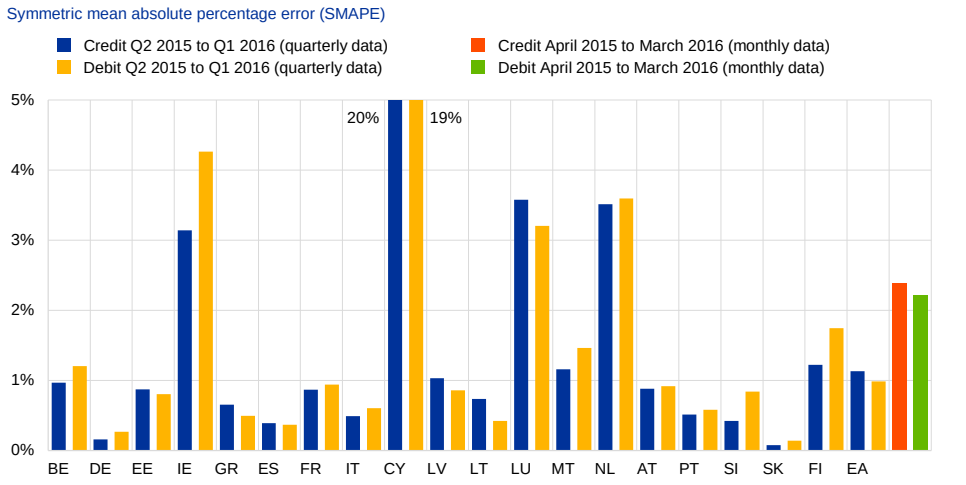
5.1 Current account

In general, revisions to the euro area current account credits and debits were identical for both monthly and quarterly data as can be seen in Chart 1 below. The euro area aggregates recorded revisions comparable to the euro area countries median (2% for the total current account), with the monthly data recording higher revisions (almost double of those recorded for quarterly data), but still within statistically acceptable limits.

Cyprus records the highest revisions among euro area countries for current account credits and debits with a SMAPE value of approximately 20%. Ireland, Luxembourg and the Netherlands also revised their current accounts more extensively than other euro area countries. All these countries have revised their current account credits and debits upwards at least in three out of four cases, potentially revealing a revision bias. Apart from recording relatively higher revisions than other euro area countries, these four countries show high directional reliability for the current account (generally above 70% for both credits and debits).[19]

Chart 1

Revisions to current account credits and debits



Source: ECB

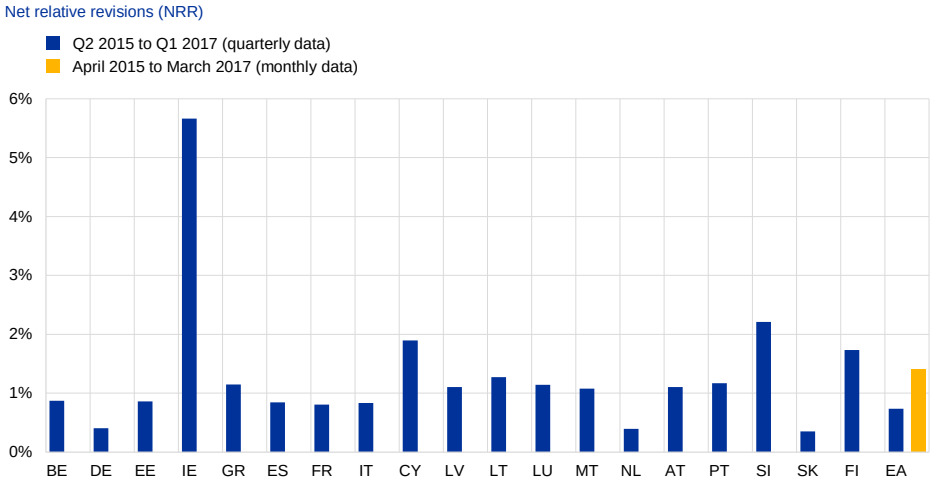
As concerns revisions to the current account balance (see Chart 2 below), the euro area as a whole does not record significant revisions as compared with the median of euro area countries (1%). Monthly revisions are higher than quarterly revisions as assessed by the net relative revisions indicator.

For the current account balance, the highest revisions are recorded by Ireland.

[19] With the exception of Ireland which shows a value of 61% for the directional reliability indicator for monthly current account debits.

Chart 2

Revisions to the current account balance



Source: ECB

Detailed tables containing SMAPE, upward revisions and directional reliability indicators are available for information purposes in tables A2.1 to A6.2.

5.2 Financial account transactions

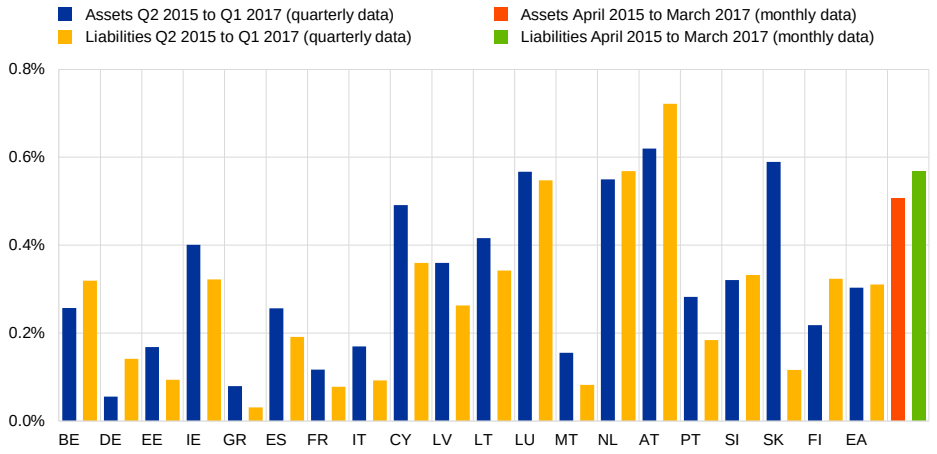
To overcome the fact that transactions in financial assets and liabilities can be either positive or negative, revisions in financial assets and liabilities are related to the respective i.i.p. item for assessing their relative size. Therefore, the mean absolute comparative error (MACE) is used to assess revisions in the financial account.

The quarterly euro area aggregates recorded revisions of 0.3% of the underlying stocks for total transactions in financial assets and liabilities, which compared with the median of euro area countries. Revisions to monthly euro area aggregates were higher, as can be seen in Chart 3 below. In more detail, monthly revisions to direct investment were the highest, above 1% for both assets and liabilities, followed by revisions in other investment and portfolio investment.

Euro area countries record revisions of less than 0.7% of the underlying stocks for quarterly financial transactions. The highest revisions are recorded by Luxembourg, the Netherlands, Austria and Slovakia (only for assets). However, this level of revisions is not significantly higher than for most euro area countries.

Chart 3

Revisions to financial account



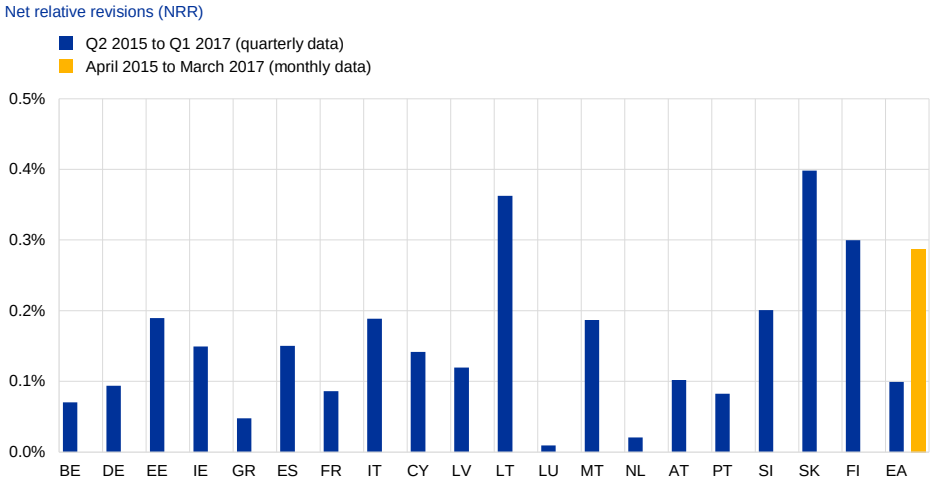
Source: ECB

As concerns revisions to net quarterly financial transactions, the euro area as a whole recorded net relative revisions comparable with the median of the euro area countries (0.1%), while revisions to the monthly series were three times higher (across all functional categories).

In terms of net financial account transactions for individual countries, Lithuania, Slovenia and Finland recorded the highest level of revisions among the euro area countries (see Chart 4 below).

Chart 4

Revisions to net financial account transactions



Source: ECB

Detailed tables containing MACE, upward revisions and directional reliability indicators are available in tables A2.1 to A6.2.

5.3 International investment position

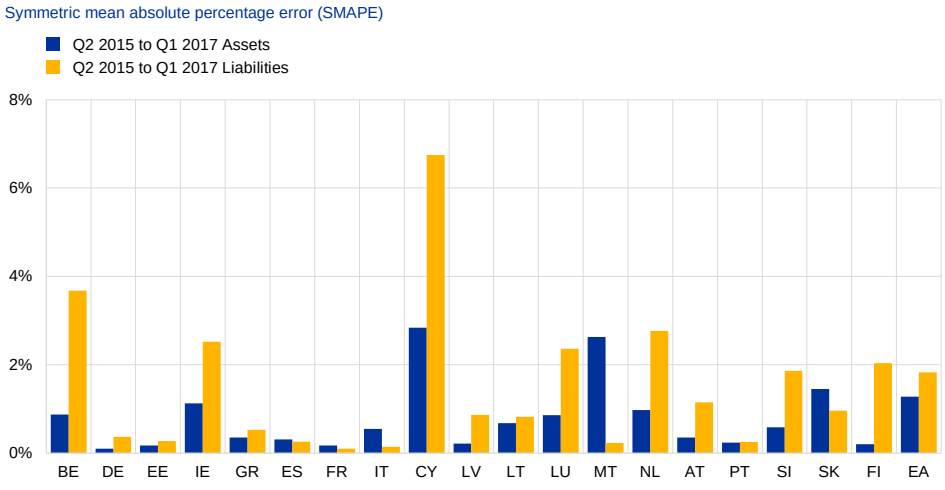
Revisions to quarterly i.i.p. (financial account positions) are shown below in Charts 5 and 6. The euro area as a whole recorded revisions (as measured by SMAPE) of approximately 1% for assets and 2% for liabilities, whereas the median for the euro area countries was 1% for both assets and liabilities.

At country level, revisions are in general smaller for assets than for liabilities. On the asset side, Cyprus[20] and Malta recorded the highest revisions in the euro area with almost 3%. On the liability side the highest revisions are recorded by Cyprus with a value of the SMAPE indicator reaching almost 7%. Belgium[21], Ireland, Luxembourg[22] and the Netherlands[23] record revisions above 2% of the underlying stocks. Cyprus and the Netherlands revised upwards all their first assessments of total i.i.p. (for both assets and liabilities). Belgium, Ireland and Luxembourg revised upwards all the first assessments related to liabilities. In the case of Belgium, this was related to a major revision of portfolio investment liabilities. Malta displayed a more stable pattern related to upwards revisions.

With the exception of Cyprus (in the case of financial assets stocks only), the directional reliability indicators were somewhat high (above 70%). For this reason revisions did not alter the message conveyed by the first assessment of the series.

Chart 5

Revisions to the international investment position



Source: ECB

[20] In the case of Cyprus, the revisions are linked to better SPEs coverage as well as other regular revisions, affecting mainly direct investment.

[21] In the case of Belgium the revisions are linked to a methodological change in September 2017 applied to data from reference period 2014.

[22] In the case of Luxembourg, revisions in the financial account were driven by improvement in data sources (SPEs)

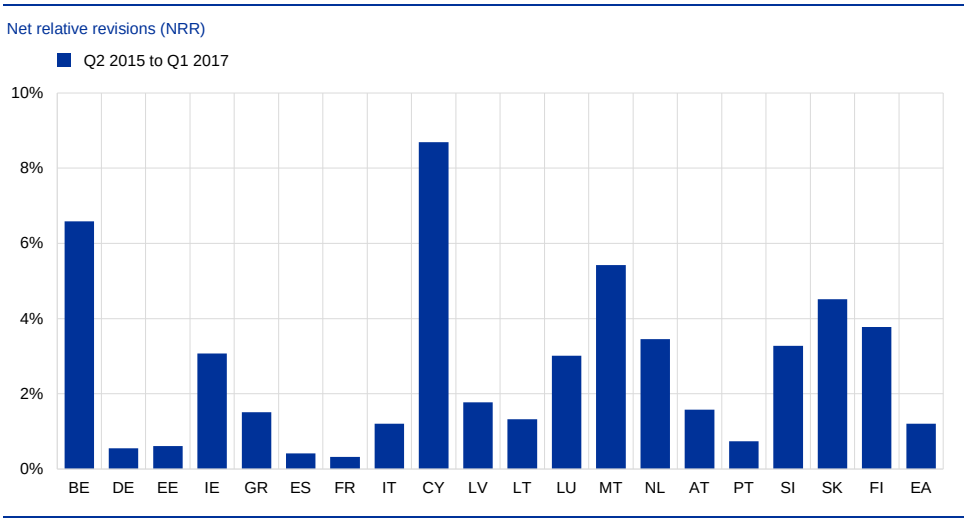
[23] Revisions in the Dutch data are partly caused by the grossing up algorithms related to the SPE population which is prone to frequent revisions.

Regarding revisions to the net i.i.p., the euro area as a whole recorded revisions of 1.2% of the underlying average stocks during the analysed period (the median level of revisions for euro area countries was 1.8%). Slightly higher revisions (between 2.1% and 2.6%) were recorded in net positions for the various functional categories (direct, portfolio and other investments). In the case of other investment, the euro area revisions were above the observed median for the euro area countries. This is partly explained by the introduction of a new model estimating the euro currency in circulation outside the euro area as well as the errors and omissions correction model at the euro area level, both of which were introduced in April 2017.

For individual countries, the highest net relative revisions for the net i.i.p. was recorded by Cyprus, reaching a level of 8.7% in the period from 2015Q2 to 2017Q1. Belgium (6.6%) and Malta (5.4%) also recorded relatively higher revisions than other euro area countries (see Chart 6 below).

Chart 6

Revisions to the net international investment position



Source: ECB

Detailed tables containing SMAPE, NRR, upwards revisions and directional reliability indicators are available in tables A2.1 to A6.2.

6 Internal consistency

This section comprises two parts, which assess the reported national b.o.p. and i.i.p. data for internal coherence and consistency respectively. This comprises consistency over time (i.e. potential breaks in series), reconciliation across different frequencies (monthly and quarterly data) and an assessment of the arithmetic and accounting identities (including *net errors and omissions)*.

6.1 Validation/Integrity rules

This section reviews to what extent the transmitted datasets were complete and passed all basic accounting validation rules. These include linear constraints that apply to the b.o.p., i.i.p. and the international reserves template statements, namely whether credits/assets minus debits/liabilities match the respective net flows/positions for each item, and whether sub-items add up to the respective items/totals, etc. Furthermore, it is strongly encouraged that datasets for different frequencies (i.e. monthly and quarterly) or data recorded in different datasets (e.g. reserve assets transmitted in i.i.p. statement and in the reserve assets template) are kept consistent at all times.

In order to summarise compliance with validation rules, the average share of satisfied validations is used as an indicator (see section “Methodological documentation for quality indicators” for more details). The quarterly data generally have more validation issues when compared to monthly data, but overall the failed validations in both frequencies did not impair the overall quality of the national data or euro area aggregates.

However, it is worth mentioning that in addition to Malta (which does not report other flows and hence has several validation issues), also Belgium, and Finland displayed significant reconciliation issues. Moreover, Malta also recorded validation problems for the resident sector and instrument breakdowns and in some “of which” items of the quarterly i.i.p.. Small inconsistencies in the intra/extra EU geographical detail were recorded in the quarterly i.i.p. by Malta, Portugal[24] and Finland.

Consistency between datasets is very important to ensure the overall quality of the balance of payments. As a result, the average time consistency (ATC) and the average relative explained changes (AREC) can be used as indicators to summarise consistency problems between frequencies and between stocks and flows, respectively.

In terms of time consistency, the vast majority of countries exhibit full consistency between monthly and quarterly data, with only few exceptions. Austria failed a number of time consistency validations for all the items of b.o.p., with the highest

[24] For Portugal, this has subsequently been corrected.

discrepancies recorded for extra euro area secondary income (88%) and goods debit (89%). Moreover, Ireland[25] extra euro area import of services shows consistent monthly-quarterly values in only 85% of the cases (see Table A8.1 for more details).

In terms of average reconciled amounts for main items, most countries achieve a full reconciliation between stocks and flows. Values below 100% are only observed for Malta (which does not yet provide other flows), for Belgium in direct investment liabilities and for Finland in direct investment (both assets and liabilities) and portfolio investment liabilities (see Tables A7.5-6 for more details).

All in all, national compilers should strive to have fully reconciled data; therefore Malta, and also Belgium and Finland, should intensify their efforts to better reconcile stocks and flows.

As regards back data, although data transmissions are non-mandatory, increasing requirements from users have resulted in the transmission of longer time series to the ECB in order to make full analytical use of the data provided. Likewise the Macroeconomic Imbalances Procedure has resulted in a need for longer time series despite the non-binding legal requirements to transmit longer time series. While most countries have provided complete and validated datasets for the period before 2012, there are several cases where these data are still either incomplete or have serious validation problems. In general, despite improvements in data coverage and quality in 2017, it is of utmost importance that all countries continue their efforts to provide back data with acceptable quality, including all the details agreed by the STC Working Group on External Statistics.

Regarding series breaks one can identify the following issues[26]:

Belgium: Revisions due to changes in sources and methodology were implemented only back to 2014Q1, creating a break in the direct and portfolio investment series;

Germany: Major breaks are due to the allocation of stocks between fellow companies from other investment to direct investment in 2012Q4;

France: Breaks are observed for secondary income credits of other sectors[27] from 2013Q4 to 2014Q1, mainly reflecting net non-life insurance premiums and claims, and social benefits;

Cyprus: - Some breaks apply in foreign direct investment for 2015Q1[28];

Luxembourg: Relevant series breaks in foreign direct investment stocks for 2014Q4 are related to changes in the coverage of SPEs;

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25 The average time consistency issues have been solved after the freezing of the data used for the purpose of this quality report.

26 For the period before 2013, transmission provided to the ECB on a best effort basis. For more information on breaks before 2013, please refer to the MIP box.

27 The breaks are generated by the implementation of a new data collection on insurance. No reliable back data is available for previous periods.

28 This break should be eliminated with the data transmission of September 2019.

Austria: Some breaks apply in primary income credits and debits(from 2013Q1 to 2014Q3);

It should be noted, however, that countries are making continuous efforts to improve their data. Data transmissions submitted after the review period have already resulted in improved data quality.

A dedicated section containing values for the validation indicators is available in Tables A7.1-3.

6.2 Net errors and omissions

The net errors and omissions (n.e.o.) (difference between net lending/borrowing as compiled from the current plus capital accounts and from the financial account) provide an indication of the internal consistency of b.o.p. In fact, the principle of double entry bookkeeping implies that the sum of all transactions should be equal to zero in the b.o.p. statement (i.e. that n.e.o. are ideally zero). Normal random imbalances commonly result from imperfections in source data and compilation practices. However, if these imbalances are large and/or persistent they indicate problems in sources and/or methods.

In the context of b.o.p. compilation practices, it is not uncommon that statistical modelling and/or expert judgements are applied with the intent of imposing certain properties on net errors and omissions. This involves using statistical techniques to account for lack of coverage or uncertainty about certain pre-identified items. Such mechanisms are typically incorporated in the compilation system and are applicable during each data production round. At euro area level a correction mechanism that minimises net errors and omissions is in place. The rationale behind the adjustment is the idea that certain items in the portfolio investment and other investment categories are not appropriately captured in the aggregation of national data.

The average absolute relative error to the current account provides a measure of the magnitude of net errors and omissions in relation to average gross current account flows. Chart 7 below provides a graphic representation of the situation in the euro area and respective countries (see Chart A7.7 showing average absolute net errors and omissions in relation to the i.i.p.).

As expected, the euro area as a whole did not exhibit high n.e.o. compared with individual euro area countries. Monthly errors and omissions were substantially higher than quarterly ones (the value of the average absolute n.e.o. relative to average gross current account flows was 4.5% for the monthly data and less than 2% for the quarterly data).

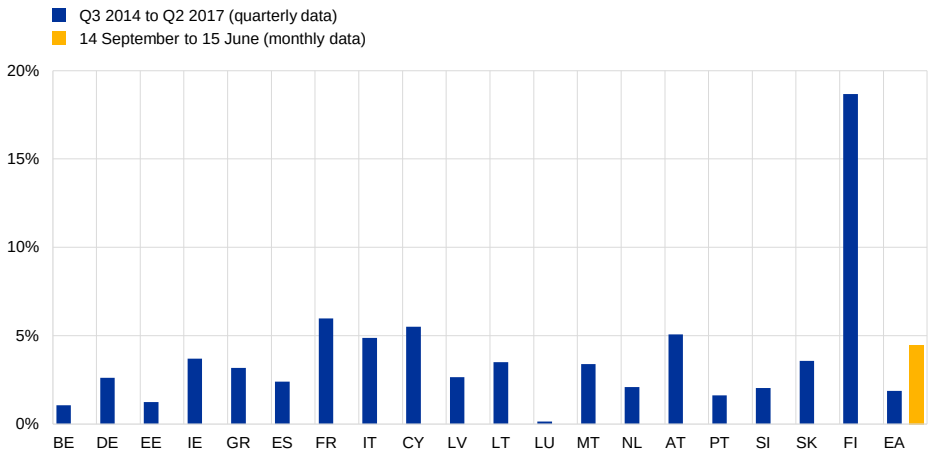
Quarterly net errors and omissions for euro area countries generally exceeded 2% of the average current account gross flows. Over the last analysed period (2014Q3-2017Q2), Finland displayed the highest average net errors and omissions as a percentage of the average current account gross flows (18.7%) compared to other euro area countries (the country with the second highest value of the indicator –

France – recorded a value three times smaller than Finland). In any case, all countries are invited to carefully assess the rational and reasons for their n.e.o. and address adverse factors preferably on a structural basis.

Chart 7

Relative net errors and omissions[29]

Average absolute net errors and omissions relative to average gross current account flows
Countries marked with * benefit from a formal errors and omissions correction mechanism



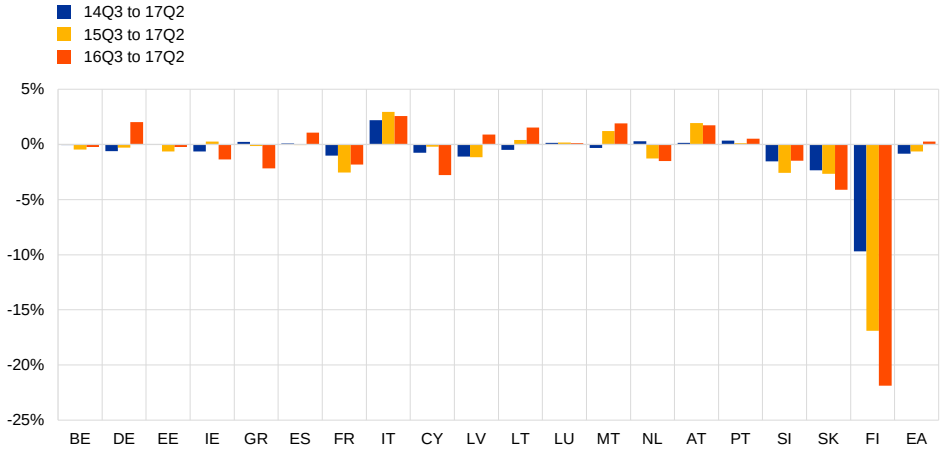
Source: ECB

The persistency of the sign of errors and omissions is also relevant as a quality measure as it helps to identify biases in the accounts. Chart 8 below displays the cumulative n.e.o. in relation to the current account gross flows.

Chart 8

Bias in the errors and omissions

Cumulative net errors and omissions relative to average gross current account flows



Source: ECB

[29] Ideally the average absolute net errors and omissions relative to current account gross flows should be computed using the first assessment (the first time data is transmitted to the ECB). However, an insufficient number of first assessments for the net errors and omissions means that a proper calculation of this indicator is not possible for the time being. Future quality reports should correct this problem.

The euro area as a whole does not display a statistical bias in its n.e.o.. Furthermore, the vast majority of euro area countries display no bias in their n.e.o.. However, over the last three years Finland displayed a negative bias in its n.e.o. reaching in absolute terms 10% of its average gross current account flows. Compared to 2016Q3 to 2017Q2, the negative bias has deepened, reaching a value of 22% of Finland's average gross current account flows. Although at a lower scale, Slovakia also seems to evidence a slight bias in its n.e.o., which reached over 4% of its average gross current account flows in the past three years.

A detailed section containing values for the validation indicators (including net errors and omissions) is available in Tables A7.1-7.

7 External consistency/coherence

External consistency is defined as the coherence of the b.o.p. and i.i.p. data with other related statistical domains. In this report, the external consistency of b.o.p. and i.i.p. is assessed against foreign trade statistics, euro area (sector) accounts, MFI balance sheet statistics, investment funds balance sheet statistics and securities holdings statistics.

7.1 Coherence with foreign trade statistics

International Trade in Goods Statistics (ITGS) is typically the main data source used to compile the b.o.p. goods account in all euro area countries. However, when comparing the two datasets, important conceptual differences between the two data sets should be taken into account. Differences in concepts and definitions are linked primarily to the fact that b.o.p. follows the so-called 'change of economic ownership' principle, whereas ITGS record physical cross-border movements of goods[30].

Given the methodological differences between the two datasets, a direct comparison would not convey an accurate picture. Instead, a directional reliability indicator is used to assess whether b.o.p. and ITGS data exhibit consistent developments and can hence be used as complementary analytical data sources. Furthermore, several countries publish reconciliation tables between the two datasets which are available on the websites of the respective national central bank or national statistical institute.

Table A8.1 illustrates the individual national directional reliability indicators for the period from 2014Q3 to 2017Q2, for counterpart areas rest of the world and extra euro area.

For the euro area as a whole there is perfect directional reliability for both imports and exports. Three euro area countries displayed full directional reliability for both exports and imports and for the two analysed counterpart areas. A limited number of countries, especially Belgium[31], Luxembourg and Malta[32], showed a lower degree of directional reliability[33]. On average, data for exports/credits were more directionally reliable than for imports/debits.

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30 A complete list of the conceptual difference between BPM6 and foreign trade statistics (IMTS) is provided in annex F of "International Merchandise Trade statistics: concepts and definition", (IMTS, 2010).

31 In the case of Belgium, b.o.p. and foreign trade statistics are produced in the same unit of the National Bank of Belgium. All discrepancies are purely methodological. Goods for processing are very relevant in Belgium and are the main cause for discrepancies.

32 In the case of Malta adjustments are performed on data regarding yachts and aircrafts and are only considered as being operationally leased and therefore are removed from goods for BOP purposes.

33 B.o.p. Goods sub-item General merchandise (G1), national concept, was used for calculating the directional reliability indicator.

It should be taken into account that full directional reliability is not necessarily a sign of quality and that inconsistencies in the developments of the two data sets may well be explained by the economic structure of the external trade in goods account of the respective country.

7.2 Consistency with euro area sector accounts

The euro area b.o.p. and i.i.p. constitute one of the so-called “building blocks” of the euro area accounts (EAA), and is widely used at national level for the compilation of the rest of the world account (RoW) account or alternatively, some countries compile the two statistics in a single joint process.

The methodological differences between b.o.p./i.i.p. and the rest-of-the-world account (national accounts) were removed with the introduction of ESA 2010 and BPM6[34]. However, the analysis shows that in several Member States the inconsistencies between the two statistical domains persist, affecting negatively the combined use of these two data sets as well as the confidence in the two statistics that should display the same figures given that they are measuring the same phenomena. Acknowledging this, the ESCB worked on the precise identification of the differences and on the elaboration of national medium-term work plans to be observed generally by September 2019.[35]

7.2.1 Current account

Chart 9[36] shows the differences between b.o.p. and the RoW account for the current account. As an indicative benchmark, the absolute differences should not be higher than 0.5% of the underlying average b.o.p. and RoW values, as agreed by the WG ES.

For the euro area as a whole the differences were not significant, with a high level of consistency being displayed between the two datasets. At the country level, differences above 0.5% were recorded for several countries (Belgium, Ireland, Greece, France, Lithuania (only for credits), the Netherlands, Austria[37], Portugal (only for credits), Slovenia, Slovakia and Finland). France recorded a discrepancy of 8% for the current account (only for credits) with sizeable discrepancies in particular for services and primary income. Owing to data transmission exemptions, a comparison for the current account in the case of Luxembourg is not possible. However, a comparison is possible in the case of goods and services (discrepancies of 15% and 20% for services credits and debits respectively for the period 2014Q3 to

34 The harmonized EU revisions policy reinforces this assessment.

35 Or at the time of the next European benchmark revision.

36 Due to data transmission exemptions, comparisons for the current account total only include goods and services for Luxembourg and goods, services and primary income for Malta.

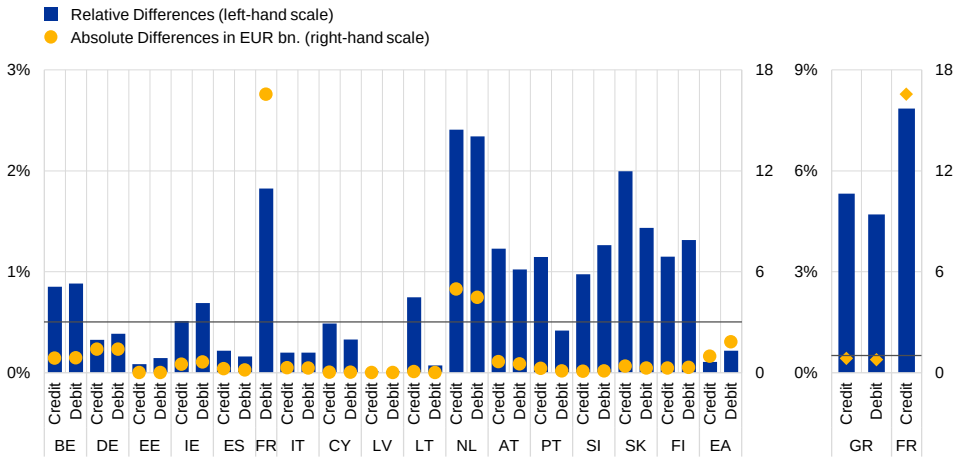
37 A full reconciliation between BOP and ROW account is planned for September 2018.

2017Q2). Also Greece and the Netherlands also observed significant differences driven by the discrepancies for goods and primary income, respectively.

Chart 9

Current account discrepancies between b.o.p. and RoW account

Average absolute and relative difference (as a percentage of respective b.o.p. and RoW items), for the period 14Q3-17Q2 (b.o.p. vs EAA)



Source: ECB.

7.2.2 Financial transactions

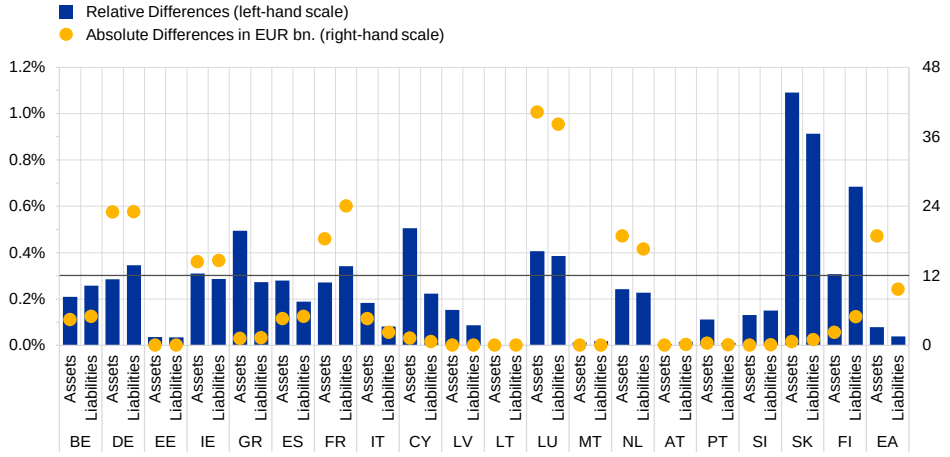
Chart 10 shows the differences between b.o.p. and the RoW account for financial transactions. In this case, discrepancies may be accounted for by the volatile pattern of the underlying series as well as the reconciliation of the national sectoral accounts; both, the “vertical” reconciliation (correction for errors and omissions) and “horizontal” reconciliation (assets/liabilities equality across sectors) may entail larger adjustments in the financial transaction of the RoW account. Nonetheless, as an indicative benchmark, the relative differences should not exceed 0.3% of the average value of underlying stocks for b.o.p. and RoW account as agreed by the WG ES.

For the euro area as a whole the differences were not significant, with a high level of consistency being displayed between the two datasets. At country level, differences above 0.3% were recorded for several countries (Germany (only for liabilities), Ireland (only for assets), Greece (only for assets), France (only for liabilities), Cyprus (only for assets), Luxembourg, Slovakia and Finland). Slovakia recorded the highest relative discrepancies, exceeding 1% of the underlying stocks for assets, Finland showed sizeable relative discrepancies for liabilities. Absolute differences were sizeable in Germany, Ireland, France, Luxembourg and the Netherlands.

Chart 10

Financial account transactions discrepancies between b.o.p. and RoW account

Average absolute and relative difference (as a percentage of respective b.o.p. and RoW stocks of financial assets/liabilities), for the period 14Q3-17Q2 (b.o.p. vs EAA)



Source: ECB.

7.2.2.1 Financial positions

Chart 11 below presents the differences between the i.i.p. and the RoW account for financial assets and liabilities (balance sheets/stocks). As expected, the differences between the two data sets are larger for stocks. Relative differences should, as an indicative benchmark, be below 0.5% of the average financial assets/liabilities totals in the i.i.p. and sectoral accounts as agreed by the WG ES.

The euro area as a whole recorded significant discrepancies of 6% both for assets and liabilities. At the country level, differences above 0.5% were recorded for all countries except Belgium (liabilities), Germany (assets), Estonia, Cyprus, Latvia (assets), Lithuania (liabilities), Malta and Austria (liabilities)[38]**.** The highest discrepancies were recorded by Spain (assets)[39] (mainly due to the fact that positions of some derivatives are recorded in net terms in the FA, as permitted by ESA 2010, and gross in the i.i.p.) and by the Netherlands (both assets and liabilities), with values exceeding 4%.

A detailed analysis at the instrument level reveals sizeable differences for financial derivatives mainly reflecting a different interpretation of the international statistical standards. In particular, the interpretation adopted from the i.i.p. perspective is in line with the ECB Guideline (stocks are recorded on a gross basis), whereas statistical standards allow, in some cases, for net recording in financial accounts. Other reasons behind the differences affecting equity and debt instruments (deposits, loans

[38] In the case of Austria the difference was corrected with data transmissions subsequent to the freezing of the data for this report.

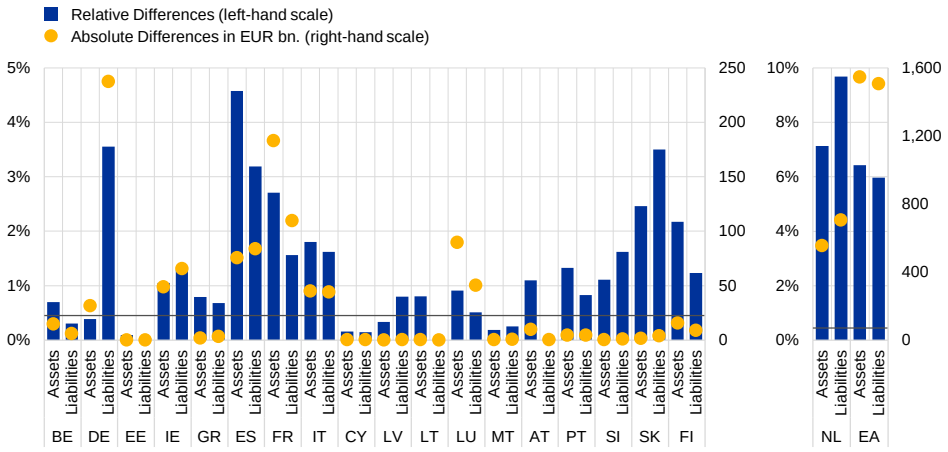
[39] The difference is mainly due to i.i.p. data following the recommendation of the CMFB Task Force; FA will move to gross recording in the 2019 benchmark revision.

and securities) reflect discrepancies in vintages, data sources and estimation methods.

Chart 11

Financial account positions discrepancies between i.i.p. and RoW account

Average absolute and relative difference (as a percentage of respective b.o.p. and RoW stocks of financial assets/liabilities), for the period 14Q3-17Q2 (b.o.p. vs EAA)



Source: ECB.

A dedicated section containing more details for the comparison is available in Tables A9.1-4.

7.3 Coherence with MFI Balance Sheet data

The consistency between (i) the b.o.p data for the MFI sector and (ii) the transactions on external assets and liabilities derived from the balance sheet statistics ("BSI") of euro area MFIs is essential for the use of the "monetary presentation of the balance of payments" in monetary policy analysis. Furthermore, this consistency is also paramount for the compilers of euro area accounts, which integrate both datasets as "building blocks". On these grounds, the ECB assesses the consistency between the two datasets in every regular production cycle, taking into account details by sector and instrument. However, discrepancies between the two datasets can in general be explained by methodological differences, as explained below.

For the euro area as a whole, in general the discrepancies of comparable figures between the two datasets were not significant for the period under analysis, with the exception of equity securities positions for which the discrepancies (around €80 billion) exceeded 20% of the average i.i.p. and BSI stocks, France being the main contributor (around €80 billion and 40%).

As concerns individual euro area countries, the data were broadly consistent for transactions in loans and deposits, with the highest relative discrepancies[40] affecting

[40] Relative discrepancies are expressed as percentage of the average i.i.p. and BSI stocks.

the monthly and quarterly net acquisitions of assets reported by Slovakia (3.9% and 2.9%, respectively) and Cyprus (2.0% and 3.7%, respectively). Concerning stocks, the highest absolute inconsistency was observed for the liabilities reported by France (around €30 billion and 2.3%), whereas the most significant relative discrepancies referred to the assets reported by Slovakia (14.5%) and the liabilities reported by Malta (5.5%).

For transactions in securities, the largest differences affected the quarterly net acquisitions of equity assets reported by Ireland (10.8%) and Luxembourg (5.2%). Concerning stocks, France, Austria, Luxembourg and Slovenia recorded discrepancies above 30% of the average positions for equity securities. In the case of debt securities, the highest discrepancies affect the assets reported by Portugal[41] (15.1%) and Lithuania (7.4%).

The likely reasons for these inconsistencies include: (i) different classification of instruments, e.g. b.o.p./i.i.p may classify an instrument as deposit while it is classified as "remaining assets and liabilities" in BSI statistics[42]; (ii) differing treatment of the short-selling of securities in certain countries (off balance sheet treatment instead of a reduction in assets); (iii) reliance on distinct data collection systems, namely security-by-security (s-b-s) for b.o.p. and monthly aggregated sources for BSI, which lead in particular to different valuation criteria (i.e. b.o.p./i.i.p. at transaction/market prices, while BSI transactions derived from positions are reported at fair, cost or nominal value).

Eurosystem

Most of the discrepancies in the data for the Eurosystem as a whole are related to the inclusion in the b.o.p. of estimates for foreign holdings of euro banknotes while in BSI statistics all holdings of euro banknotes outside the euro area MFIs are included in M3. At the country level, methodological sources for discrepancies are i) the treatment of intra Eurosystem technical claims as a deposit in b.o.p. while BSI statistics classified them as other assets (without geographical breakdown) as well as ii) the estimation of transactions and positions (liabilities) in euro currency in b.o.p./i.i.p. statistics. The incorrect implementation of this methodology as reflected in section 2.3 may also generate additional inconsistencies. Excluding these effects the highest relative discrepancies of monthly net acquisitions of assets and liabilities were reported by Ireland (around 60% and 35% respectively) .Concerning securities, the consistency was generally good for the period under review for both transactions and positions.

[41] The discrepancies are related to valuation issues. B.o.p./i.i.p. statistics use market value while BSI nominal value.

[42] The relevance of a consistent instrument classification is due to the fact that remaining assets and liabilities in BSI statistics are not classified under the next external assets counterpart.

Money market funds shares (liabilities)

Data on cross-border investments in euro area Money Market Funds (MMFs) shares are recorded within the portfolio investment account of the euro area b.o.p./i.i.p. Data on assets and liabilities of euro area MMFs are collected under the MFI Balance Sheet (BSI) statistics[43], as MMFs are a sub-sector of the MFIs.

At the euro area level, the i.i.p. consistently exceeded the BSI outstanding amounts of MMFs shares issued by euro area residents and held by non-euro area residents. At country level, and for the period under analysis, there are discrepancies recorded for Ireland, France and Luxembourg (the only countries in the euro area with a relevant MMFs activity). In general discrepancies for transactions are larger than those for stocks and in particular for Ireland.

The discrepancies between the two sets of statistics were related to the use of different compilation methods in b.o.p./i.i.p. and in MFI balance sheet statistics. While the so-called residual approach is applied to calculate b.o.p. and i.i.p. portfolio investment liabilities,[44] in BSI statistics, MMFs liabilities are allocated geographically by respondents. Although in the case of MMFs shares there is in principle no significant trading in secondary markets, the intervention of intermediaries buying, holding and selling shares on behalf of their clients can make it difficult to identify the residency of the actual holders. In such cases, the first counterpart – the custodian or other intermediary – may be known, but the final investor often is not. Identifying residency becomes increasingly complicated as the length of the chain of intermediaries increases, therefore the residual approach of b.o.p. and i.i.p. may be more accurate.

A dedicated section containing more details for the comparison is available in Tables A10.1-8.

7.4 Coherence with investment fund statistics

Details on cross-border investments in non-MMF investment fund shares (IF) are recorded in the b.o.p. and i.i.p. statistics within portfolio investment. Data on IF assets and liabilities are collected under the Investment Funds Regulation[45] (IF dataset).

At the euro area level, the i.i.p. consistently exceeds the IF dataset in terms of euro area investment funds liabilities. The average absolute discrepancy reached a value

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43 Regulation ECB/2013/33 of the European Central Bank concerning the consolidated balance sheet of the monetary financial institutions sector.

44 In the b.o.p. and i.i.p., portfolio investment liabilities (broken down by resident sector) are estimated residually by deducting the holdings reported by residents from the total securities issued by residents. This method is applied to circumvent the practical difficulties in identifying the residency of the holders of securities.

45 Regulation ECB/2013/38 of the European Central Bank concerning statistics on the assets and liabilities of investment funds. Investment funds are defined as “Other financial intermediaries except insurance corporations and pension funds” and exclude MMFs.

close to €40 billion throughout the period under analysis. The discrepancy at the euro area level is partly explained by the use of the residual approach to calculate portfolio investment liabilities (see section 7.3 above).

In the euro area, IF shares are predominantly issued in Luxembourg, Germany, Ireland and France (these four countries together represent over 80% of the total outstanding amounts). While in relative terms their discrepancies are not relevant, in absolute terms Ireland and Luxembourg record the highest inconsistencies for IF shares held by non-residents. Malta and Italy have the largest relative inconsistencies between the i.i.p. and IF datasets. For Italy[46], the IF dataset figures are nearly ten times those reported for the i.i.p.. The i.i.p. data reported by Malta is zero, while the IF dataset shows positive outstanding amounts.

The two datasets are more consistent regarding transactions, in particular for the bigger market players.

A dedicated section containing more details for the comparison is available Tables A11.1-2.

7.5 Coherence with Securities Holdings Statistics

The ECB Guideline defines that portfolio investment collection systems of euro area countries shall as much as possible rely on security-by-security (s-b-s) information (see Annex VI of the ECB Guideline). In particular, it is stated that "*the target coverage is defined as follows: stocks of securities reported to the national compiler on an aggregate basis, i.e. not using standard (ISIN or similar) codes, should not exceed 15 % of the total portfolio investment stocks of assets or liabilities*". Therefore, it is expected that b.o.p. and i.i.p. statistics and Securities Holdings Statistics by Sector (SHSS)[47] provide consistent results, mainly because national portfolio investment assets and SHSS should rely on the same s-b-s sources of information.[48]

This section compares the positions (stocks) at market value of (i) debt securities and (ii) listed shares and investment funds shares/units as available in the SHSS dataset.[49] The analysis considers, on the SHSS side, the cross-border holdings by residents of each euro area country as collected by the respective country, as well as holdings by non-financial investors of each euro area country held in custody in other euro area countries (i.e. the so-called third party holdings).

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46 A specific analysis has been initiated to investigate the reasons for the discrepancies between IVF and IIP data. The analysis is expected to be completed by September 2018. Depending on the results, some revision to official IIP data may take place, indicatively during the course of 2019.

47 SHS data are collected by the Eurosystem according to Regulation ECB/2012/24 (as amended).

48 Both i.i.p. and SHSS figures comprise portfolio investment holdings of debt securities and equity only, i.e. it excludes any investment in debt securities and equity classified within direct investment. On the SHSS side those securities with functional category "not specified" are included: they represent around 20% of the total euro area debt securities and equity stocks, mainly attributable to Ireland and, to a lesser extent, Italy.

49 Both unlisted shares and other equity are out of the scope of SHS statistics.

7.5.1 Debt securities

Taking into account the scope of the compilation of portfolio investment on a s-b-s basis as mentioned above, the focus should be on discrepancies that are above 15% of the respective stock.

For the euro area as a whole, the level of discrepancies for debt securities was 8% of the underlying i.i.p. stock which signals a good degree of consistency with SHSS. For individual countries, cases of relative discrepancies above 15% due to SHSS under-coverage were recorded only for Portugal. This discrepancy is explained to a large extent by the incomplete coverage of euro area long term debt securities held by financial corporations other than MFIs in SHSS. This may be linked to caveats such as the current collection of data for Pension Funds from custodians[50] or the lack of a comprehensive coverage of non-ISIN securities data in SHSS.[51] Another source of discrepancies may be related to differences in vintages and different estimates of market prices.

7.5.2 Listed shares and investment funds shares/units

For the euro area as a whole, the total level of discrepancy as a percentage of the underlying i.i.p. was 4%. At country level, discrepancies higher than the 15% threshold due to SHSS under-coverage[52] were recorded for the following countries: Italy, Portugal, Slovenia and Finland. Some countries also record an over-coverage of the SHSS amounts, which were quite relevant in the case of German financial corporations other than MFIs and non-financial investors' holdings of investment funds shares issued mainly by other euro area countries (the latter is linked to the inclusion of third party holdings data in SHSS[53]), Cypriot non-financial investors' holdings of listed shares and investment funds shares issued mainly by other euro area countries (reflecting again the inclusion of third party holdings data in SHSS), and Luxembourgish financial corporations other than MFIs holdings of euro area listed shares. Finally, Malta keeps reporting within its b.o.p. and i.i.p. statistics zero holdings of listed shares and investment funds shares, therefore the indicators were not calculated for Malta, although relevant amounts were reported in the SHSS context for these instruments.

The smaller SHSS holdings by financial corporations other than MFIs of investment fund shares issued by other euro area countries explains the BOP-SHSS (positive) gap to a large extent. In addition, the same caveats mentioned for debt securities would hold in explaining such discrepancy.

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50 There is currently an assessment considering the introduction of Pension Funds direct reporting following the introduction of the new ECB Regulation on Pension Funds which is foreseen to enter into force in January 2019.

51 Significant non-ISIN debt securities holdings are only reported to the SHSDB for Germany, Ireland, Greece, Latvia and The Netherlands.

52 The discrepancies recorded by Cyprus reflect an over-coverage of the SHSS amounts.

53 This could reflect either an underestimation of such amounts on the i.i.p. side or the inclusion of third party holdings data wrongly allocated to non-financial investors on the SHSS side (or a combination of both factors).

A dedicated section containing more details for the comparison is available in Tables A12.1-2.

8 Asymmetries

Asymmetries are an inherent feature of all statistics for which "mirror" statistics are collected, i.e. for which two countries collect the same type of information in relation to each other. They occur when one country's data do not correspond to the data for the same transaction reported by its partner country. In reality, however, for a variety of reasons it is rarely the case that two data sources provide exactly the same results, and this leads to the emergence of asymmetries.

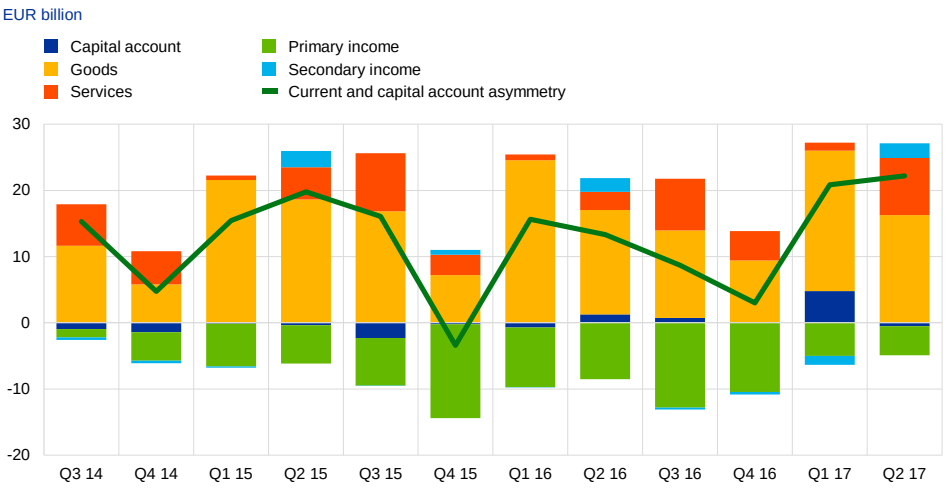
Asymmetries can be observed at the level of the global economy (where the total world assets should equal the total world liabilities), at the level of geographical aggregates (where the total intra euro area assets should match the total intra euro area liabilities) or at the level of bilateral pairs (where flows and positions between pairs of countries should perfectly match).

8.1 Intra euro area asymmetries

Chart 12 and 13 provide an overview on the intra euro area asymmetries in current and capital accounts and in the financial account respectively.

Chart 12

Intra euro area current and capital account asymmetries



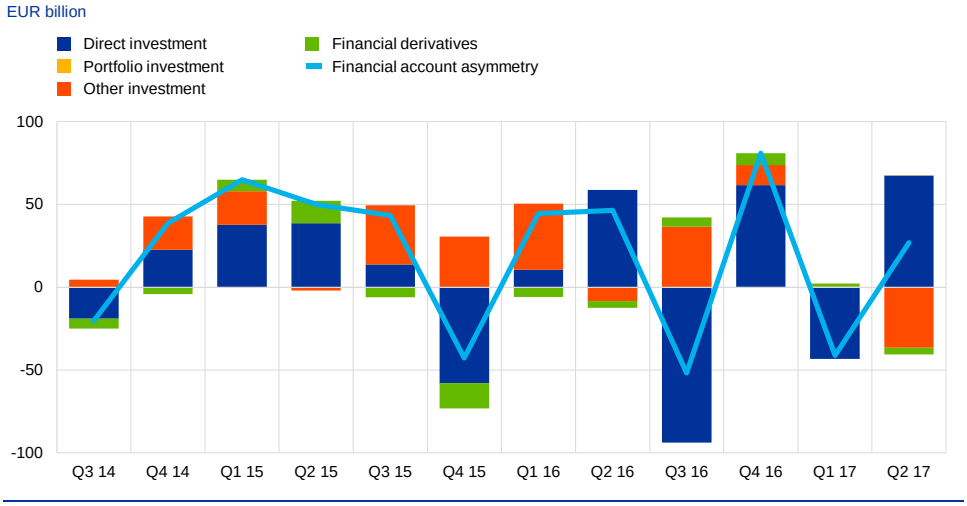
Source: ECB

It can be noticed that, during the analysed time span, current and capital account asymmetries were broadly positive and seemed to follow a seasonal pattern, with values in the last quarter of the year considerably lower than in the remaining quarters (mostly stemming from lower asymmetries in goods in the respective quarters). This is due to the fact that asymmetries in the goods account – the main driver of the current and capital accounts asymmetries – were significantly lower in

the fourth quarters and their positive impact was almost offset by a strong negative impact of the asymmetries in the primary income account.

Chart 13

Intra euro area financial account asymmetries



Source: ECB.

In the financial account the asymmetries were mainly recorded in direct and other investment. Portfolio investment and related income do not show asymmetries by construction owing to the residual compilation approach at the euro area level. Financial account asymmetries were rather volatile, alternating periods where the asymmetries in direct and other investment offset each other with periods where they contributed in the same direction to the overall asymmetry. Direct investment asymmetries can be seen as the main driver of the overall financial account asymmetries, particularly in the last four quarters.

8.2 Bilateral asymmetries

Quarterly bilateral transactions and positions between euro area countries are transmitted to the ECB on a voluntary basis, hence a full bilateral data set is thus far not available. Owing to data availability and importance considerations, the analysis of bilateral asymmetries between euro area countries is performed only for direct investment.

The internal and external country geographical quality indicators (ICGQ and XCGQ) are measures that summarise the quality of the geographical breakdown. The ICGQ aims at assessing the accuracy of the individual geographic classification within the sample of countries for which bilateral data are available, by aggregating the absolute bilateral asymmetries. The XCGQ aims instead at showing how well a country's reported intra euro area aggregate matches its mirror data, calculating the difference between the intra euro area figure reported by the country under consideration and the corresponding figure derived from counterpart data. More

information on these indicators can be found in the section on “Methodological documentation for quality indicators”.

The results of the ICGQ indicator were characterised by high variability across countries and across time, in particular when applied to transactions. Two countries consistently obtained high scores for total FDI transactions across the whole available time span (Cyprus and Malta); some countries appeared to perform relatively well for most of the periods, combined with occasional bad scores for specific quarters; the majority of countries however experienced high volatility in the measures over time, underlying quarter-specific rather than structural issues in capturing the geographical detail of transactions.

The XCGQ indicator generally showed better results than the ICGQ as the indicator is less specific about matching up exactly with individual country counterparts and it merely measures how well the counterparts as a group match a countries’ estimate for that group; therefore most of the countries performed relatively well for the entire time span. This finding is obviously welcome from the point of view of the quality of the overall euro area asymmetry. Nonetheless, several countries still showed rather poor results for isolated quarters as did the same two countries (Cyprus and Malta) for the majority of the time span analysed.

The results for FDI positions revealed better scores than for transactions data as regards both quality measures. The existence of persistent quality problems for Malta, possibly related to coverage of Special Purpose Entities (SPEs) should be noted.

Overall, it appears that countries characterised by a large population of SPEs and faced with well-known challenges as regards capturing and measuring the activity of these institutions, were found to have structural issues in matching the figures provided by their euro area counterparts.

A detailed section containing the detailed results on summary indicators for bilateral asymmetries is available in Tables A13.1-4.

Box 1

Quality indicators on b.o.p. and i.i.p. statistics underlying the Macroeconomic Imbalances Procedure

The Macroeconomic Imbalances Procedure (MIP) Scoreboard for the Alert Mechanism, Report (AMR) consists of 14 headline indicators (and 28 auxiliary indicators) measuring internal imbalances, external imbalances and competitiveness, as well as employment developments over a period of 10 years. The composition of the MIP indicators is subject to review and evolves over time in order to reflect the latest developments or increased data needs. Most of these indicators are composite, i.e. they make use of at least two data sources.

Balance of payments (b.o.p.) and internal investment position data (i.i.p.) underpin the construction of the following 3 headline indicators:

1. current account balance (% of GDP), 3 year average (up to 13 years of data necessary);
2. net international investment position (% of GDP) (up to 10 years of data necessary);
3. export market share (% of world export), 5 years % change (up to 15 years of data necessary);

Additionally BOP and IIP data are used for 5 auxiliary indicators:

4. current plus capital account balance (net lending/borrowing) (% of GDP), (10 years of data necessary);
5. net external debt (% of GDP) (10 years of data necessary);
6. foreign direct investment in the reporting economy, flows (% of GDP) (10 years of data necessary);
7. foreign direct investment in the reporting economy, stocks (% of GDP) (10 years of data necessary);
8. export performance against advances economies (% of OECD export), 5 years % change 15 years of data necessary);

Together, these indicators provide analytical evidence of possible vulnerabilities and risks that would require further investigation at a country level.

Institutional setup

B.o.p. and i.i.p. are provided to the ECB on the basis of Guideline ECB/2011/23 and to Eurostat on the basis of Regulation (EC) No 184/2005. This annual report follows the basic principles of the “Public commitment on European Statistics by the ESCB” and is a requirement under Article 6 of Guideline ECB/2011. This report is fully coordinated with the report produced by the European Commission (Eurostat) on the basis of Article 4(4) of Regulation (EC) No 184/2005. The quality assessment of the Eurostat report is conducted in accordance with the “European Statistics Code of Practice”.

The indicators used for the MIP are provided by Eurostat on the basis of statistics compiled in the Member States either by national statistical institutes (NSIs) or by national central banks (NCBs). Therefore, a Memorandum of Understanding between Eurostat and the ECB/DG-S on the quality

assurance of statistics underlying the MIP (hereinafter “the MoU”) has been signed in the beginning of November 2016. In the MoU (and the exchanged letters), the European Commission and the ECB mutually recognise the quality assurance frameworks in place in the ESS and ESCB and establish practical working arrangements for cooperation on the quality assurance of statistics underlying the MIP.

The MoU specifies that Eurostat and the ECB/DG-Statistics regularly conduct assessments of the quality of the datasets. In particular the ECB/DG-Statistics runs its quality procedures for the datasets reported by NCBs and provides Eurostat with the quality assured datasets and/or information on the quality of the data after the regular data transmission in September/October each year. The MoU also foresees visits by the ECB/Directorate General Statistics and Eurostat to NCBs and/or NSIs to help assess the output quality of the MIP-relevant data.

To ensure full transparency with respect to the quality of the MIP-related statistics, a three-level quality reporting system was set up over the last few years with the support of the Committee on Monetary, Financial and Balance of Payments Statistics (CMFB). The system is composed of national self-assessment reports (Level 3). These national reports, in turn, feed into the domain-specific quality reports (Level 2) – including this one – which are coordinated between ECB and Eurostat. Finally, a joint Eurostat/ECB summary report assessing the quality of all statistics underpinning the MIP (Level 1) is published each year (Quality reports concerning statistics underlying the MIP indicators are available here).

Data availability and confidentiality

BOP and IIP underlying the MIP indicators are provided to Eurostat on the basis of Regulation (EC) No 184/2005 and to the ECB on the basis of Guideline ECB/2011/23. The relevant legal acts do not impose back data requirements in compliance with the BPM6 statistical standard. However, owing to the efforts made by the Member States in the last Statistical Annex 2018 data for all b.o.p./i.i.p. related headline indicators are available for the required period of 10 years (2007-2016), with the only exception of 2007 value for the export market share indicator (5 years change) for Malta (which has no available exports data for reference year 2002). It should be noted, however, that for the calculation of this indicator 15-year long series are necessary. Additionally, Bulgaria (for 2002-2006), Denmark (for 2002-2004), Cyprus (for 2002-2007), Lithuania, the Netherlands, Poland and Slovakia (all for 2002-2003) provided additionally data on exports of goods and services solely for the purpose of the calculation of the indicator.

There are some missing values for auxiliary indicators:

- current plus capital account balance (net lending/borrowing) (% of GDP) – Cyprus for 2007;
- net external debt (% of GDP) – Bulgaria (for 2007-2009), Croatia (for 2007-2010), Italy, Cyprus (both for 2007 and the United Kingdom (whole series for 2007-2016);
- foreign direct investment in the reporting economy, flows (% of GDP) – Cyprus for 2007;
- foreign direct investment in the reporting economy, stocks (% of GDP) – Bulgaria (for 2007-2009) and Cyprus for 2007;
- export performance against advanced economies (% of OECD export), 5 years % change – Malta for 2007;

In general all available MIP relevant data are free for publication.

Sources and methods

The introduction of the BPM6 provided an opportunity for a large group of countries to move into survey based systems, as an alternative to traditional international transactions reporting ("settlement") systems. However, by nature b.o.p. and i.i.p. statistics are rather eclectic as regards data sources, relying on micro (e.g. the Centralised Securities Database (CSDB)) and macro data sets, direct reporting and counterpart information, statistical surveys and administrative data sets (e.g. for the general government sector).

Whereas the compilation of b.o.p. and i.i.p. in EU Member States is deemed methodologically sound, there are challenges in the measurement of some components and in observing all EU recommendations and/or BPM6 standards. In particular: i) Cyprus and Malta would still benefit from improvements in the coverage of resident special purpose entities (SPEs); ii) some EU countries should make an effort to implement estimates for service margins on buying and selling financial assets (financial services) also based on WG ES guidance and to improve the coverage of assets held by resident households abroad; iii) some countries should follow EU recommendations and include estimates for some illegal economic activities (illegal drugs, prostitution services, and smuggling of tobacco and alcohol) iv) Greece should incorporate estimates of financial intermediation services indirectly measured (FISIM) as well as improve their estimation method of sea travel services; v) most countries have trouble capturing the assets of households held abroad. For more detailed information, please see Table 1 in the executive summary and Section 2.

Accuracy and reliability

For the reference period 2015, revisions to the current account were somewhat minor, amountinf to under 1% of GDP in most countries (see table on Annual revisions in Annex MIP). For the current account balance, only Cyprus (1.4%), Malta (1.8%) and Finland (1.1%) recorded revisions above 1% of GDP. In the net i.i.p., revisions were above 5% of GDP in Belgium (13.9%), Ireland (7.9%), Cyprus (15.5%), Malta (6.2%), the Netherlands (8.1%) and Hungary (7.4%).

All in all, the impact of revisions was relatively minor and hence revisions have generally not altered the meaning conveyed by the first assessment of the indicators or the underlying economic assessment.

Internal consistency

For quarterly b.o.p., most countries fulfilled all validations (accounting) rules. One notable exception was the Irish data before 2012 that still displays inconsistencies such as the addition of functional categories not being equal to the total financial account or assets minus liabilities not being equal to net financial account (owing to the recording of financial derivatives before 2012). Furthermore, one of the most common issues among countries is the reconciliation of stocks and flows, the validity of which is very important for confirming the plausibility of the net international investment position.

Regarding series breaks, other than the issues mentioned in Section 6.1 (Validation/Integrity rules), the following breaks apply for periods before 2013 (transmission of data before 2013Q1 is not mandatory).

Ireland: Available foreign direct investment stocks data before 2008 follow the directional principle, while a break is observed in 2013 for portfolio investment liabilities due to long term debt securities issued by financial corporations other than MFIs (reduction of €200 billion); this break is connected with SPEs data that should be completed by the September 2019.

Italy: Breaks in the series for financial derivatives (assets and liabilities) are observed in 2008 and are due to the introduction of a more accurate quarterly IIP data source for financial derivatives held by resident deposit taking corporations thereafter;

Luxembourg: Relevant series breaks in foreign direct investment stocks for 2011 are related to changes in the coverage of SPEs;

Austria: Some breaks apply in foreign direct investment stocks (2005 – due to the introduction of data for SPEs), financial derivatives (before 2006 the reported values for stocks of financial derivatives are 0, whereas for transactions non-zero values are reported);

Portugal: Stocks of financial derivatives assets and liabilities record a break in 2008, as well as some details regarding some sectoral and financial instruments breakdowns; the breaks are generated by an increase in coverage in 2008.

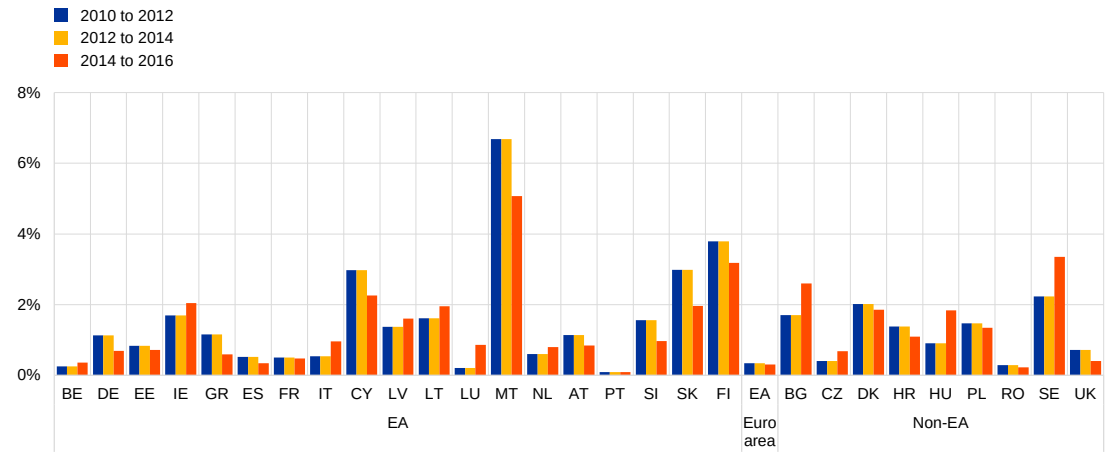
Slovakia: A series break is observed for other investment (assets and liabilities) in 2009;

National **errors and omissions** have in general remained stable in the last review period, however they are still above 2% of GDP in Ireland (which may be attributed to the volatile timing of decision making of large corporations), Cyprus, Malta, Slovakia, Finland, Bulgaria and Sweden (see Chart MIP 1). In this context it is important to highlight that some euro area countries have formal correction mechanisms to address this problem, naturally leading to reduced levels of errors and omissions.

Chart MIP 1

Average absolute net errors and omissions

As percentage of GDP



Source: ECB

In cumulative terms for the period 2014-2016, a bias (at least 2% of GDP) can be statistically identified in Slovakia, Finland, Denmark and Sweden.

External consistency

The methodological differences between b.o.p./i.i.p. and the rest-of-the-world account (national accounts) were removed with the introduction of ESA 2010 and BPM6. However, the analysis shows that in several Member States the inconsistencies between the two statistical domains persist, affecting negatively the combined use of these two data sets as well as the confidence in the two statistics that should display the same figures given that they are measuring the same phenomena. Discrepancies above 0.5% of GDP are recorded (for either credits/debits or both) for the current account (except for Luxembourg for which a comparison is not possible due to data transmission exemptions) for over half of the EU countries (Estonia, Ireland, Greece, France, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Slovenia, Slovakia, Finland, the Czech Republic, Denmark, Croatia, Poland, Romania, Sweden and the United Kingdom). However, only the Netherlands displays discrepancies of more than 2% of GDP

MIP Annex Table 1

Annual absolute revisions – balance/net items for 2015

Percentage of GDP

	Current and capital accounts								Financial account transactions		Financial account positions		
	Current account	Goods	Services	Goods and services	Primary income	Secondary income	Capital account	Current and capital account		Direct investment		Direct investment	Net external debt
Euro area													
BE	0.6	0.3	0.3	0.6	0.0	0.1	0.0	0.6	0.2	1.5	13.9	0.6	13.1
DE	0.1	0.1	0.4	0.3	0.2	0.0	0.0	0.1	0.3	0.1	0.1	0.3	1.1
EE	0.2	0.0	0.2	0.1	0.0	0.1	0.0	0.2	0.3	0.2	0.9	0.0	0.2
IE	0.9	1.1	1.0	2.1	1.1	0.1	0.0	0.9	0.1	8.7	7.9	0.0	17.7
GR	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.3	0.3	2.1	0.0	0.2
ES	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.0	1.3
FR	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.3	0.2	0.0	0.6	0.2	0.4
IT	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.6	0.1	3.8	0.0	0.2
CY	1.4	1.1	0.6	0.5	1.0	0.0	0.0	1.4	3.6	0.6	15.5	0.0	15.7
LV	0.3	0.7	1.3	0.6	0.3	0.0	0.0	0.3	0.2	0.2	1.3	0.0	0.7
LT	0.5	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.2	0.0	0.9	0.0	0.6
LU	0.1	0.0	1.3	1.4	1.3	0.2	0.7	0.6	1.6	63.3	2.5	1.4	235.1
MT	1.8	1.6	6.2	4.6	2.7	0.1	0.0	1.8	13.5	0.7	6.2	0.0	8.4
NL	0.1	0.3	0.4	0.1	0.1	0.3	0.1	0.0	1.3	10.5	8.1	1.5	12.1
AT	0.1	0.2	0.1	0.2	0.2	0.1	0.0	0.1	0.3	0.2	0.4	0.0	0.6
PT	0.3	0.1	0.1	0.1	0.2	0.0	0.1	0.4	0.4	0.1	2.8	0.0	0.2
SI	0.8	0.1	0.4	0.5	0.7	0.4	0.1	0.7	0.3	0.1	1.3	0.0	4.5
SK	0.4	1.0	0.1	0.9	0.6	0.1	0.0	0.4	0.5	1.0	4.1	0.0	1.7
FI	1.1	0.3	0.7	1.1	0.1	0.2	0.1	1.2	0.5	0.2	2.2	0.1	4.8
Non euro area													
BG	0.4	0.0	0.2	0.2	0.2	0.0	0.0	0.4	0.3	1.6	1.2	2.8	1.8
CZ	0.6	0.5	0.1	0.4	0.3	0.0	0.1	0.7	0.4	0.5	2.5	1.9	1.5
DK	0.5	0.2	0.4	0.1	0.4	0.0	0.0	0.5	0.4	0.2	4.0	1.3	4.1
HR	0.6	0.7	0.1	2.8	0.1	0.0	0.0	0.6	0.2	0.2	0.3	0.1	0.0
HU	0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.7	0.6	7.4	6.9	1.2
PL	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.1	0.3	0.4	0.8
RO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	2.7
SE	0.5	0.2	0.0	0.2	0.8	0.2	0.0	0.5	1.1	1.0	0.5	0.8	1.5
UK	0.1	0.4	0.1	0.3	0.3	0.1	0.0	0.1	0.5	0.1		4.9	

(*) All indicators are compiled using neither seasonally adjusted nor calendar adjusted data
Source: ECB

Annexes

Detailed tables

Accessibility and clarity

Table A1.1

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

July 2016 – June 2017/16Q2-17Q2

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	100	99	100
EE	100	98	99
IE	0	93	92
GR	100	100	100
ES	13	8	24
FR	94	93	90
IT	100	100	100
CY	0	88	89
LV	100	100	100
LT	100	98	99
LU	67	60	47
MT	97	62	60
NL	0	100	100
AT	0	61	60
PT	84	57	66
SI	100	100	100
SK	100	100	100
FI	4	46	40
Euro area median	97	98	99
Non euro area			
BG	100	97	100
CZ	98	96	92
DK	100	100	100
HR	100	98	97
HU	99	98	100
PL	100	100	99
RO	95	95	98
SE	74	95	94
UK	0	26	6

Source: ECB

Table A1.2

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	BOP IIP	BOP IIP	Y	Y
IE	Y	BOP IIP	BOP IIP	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	BOP IIP	N	N	Y
FI	Y	Y	Y	Y	Y
Euro area data	Y	Y	Y	Y	Y
Non euro area					
BG	BOP IIP	BOP IIP	BOP IIP	BOP	Y
CZ	Y	Y	Y	Y	N
DK	Y	Y	Y	Y	Y
GB	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.

Upward revisions ratio

Table A2.1

Upward revisions ratio for current account (monthly data)

Percentage of revised periods

April 2015 – March 2017

	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	96	78	-	96	78	48	83	78	87	91	57	83	87	91	-	57	83	100	96	78
DE	87	96	-	70	78	48	74	52	96	96	43	48	87	17	-	83	91	96	87	91
EE	48	35	-	26	17	17	9	4	39	57	65	78	87	43	-	48	57	65	48	65
IE	100	100	-	100	100	87	65	78	100	96	87	87	22	39	-	100	57	100	87	100
GR	57	52	-	78	NA	NA	NA	NA	39	41	36	61	65	65	-	79	NA	NA	100	100
ES	22	52	-	61	26	43	43	52	39	39	57	39	52	43	-	74	48	52	74	61
FR	87	87	-	91	39	35	4	22	70	87	70	87	74	78	-	39	100	100	96	100
IT	48	70	-	87	30	70	83	70	35	61	39	82	61	65	-	91	30	35	35	35
CY	70	57	-	61	65	65	61	65	NA	NA	NA	NA	78	65	-	48	39	35	53	41
LV	70	96	-	91	73	86	67	96	65	96	70	100	68	30	-	87	20	16	11	14
LT	43	52	-	83	48	48	22	73	35	30	26	26	74	78	-	74	39	17	57	70
LU	78	87	-	96	65	35	52	70	83	91	70	74	70	87	-	91	57	48	70	48
MT	83	96	-	78	43	65	83	96	74	74	74	65	43	52	-	61	74	74	61	61
NL	91	100	-	100	91	100	100	100	17	74	74	100	91	100	-	100	22	39	4	9
AT	NA	NA	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	NA	NA	NA	NA	NA
PT	78	87	-	83	30	32	77	81	62	87	30	36	61	74	-	91	67	68	71	81
SI	87	39	-	100	78	78	74	96	61	35	83	83	96	30	-	100	57	57	22	0
SK	78	87	-	78	70	61	70	70	70	83	65	70	65	78	-	26	61	59	83	83
FI	100	57	-	57	74	61	57	52	91	78	91	100	22	30	-	22	65	65	39	39
Euro area median	78	83	-	83	65	61	67	70	65	78	65	78	69	65	-	76	57	59	65	63
Euro area	100	-	100	-	100	-	100	-	100	-	100	-	100	-	96	-	96	-	57	-
Non euro area																				
BG	-	78	-	78	-	9	-	4	-	96	-	78	-	52	-	78	-	100	-	57
CZ	-	65	-	74	-	35	-	48	-	91	-	83	-	74	-	87	-	61	-	61
DK	-	78	-	96	-	74	-	100	-	96	-	96	-	52	-	43	-	83	-	26
HR	-	52	-	61	-	35	-	48	-	70	-	48	-	57	-	65	-	65	-	48
HU	-	26	-	52	-	4	-	22	-	100	-	78	-	70	-	91	-	48	-	61
PL	-	87	-	91	-	65	-	61	-	100	-	78	-	74	-	87	-	91	-	96
RO	-	91	-	87	-	91	-	96	-	87	-	74	-	83	-	74	-	48	-	48
SE	-	52	-	39	-	91	-	48	-	57	-	26	-	70	-	78	-	48	-	57
UK	-	57	-	61	-	74	-	43	-	65	-	91	-	61	-	74	-	52	-	4

Source: ECB

Table A2.2

Upward revisions ratio for current account (quarterly data)

Percentage of revised periods

2015Q2 to 2017Q1April

	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	75	88	-	100	63	75	75	88	75	88	38	63	63	63	-	50	75	75	100	100
DE	100	75	-	75	38	50	88	75	100	100	14	43	86	0	-	100	86	86	86	86
EE	50	13	-	38	0	13	0	0	63	50	75	75	75	63	-	63	88	88	88	88
IE	100	100	-	83	100	100	100	83	100	100	83	83	17	50	-	83	50	0	50	50
GR	50	38	-	50	NA	NA	NA	NA	NA	NA	NA	NA	50	50	-	50	NA	NA	NA	NA
ES	38	50	-	63	38	38	38	38	13	38	38	50	50	50	-	100	25	50	100	88
FR	50	86	-	100	29	29	43	43	57	57	57	86	38	71	-	57	100	100	100	100
IT	88	63	-	88	57	71	100	100	13	38	25	38	100	63	-	100	50	38	43	75
CY	100	100	-	100	75	100	88	88	63	100	100	100	100	100	-	100	NA	NA	100	86
LV	50	100	-	88	75	100	75	100	63	100	63	100	38	13	-	63	13	13	0	17
LT	50	50	-	75	50	43	0	63	50	38	38	75	50	63	-	88	0	0	38	38
LU	75	75	-	100	75	25	63	75	88	88	75	75	63	75	-	88	63	38	75	63
MT	63	75	-	75	38	63	50	88	63	75	88	88	50	63	-	75	50	50	50	50
NL	75	100	-	100	100	100	88	88	0	25	38	88	88	100	-	100	50	50	13	13
AT	50	38	-	25	88	88	63	75	88	88	88	100	13	13	-	0	100	88	100	88
PT	75	75	-	100	13	38	75	88	88	100	50	63	75	50	-	100	75	71	75	88
SI	100	13	-	100	88	25	63	100	38	38	88	75	88	13	-	100	50	63	38	0
SK	63	88	-	63	38	50	75	88	88	88	50	63	75	88	-	25	63	80	75	88
FI	88	75	-	100	100	38	75	38	100	100	100	100	13	63	-	50	13	0	75	75
Euro area median	75	75	-	88	60	50	75	85	63	88	60	75	63	63	-	83	50	50	75	80
Euro area	88	-	88	-	100	-	100	-	63	-	75	-	88	-	63	-	100	-	88	-
Non euro area																				
BG	-	50	-	63	-	63	-	63	-	63	-	50	-	63	-	63	-	88	-	75
CZ	-	25	-	63	-	25	-	50	-	75	-	63	-	50	-	88	-	88	-	38
DK	-	88	-	100	-	88	-	100	-	100	-	100	-	50	-	38	-	100	-	25
HR	-	13	-	13	-	13	-	13	-	63	-	38	-	25	-	25	-	75	-	88
HU	-	38	-	50	-	0	-	0	-	100	-	88	-	63	-	63	-	38	-	88
PL	-	88	-	75	-	50	-	38	-	100	-	75	-	88	-	88	-	25	-	50
RO	-	25	-	50	-	38	-	38	-	50	-	38	-	75	-	50	-	50	-	38
SE	-	50	-	75	-	38	-	75	-	75	-	75	-	50	-	75	-	50	-	75
UK	-	38	-	50	-	38	-	38	-	50	-	75	-	38	-	88	-	13	-	0

Source: ECB

Table A2.3

Upward revision ratio for quarterly international investment position

Percentage of revised periods

2015Q2 to 2017Q1April

	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	29	57	-	100	63	100	75	63	100	100	-	63	0	0	63	88
DE	29	43	-	25	0	0	17	17	NA	NA	-	33	63	100	17	0
EE	63	63	-	75	75	88	63	50	75	88	-	50	25	13	38	38
IE	NA	NA	-	100	86	100	57	50	29	29	-	57	100	100	50	67
GR	83	17	-	75	25	13	100	50	NA	NA	-	NA	100	75	NA	NA
ES	75	100	-	50	38	75	75	63	25	38	-	50	75	38	86	50
FR	57	43	-	50	88	88	29	43	17	0	-	50	71	57	57	71
IT	86	86	-	38	100	63	75	50	100	100	-	NA	50	63	38	50
CY	86	100	-	100	100	100	25	50	100	88	-	57	25	0	50	38
LV	20	100	-	100	75	100	88	88	63	100	-	88	75	100	75	88
LT	43	86	-	100	100	100	75	88	100	100	-	NA	25	57	63	38
LU	75	75	-	100	100	100	75	75	25	13	-	50	50	50	50	38
MT	75	88	-	38	100	100	38	38	38	63	-	63	75	50	63	38
NL	57	100	-	100	100	100	38	63	63	50	-	75	75	100	50	50
AT	0	0	-	13	0	0	25	25	88	50	-	13	50	38	50	75
PT	57	57	-	100	75	50	88	88	88	38	-	25	25	25	75	50
SI	75	100	-	100	100	100	63	100	63	50	-	13	63	75	50	63
SK	75	75	-	38	100	75	50	50	63	88	-	29	88	0	63	38
FI	50	50	-	100	0	38	88	88	88	88	-	63	13	25	88	75
Euro area median	60	75	-	100	86	88	63	50	63	63	-	50	63	50	54	50
Euro area	100	-	100	-	100	-	75	-	50	-	75	-	75	-	63	-
Non euro area																
BG	-	100	-	75	-	88	-	75	-	75	-	63	-	88	-	50
CZ	-	88	-	75	-	88	-	50	-	63	-	25	-	88	-	63
DK	-	75	-	75	-	88	-	50	-	13	-	63	-	63	-	13
HR	-	63	-	25	-	88	-	75	-	25	-	63	-	50	-	50
HU	-	25	-	75	-	25	-	75	-	63	-	88	-	25	-	50
PL	-	75	-	75	-	88	-	75	-	100	-	38	-	63	-	75
RO	-	25	-	88	-	88	-	63	-	63	-	63	-	25	-	38
SE	-	63	-	75	-	75	-	13	-	50	-	63	-	38	-	38
UK	-	25	-	75	-	75	-	63	-	0	-	0	-	100	-	63

Source: ECB

Directional reliability indicator

Table A3.1

Directional reliability indicator for current account (monthly data)

Percentage of revised periods

April 2015 - March 2017

	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
EA																				
BE	96	96	-	74	91	100	91	91	87	74	87	91	87	83	-	74	70	74	87	96
DE	96	91	-	87	96	100	96	96	100	91	87	91	78	87	-	96	91	100	100	96
EE	91	96	-	74	96	100	91	96	83	96	87	87	65	57	-	61	70	74	87	96
IE	83	83	-	61	91	78	91	96	91	91	78	78	83	78	-	78	87	87	96	96
GR	87	91	-	87	NA	NA	NA	NA	100	100	91	96	100	100	-	100	NA	NA	100	100
ES	91	96	-	96	83	78	65	87	96	91	83	83	65	74	-	100	65	70	91	91
FR	91	91	-	91	100	100	100	100	65	74	74	87	70	83	-	100	91	96	57	52
IT	100	96	-	78	100	96	91	87	87	91	83	82	87	87	-	91	87	87	83	78
CY	96	83	-	96	48	52	43	65	NA	NA	NA	NA	96	100	-	83	67	65	76	76
LV	100	83	-	78	95	91	86	78	61	70	78	80	100	91	-	65	85	100	100	90
LT	96	100	-	78	100	96	100	95	83	96	87	87	83	87	-	61	91	96	91	96
LU	48	74	-	78	74	87	61	78	96	91	91	91	39	65	-	78	83	74	87	83
MT	48	48	-	61	87	74	57	57	70	65	65	61	70	57	-	57	57	65	39	39
NL	78	74	-	87	87	87	96	96	78	74	91	91	83	70	-	78	87	96	78	78
AT	NA	NA	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	NA	NA	NA	NA	NA
PT	100	100	-	100	100	100	100	100	90	87	100	100	96	96	-	96	95	95	93	95
SI	91	91	-	83	91	91	96	91	96	91	96	91	78	83	-	78	74	78	96	96
SK	87	96	-	91	87	91	87	91	35	61	43	48	78	91	-	52	100	100	83	91
FI	91	87	-	91	91	91	91	96	74	70	91	87	83	96	-	96	83	83	96	96
Euro area median	91	91	-	85	91	91	91	91	87	91	87	87	83	85	-	78	85	87	89	93
Euro area	91	-	87	-	91	-	96	-	100	-	87	-	74	-	87	-	91	-	87	-
Non-EA																				
BG	-	96	-	83	-	87	-	91	-	87	-	74	-	78	-	65	-	96	-	91
CZ	-	87	-	83	-	96	-	91	-	65	-	87	-	100	-	91	-	100	-	100
DK	-	96	-	100	-	96	-	91	-	83	-	70	-	87	-	96	-	87	-	70
HR	-	91	-	70	-	83	-	70	-	96	-	70	-	61	-	65	-	65	-	70
HU	-	83	-	83	-	96	-	96	-	70	-	70	-	65	-	78	-	52	-	91
PL	-	78	-	78	-	96	-	91	-	61	-	65	-	91	-	83	-	83	-	91
RO	-	87	-	83	-	91	-	96	-	61	-	61	-	91	-	57	-	91	-	91
SE	-	83	-	96	-	100	-	100	-	74	-	74	-	100	-	96	-	65	-	48
UK	-	83	-	83	-	61	-	61	-	83	-	74	-	70	-	61	-	43	-	48

Source: ECB

Table A3.2

Directional reliability indicator for current account (quarterly data)

Percentage of revised periods

2015Q2 –2017Q1

	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	100	86	-	100	100	86	100	71	71	86	86	100	57	43	-	57	100	86	100	100
DE	100	100	-	86	100	86	86	100	100	100	83	100	83	83	-	100	83	100	100	100
EE	71	57	-	86	86	100	100	86	100	100	86	100	71	57	-	71	71	71	100	100
IE	100	100	-	100	100	60	80	100	100	100	100	80	100	100	-	60	80	80	100	80
GR	100	100	-	100	NA	NA	NA	NA	NA	NA	NA	NA	100	100	-	100	NA	NA	NA	NA
ES	86	86	-	100	100	100	100	100	100	100	86	100	100	100	-	86	86	100	100	100
FR	100	100	-	100	100	100	100	100	67	100	100	83	86	100	-	100	33	67	83	83
IT	100	100	-	100	100	100	83	100	100	100	100	86	86	100	-	100	100	100	100	86
CY	71	86	-	71	86	100	43	86	100	100	86	71	86	71	-	43	75	50	67	83
LV	100	100	-	100	86	100	71	100	100	100	86	100	100	86	-	86	86	100	100	100
LT	86	86	-	71	100	83	86	100	71	86	57	100	71	71	-	100	86	86	100	100
LU	86	71	-	100	71	86	100	100	100	86	86	86	43	71	-	100	57	86	100	57
MT	71	86	-	86	86	100	86	100	86	100	71	86	71	43	-	71	71	43	57	57
NL	71	86	-	86	100	86	100	100	100	100	100	86	43	57	-	43	71	57	71	71
AT	71	100	-	71	86	100	57	71	100	100	100	100	86	86	-	71	71	71	100	86
PT	100	100	-	100	86	100	100	100	100	100	100	71	86	100	-	100	86	71	100	86
SI	100	100	-	86	100	100	100	100	100	100	100	86	71	57	-	43	86	86	100	100
SK	100	100	-	100	100	100	86	86	86	100	100	100	100	100	-	71	100	100	100	86
FI	100	86	-	100	100	100	100	86	71	100	100	100	57	71	-	100	57	57	86	86
Euro area median	100	100	-	100	100	100	93	100	100	100	93	93	86	83	-	86	82	83	100	86
Euro area	100	-	100	-	100	-	100	-	86	-	100	-	100	-	57	-	100	-	100	-
Non-euro area																				
BG	-	100	-	100	-	100	-	100	-	100	-	100	-	86	-	71	-	100	-	100
CZ	-	100	-	86	-	100	-	86	-	86	-	100	-	86	-	86	-	100	-	86
DK	-	86	-	71	-	57	-	86	-	100	-	71	-	86	-	71	-	71	-	100
HR	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100
HU	-	71	-	71	-	86	-	71	-	100	-	100	-	57	-	71	-	100	-	100
PL	-	100	-	86	-	100	-	86	-	100	-	100	-	100	-	86	-	100	-	100
RO	-	100	-	57	-	100	-	100	-	100	-	100	-	86	-	57	-	100	-	86
SE	-	100	-	100	-	100	-	100	-	100	-	86	-	86	-	100	-	100	-	100
UK	-	86	-	71	-	86	-	57	-	86	-	86	-	86	-	86	-	57	-	100

Source: ECB

Table A3.2

Directional reliability indicator for quarterly international investment position (quarterly data)

Percentage of revised periods

2015Q2 to 2017Q1

	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	86	100	-	100	71	100	86	86	86	86	-	100	100	100	86	100
DE	100	100	-	100	80	80	80	100	100	83	-	100	100	100	100	100
EE	100	100	-	100	86	86	100	100	100	100	-	100	100	100	100	100
IE	100	100	-	86	100	100	100	100	100	100	-	100	80	83	100	100
GR	100	100	-	100	100	100	100	100	NA	NA	-	NA	NA	NA	NA	NA
ES	71	100	-	100	71	100	57	86	86	71	-	86	100	71	100	100
FR	86	83	-	100	100	83	100	100	100	80	-	80	100	100	83	100
IT	71	71	-	86	100	71	86	86	100	100	-	NA	100	100	100	100
CY	57	57	-	71	71	71	57	86	86	100	-	100	86	100	100	57
LV	100	100	-	100	100	100	100	100	100	100	-	100	86	100	100	100
LT	100	100	-	100	100	100	100	100	100	100	-	NA	100	100	100	100
LU	100	86	-	86	86	43	43	71	100	100	-	43	86	71	86	86
MT	86	100	-	100	43	71	86	100	100	100	-	43	100	100	100	100
NL	57	100	-	100	57	100	86	100	100	100	-	100	100	86	86	86
AT	43	86	-	71	57	71	57	86	100	100	-	100	100	86	100	86
PT	100	86	-	100	71	71	100	86	57	100	-	100	100	100	86	100
SI	86	100	-	100	100	86	86	71	100	100	-	100	100	100	100	100
SK	86	71	-	100	86	86	100	86	100	100	-	100	57	100	100	86
FI	100	100	-	100	100	100	71	86	100	100	-	86	100	100	100	100
Euro area median	86	100	-	100	86	86	86	86	100	100	-	100	100	100	100	100
Euro area	86	--	57	-	86	-	57	-	100	-	100	-	100	-	100	-
Non-euro area																
BG	-	86	-	86	-	86	-	86	-	100	-	86	-	71	-	100
CZ	-	100	-	100	-	100	-	100	-	86	-	86	-	86	-	86
DK	-	100	-	57	-	100	-	57	-	100	-	86	-	71	-	71
HR	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100
HU	-	57	-	86	-	57	-	86	-	100	-	100	-	100	-	100
PL	-	57	-	86	-	57	-	86	-	100	-	100	-	100	-	100
RO	-	43	-	57	-	43	-	57	-	100	-	100	-	100	-	86
SE	-	86	-	100	-	86	-	100	-	100	-	100	-	100	-	100
UK	-	71	-	100	-	71	-	100	-	57	-	86	-	86	-	100

Source: ECB

Symmetric mean absolute percentage error

Table A4.1

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

As a percentage of average underlying first and last assessments

April 2015 to March 2017

	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	-	3	2	2	2	2	4	5	3	4	10	7	-	7	8	12	7	5
DE	2	0	-	0	1	0	2	0	2	2	1	1	2	1	-	2	4	3	2	2
EE	1	1	-	1	2	1	2	2	2	1	2	2	8	6	-	6	8	6	7	5
IE	6	6	-	9	11	10	4	5	5	4	13	10	7	4	-	12	27	29	23	30
GR	1	2	-	2	1	1	0	1	1	1	1	1	3	6	-	8	0	23	1	1
ES	1	1	-	1	2	1	2	1	2	1	3	2	4	3	-	3	8	6	2	3
FR	2	2	-	1	0	0	0	0	2	2	2	2	8	7	-	4	21	28	10	13
IT	1	1	-	1	1	1	1	1	3	2	3	2	5	6	-	3	5	5	11	9
CY	24	22	-	21	20	16	18	8	4	3	8	6	48	45	-	43	29	31	16	18
LV	1	1	-	2	1	1	1	1	5	6	9	3	2	2	-	11	2	3	4	4
LT	1	1	-	2	1	0	1	1	4	2	3	2	32	27	-	23	9	6	7	6
LU	7	6	-	5	7	5	8	3	2	2	3	2	10	9	-	8	1	1	1	2
MT	2	2	-	3	10	7	11	9	4	5	4	4	2	2	-	4	3	3	3	3
NL	4	5	-	5	2	2	2	2	5	3	3	5	10	14	-	13	22	9	29	22
AT	0	0	-	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
PT	1	1	-	1	0	0	0	0	1	1	1	0	4	3	-	4	5	4	2	2
SI	1	0	-	1	0	0	1	1	1	1	2	2	22	8	-	15	8	5	2	8
SK	2	1	-	1	1	1	1	1	8	4	4	4	7	4	-	4	1	1	8	5
FI	1	1	-	1	1	1	1	0	5	2	4	4	4	3	-	6	14	12	9	9
Euro area median	1	1	-	1	1	1	1	1	3	2	3	2	7	6	-	6	8	6	7	5
Euro area	2	-	2	-	2	-	1	-	2	-	3	-	5	-	5	-	4	-	2	-
Non-euro area																				
BG	-	1	-	1	-	2	-	1	-	10	-	9	-	4	-	19	-	2	-	2
CZ	-	1	-	2	-	1	-	1	-	4	-	3	-	5	-	10	-	3	-	1
DK	-	2	-	2	-	3	-	1	-	3	-	4	-	2	-	4	-	8	-	5
HR	-	2	-	3	-	3	-	2	-	2	-	3	-	20	-	47	-	9	-	9
HU	-	1	-	1	-	2	-	1	-	3	-	2	-	8	-	5	-	19	-	3
PL	-	1	-	1	-	1	-	1	-	4	-	2	-	4	-	7	-	3	-	4
RO	-	2	-	2	-	1	-	0	-	6	-	5	-	3	-	19	-	5	-	3
SE	-	1	-	1	-	1	-	1	-	4	-	4	-	2	-	4	-	17	-	11
UK	-	2	-	2	-	2	-	2	-	2	-	3	-	4	-	5	-	5	-	8

Source: ECB

Table A4.2

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

As a percentage of average underlying first and last assessments

2015Q2 to 2017Q1April

	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	1	1	2	1	1	2	1	7	6	-	4	7	8	6	5
DE	0	0	-	0	0	0	0	0	1	1	1	1	1	1	-	2	3	1	2	1
EE	1	1	-	1	1	1	1	2	1	1	2	2	3	5	-	2	6	5	3	4
IE	4	3	-	4	8	5	4	2	2	2	8	6	2	2	-	3	6	5	6	5
GR	0	1	-	0	0	0	0	0	0	0	0	0	3	6	-	6	0	0	0	0
ES	1	0	-	0	0	0	0	0	0	0	1	1	2	2	-	1	3	1	1	1
FR	1	1	-	1	0	0	0	0	1	1	1	1	3	3	-	2	13	17	8	9
IT	0	0	-	1	0	0	0	0	1	0	0	1	3	5	-	4	2	1	2	2
CY	21	20	-	19	5	4	5	3	2	3	9	4	45	44	-	41	2	4	3	4
LV	1	1	-	1	1	1	1	1	2	4	4	1	1	3	-	1	2	2	3	3
LT	1	1	-	0	0	0	0	0	1	1	2	2	27	21	-	3	6	5	3	3
LU	4	4	-	3	8	1	1	1	2	1	1	1	5	5	-	4	1	1	1	1
MT	1	1	-	1	1	1	4	3	1	3	2	2	1	2	-	2	1	1	1	1
NL	3	4	-	4	2	2	2	2	5	1	1	1	7	9	-	9	10	5	6	5
AT	1	1	-	1	1	0	2	1	2	1	1	1	7	8	-	9	17	14	7	8
PT	1	1	-	1	0	0	0	0	1	1	1	1	2	2	-	3	5	3	2	2
SI	1	0	-	1	0	0	0	0	1	1	2	1	16	7	-	11	6	4	1	7
SK	0	0	-	0	0	0	0	0	1	0	1	0	2	1	-	4	0	0	3	2
FI	1	1	-	2	1	1	1	1	4	3	4	5	3	4	-	6	7	4	10	7
Euro area median	1	1	-	1	1	0	1	1	1	1	1	1	3	5	-	4	5	4	3	3
Euro area	1	-	1	-	1	-	1	-	0	-	1	-	3	-	2	-	4	-	3	-
Non-euro area																				
BG	-	1	-	1	-	1	-	1	-	1	-	4	-	3	-	6	-	0	-	0
CZ	-	0	-	0	-	1	-	1	-	0	-	0	-	1	-	2	-	0	-	1
DK	-	2	-	2	-	2	-	1	-	2	-	4	-	1	-	2	-	6	-	1
HR	-	1	-	1	-	1	-	2	-	1	-	2	-	3	-	4	-	5	-	6
HU	-	1	-	1	-	2	-	1	-	0	-	1	-	2	-	2	-	2	-	1
PL	-	1	-	1	-	1	-	1	-	2	-	1	-	9	-	4	-	6	-	2
RO	-	1	-	1	-	1	-	0	-	1	-	1	-	2	-	5	-	2	-	1
SE	-	0	-	1	-	0	-	0	-	0	-	0	-	2	-	13	-	3	-	2
UK	-	1	-	1	-	1	-	1	-	1	-	2	-	1	-	3	-	2	-	1

Source: ECB

Table A4.3

Symmetric mean absolute percentage error for quarterly international investment position

As a percentage of average underlying first and last assessments

2015Q2 to 2017Q1April

	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	1	-	4	3	6	20	23	2	2	-	7	1	2	10	10
DE	0	0	-	0	2	1	11	8	0	0	-	2	0	0	1	5
EE	0	0	-	0	1	1	7	6	0	0	-	10	1	0	4	6
IE	1	1	-	3	1	2	16	25	0	0	-	3	1	3	11	20
GR	0	0	-	1	1	6	9	13	0	0	-	0	0	0	2	0
ES	0	0	-	0	1	1	36	23	0	0	-	63	1	0	13	3
FR	0	0	-	0	1	1	14	7	0	0	-	8	0	0	1	1
IT	0	1	-	0	2	1	24	29	1	3	-	0	1	1	7	2
CY	1	3	-	7	9	12	46	23	2	1	-	1	7	4	22	37
LV	0	0	-	1	3	2	7	8	0	0	-	1	1	1	7	6
LT	1	1	-	1	4	6	21	30	2	2	-	1	0	0	3	2
LU	1	1	-	2	5	5	63	59	0	1	-	39	1	1	27	26
MT	3	3	-	0	0	0	6	8	6	6	-	67	0	0	11	2
NL	0	1	-	3	4	4	43	23	0	0	-	37	1	1	16	13
AT	1	0	-	1	4	3	74	61	0	0	-	5	0	0	7	11
PT	0	0	-	0	3	2	16	17	1	0	-	13	1	0	5	6
SI	1	1	-	2	3	2	7	18	0	0	-	10	2	1	2	4
SK	1	1	-	1	4	1	12	6	0	3	-	0	1	4	4	3
FI	0	0	-	2	2	1	17	12	1	1	-	8	1	0	1	3
Euro area median	0	1	-	1	3	2	16	18	0	0	-	7	1	0	7	5
Euro area	1	-	2	-	3	-	34	-	0	-	25	-	1	-	4	-
Non-euro area																
BG	-	1	-	1	-	2	-	23	-	0	-	7	-	4	-	21
CZ	-	0	-	1	-	1	-	7	-	0	-	7	-	1	-	2
DK	-	2	-	2	-	1	-	54	-	1	-	9	-	2	-	22
HR	-	0	-	0	-	1	-	6	-	1	-	0	-	2	-	2
HU	-	2	-	2	-	3	-	78	-	0	-	1	-	1	-	4
PL	-	0	-	0	-	1	-	25	-	0	-	1	-	0	-	3
RO	-	2	-	1	-	5	-	10	-	1	-	16	-	5	-	24
SE	-	1	-	0	-	2	-	20	-	1	-	11	-	0	-	1
UK	-	1	-	1	-	2	-	23	-	7	-	44	-	1	-	39

Source: ECB

Mean absolute comparative error

Table A5.1

Mean absolute comparative error for financial account (monthly data)

As a percentage of average underlying first and last assessments for the associated positions

2015Q2 to 2017Q1April

	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	1.7	1.2	-	1.2	2.6	1.7	8.0	2.2	5.0	1.5	-	0.6	3.2	2.1	2.2	1.8
DE	0.3	0.1	-	0.2	0.4	0.2	1.0	0.6	0.2	0.2	-	0.2	0.5	0.3	0.2	0.3
EE	2.9	0.9	-	0.8	8.5	2.6	2.8	1.2	3.2	1.0	-	1.0	4.1	1.6	1.9	1.4
IE	1.9	1.1	-	1.2	4.8	1.8	5.3	2.8	0.6	0.5	-	0.7	3.3	2.3	2.8	2.0
GR	0.3	0.2	-	0.1	0.6	0.8	0.8	0.9	0.0	0.0	-	0.0	0.5	0.4	1.9	0.0
ES	0.7	0.6	-	0.5	1.0	1.0	1.5	0.9	1.3	1.3	-	1.2	2.5	1.1	1.1	0.3
FR	1.0	0.7	-	0.6	1.0	0.9	1.2	0.8	3.5	1.5	-	1.4	1.3	1.2	0.5	0.4
IT	0.5	0.2	-	0.2	1.2	0.9	1.3	0.6	0.6	0.3	-	0.3	0.9	0.4	1.3	0.3
CY	1.3	1.4	-	1.2	1.5	1.5	1.3	0.9	7.1	3.7	-	2.4	5.6	4.5	3.8	4.1
LV	1.0	1.0	-	0.3	5.4	4.5	1.0	0.9	0.2	0.3	-	0.2	1.7	1.5	0.5	0.5
LT	3.3	1.4	-	0.8	7.7	3.9	2.6	1.8	1.3	0.6	-	0.3	5.2	3.0	3.1	1.2
LU	1.4	1.2	-	1.1	2.4	2.0	2.2	2.0	0.6	0.6	-	1.6	5.0	3.9	4.9	2.4
MT	0.2	0.4	-	0.4	0.4	0.4	0.1	0.2	0.2	0.2	-	2.9	0.5	1.5	1.1	1.7
NL	1.4	0.8	-	0.8	2.2	1.4	2.0	1.4	0.4	0.3	-	0.8	1.7	1.4	3.5	2.3
AT	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
PT	1.0	0.5	-	0.3	0.9	0.7	1.7	0.7	3.4	0.7	-	1.0	2.5	1.5	0.5	0.3
SI	0.7	0.4	-	0.6	1.2	0.9	1.1	1.3	0.2	0.2	-	0.7	1.9	0.8	0.4	0.4
SK	2.2	3.8	-	1.6	7.5	11.0	3.1	2.9	1.8	1.0	-	0.2	3.2	7.1	3.5	1.3
FI	0.3	0.2	-	0.5	1.1	0.8	1.4	1.1	0.4	0.3	-	0.3	0.2	0.2	0.9	0.9
Euro area median	1.0	0.7	-	0.6	1.2	1.0	1.4	0.9	0.6	0.5	-	0.7	1.9	1.5	1.3	0.9
Euro area	0.5	-	0.6	-	1.0	-	1.4	-	0.6	-	0.6	-	0.8	-	0.7	-
Non euro area																
BG	-	1.2	-	0.6	-	2.9	-	0.7	-	3.3	-	1.3	-	2.8	-	1.7
CZ	-	0.4	-	0.4	-	1.2	-	0.3	-	0.8	-	1.2	-	1.6	-	1.0
DK	-	0.8	-	1.1	-	1.3	-	2.0	-	0.6	-	0.8	-	3.3	-	3.4
HR	-	3.2	-	0.7	-	3.0	-	1.7	-	3.6	-	1.6	-	18.5	-	0.7
HU	-	4.6	-	3.6	-	6.2	-	4.9	-	0.3	-	0.2	-	2.9	-	0.7
PL	-	1.2	-	0.8	-	2.7	-	1.3	-	5.0	-	0.7	-	2.2	-	0.4
RO	-	2.2	-	1.7	-	16.9	-	1.9	-	2.7	-	1.2	-	6.3	-	2.6
SE	-	0.8	-	0.9	-	1.0	-	0.9	-	0.1	-	0.5	-	2.4	-	2.6

Source: ECB

Table A5.2

Mean absolute comparative error for financial account (quarterly data)

2015Q2 to 2017Q1April

	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	0.5	0.3	-	0.3	0.8	0.5	2.1	0.7	0.5	0.3	-	0.2	0.8	0.4	0.6	0.7
DE	0.1	0.1	-	0.1	0.2	0.1	0.3	0.2	0.0	0.1	-	0.0	0.3	0.1	0.1	0.3
EE	0.4	0.2	-	0.1	1.3	0.5	0.1	0.1	0.3	0.2	-	0.2	1.3	0.5	0.5	0.3
IE	0.4	0.4	-	0.3	0.9	0.6	1.6	1.3	0.1	0.1	-	0.1	0.6	0.9	0.6	0.6
GR	0.1	0.1	-	0.0	0.4	0.8	0.5	0.6	0.0	0.0	-	0.0	0.0	0.0	0.1	0.0
ES	0.4	0.3	-	0.2	0.6	0.7	0.8	0.5	1.2	0.3	-	0.6	0.6	0.5	0.4	0.1
FR	0.1	0.1	-	0.1	0.2	0.3	0.5	0.2	0.3	0.2	-	0.2	0.3	0.3	0.1	0.1
IT	0.3	0.2	-	0.1	0.7	0.5	0.7	0.5	0.1	0.1	-	0.0	0.3	0.1	0.5	0.1
CY	0.6	0.5	-	0.4	0.7	0.7	0.8	0.4	1.4	1.1	-	0.1	1.9	1.6	1.5	1.8
LV	0.4	0.4	-	0.3	1.3	0.8	0.2	0.1	0.1	0.1	-	0.1	0.8	0.8	0.4	0.4
LT	0.5	0.4	-	0.3	2.0	1.8	1.0	0.9	0.6	0.3	-	0.0	0.3	0.2	0.4	0.3
LU	0.4	0.6	-	0.5	0.7	0.9	1.7	1.5	0.1	0.3	-	1.0	1.2	2.2	1.6	1.0
MT	0.2	0.2	-	0.1	0.1	0.1	0.1	0.1	0.3	0.3	-	2.8	0.3	0.2	0.5	0.1
NL	0.8	0.5	-	0.6	1.2	0.9	1.0	0.9	0.2	0.1	-	0.5	0.4	0.3	1.3	0.9
AT	1.2	0.6	-	0.7	2.7	2.0	4.7	2.7	0.1	0.0	-	0.1	0.3	0.4	0.4	0.7
PT	0.5	0.3	-	0.2	0.7	0.5	0.9	0.4	1.3	0.3	-	0.6	1.3	0.9	0.3	0.2
SI	0.5	0.3	-	0.3	0.7	0.6	0.3	0.7	0.1	0.1	-	0.7	0.9	0.6	0.1	0.3
SK	0.9	0.6	-	0.1	1.1	1.4	0.6	0.2	0.2	0.2	-	0.0	1.9	1.4	0.2	0.2
FI	0.3	0.2	-	0.3	0.6	0.6	1.4	0.9	0.8	0.5	-	0.3	0.5	0.5	0.4	0.6
Euro area median	0.4	0.3	-	0.3	0.7	0.6	0.8	0.5	0.2	0.2	-	0.2	0.6	0.5	0.4	0.3
Euro area	0.3	-	0.3	-	0.7	-	0.9	--	0.1	-	0.2	-	0.2	-	0.3	-
Non-euro area																
BG	-	0.7	-	0.3	-	0.7	-	0.4	-	0.2	-	0.9	-	2.6	-	0.9
CZ	-	0.2	-	0.2	-	0.4	-	0.1	-	0.2	-	1.4	-	0.9	-	0.5
DK	-	0.7	-	0.7	-	0.8	-	1.0	-	0.2	-	0.2	-	2.5	-	2.5
HR	-	0.2	-	0.1	-	0.2	-	0.2	-	0.5	-	0.0	-	0.9	-	0.1
HU	-	4.3	-	3.3	-	5.6	-	4.5	-	0.1	-	0.0	-	0.8	-	0.3
PL	-	0.5	-	0.3	-	1.8	-	0.7	-	0.6	-	0.1	-	0.2	-	0.2
RO	-	0.6	-	0.4	-	3.8	-	0.3	-	0.7	-	1.1	-	2.0	-	0.7
SE	-	1.7	-	1.7	-	0.4	-	0.5	-	0.0	-	0.2	-	0.2	-	0.2
UK	-	0.4	-	0.5	-	0.5	-	1.1	-	0.8	-	1.1	-	0.8	-	1.0

Source: ECB

Net relative revisions

Table A6.1

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 2015 to March 2017

		Current account				Financial account			
		Goods	Services	Primary Income	Secondary Income		Direct investment	Portfolio invest-ment	Other investment
Euro area									
BE	2	3	4	16	11	0.2	1.8	1.9	2.3
DE	1	0	4	5	1	0.2	0.6	0.2	0.4
EE	2	3	4	12	13	0.7	1.5	1.7	1.8
IE	9	21	17	29	24	0.3	1.8	0.7	1.8
GR	4	1	3	11	55	0.2	0.7	0.0	0.2
ES	1	1	3	6	8	0.8	0.7	2.2	0.9
FR	2	0	2	13	14	0.6	0.9	1.8	1.0
IT	2	2	4	10	19	0.3	0.9	0.5	0.6
CY	6	25	6	5	37	0.5	1.1	5.2	3.5
LV	3	2	11	24	4	0.7	1.7	0.4	1.0
LT	3	1	3	63	22	1.7	3.2	0.8	3.6
LU	3	9	2	4	5	0.0	1.3	1.5	4.1
MT	3	24	6	7	0	0.2	0.3	0.4	0.6
NL	1	2	9	5	65	0.1	0.6	0.9	2.1
AT	0	0	0	0	0	0.0	0.0	0.0	0.0
PT	2	1	3	10	10	0.3	1.1	1.2	0.9
SI	3	1	4	39	20	0.7	1.2	1.0	0.9
SK	1	1	3	14	15	2.0	3.1	1.1	5.9
FI	2	2	5	7	28	0.5	1.2	0.5	1.0
Euro area median	2	2	4	10	14	0.3	1.1	0.9	1.0
Euro area	1	2	3	4	5	0.3	0.9	0.8	0.8
Non-euro area									
BG	3	3	13	48	5	1.3	1.4	4.3	3.7
CZ	2	1	5	24	4	0.6	0.7	1.8	1.8
DK	3	4	3	9	18	0.6	1.2	1.1	1.1
HR	7	6	5	113	32	1.6	3.1	3.7	7.6
HU	2	2	4	8	31	0.4	0.4	0.3	2.6
PL	2	1	7	17	6	0.8	1.9	1.5	1.4
RO	3	1	9	50	13	1.5	3.0	2.5	3.6
SE	3	2	10	7	40	0.6	0.8	0.6	1.3
UK	4	5	4	14	23				

Source: ECB

Table A6.2

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

2015Q2 to 2017Q1April

	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	2	2	11	5	0.1	0.2	0.5	0.9	6.6	7.5	8.5	10.4
DE	0	0	3	5	0	0.1	0.1	0.0	0.3	0.6	2.9	0.4	1.6
EE	1	1	3	9	9	0.2	0.3	0.4	0.2	0.6	1.3	0.4	0.4
IE	6	11	10	10	9	0.1	0.7	0.1	0.9	3.1	6.7	2.1	3.9
GR	1	0	0	11	0	0.0	0.7	0.0	0.0	1.5	17.9	0.3	0.3
ES	1	0	1	5	3	0.2	0.2	0.6	0.4	0.4	1.2	0.5	0.3
FR	1	0	1	3	8	0.1	0.4	0.3	0.3	0.3	2.1	0.2	0.7
IT	1	0	1	6	5	0.2	0.7	0.1	0.2	1.2	1.9	6.1	0.9
CY	2	7	4	2	6	0.1	0.5	1.0	1.3	8.7	1.5	3.3	5.6
LV	1	1	8	7	3	0.1	0.3	0.2	0.3	1.8	1.4	0.4	2.3
LT	1	0	1	23	13	0.4	1.1	0.2	0.6	1.3	3.1	3.5	0.7
LU	1	2	2	1	4	0.0	0.8	1.1	2.0	3.0	2.8	3.0	1.7
MT	1	7	3	4	0	0.2	0.1	0.7	0.2	5.4	0.2	21.2	0.2
NL	0	1	2	1	20	0.0	0.2	0.6	0.7	3.5	4.0	10.7	1.7
AT	1	2	2	3	5	0.1	0.5	0.2	0.3	1.6	1.7	0.5	0.6
PT	1	1	2	6	8	0.1	0.7	0.6	0.5	0.7	4.2	2.7	1.4
SI	2	1	3	31	17	0.2	0.7	0.8	0.7	3.3	1.8	7.1	1.5
SK	0	0	1	10	6	0.4	0.5	0.2	1.2	4.5	7.1	4.9	6.1
FI	2	1	3	6	21	0.3	0.6	0.5	0.5	3.8	4.4	9.1	2.5
Euro area median	1	1	2	6	6	0.1	0.5	0.4	0.5	1.8	2.8	3.0	1.5
Euro area	1	1	2	4	3	0.1	0.4	0.3	0.2	1.2	2.1	2.6	2.4
Non-euro area													
BG	3	3	4	19	1	0.8	0.7	0.9	2.3	1.1	4.4	1.3	5.5
CZ	1	1	1	6	2	0.3	0.3	1.8	1.0	1.4	1.8	5.3	2.6
DK	2	4	3	5	10	0.2	0.4	0.2	0.3	1.2	5.1	2.2	1.7
HR	1	2	2	5	6	0.2	0.3	0.3	0.3	0.6	1.9	2.6	1.2
HU	1	1	2	8	12	0.1	0.1	0.0	0.8	2.3	2.9	0.2	2.3
PL	1	1	2	10	4	0.5	1.0	0.3	0.4	0.7	1.2	0.6	0.7
RO	2	0	1	38	7	0.3	0.4	1.8	1.4	3.3	4.6	1.9	7.5
SE	2	1	2	6	2	0.1	0.2	0.3	0.2	1.3	1.3	2.4	0.3
UK	2	3	3	12	10	0.1	1.2	1.3	0.9	2.6	7.5	17.7	4.9

Source: ECB

Indicators on validation rules and consistency of balance of payments related datasets

Table A7.1

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

Percentage of possible integrity rules

July 2016 to June 2017

	CS	EQ0	GEO2	GEO3	IAI	RS	RSCS
Euro area							
BE	100	100	100	100	100	100	100
DE	100	100	100	100	100	100	100
EE	100	100	100	100	100	100	100
IE	100	100	100	100	100	100	100
GR	100	100	100	100	100	100	100
ES	100	100	100	100	100	100	100
FR	100	100	100	100	100	100	100
IT	100	100	100	100	100	100	100
CY	100	100	100	100	100	100	100
LV	100	100	100	100	100	100	100
LT	100	100	100	100	100	100	100
LU	100	100	100	100	100	100	100
MT	100	100	100	100	100	100	100
NL	100	100	100	100	100	100	100
AT	100	100	100	100	100	100	100
PT	100	100	100	100	100	100	100
SI	100	100	100	100	100	100	100
SK	100	100	100	100	100	100	100
FI	100	100	100	98	100	100	96
Euro area median	100	100	100	100	100	100	100
Non-euro area							
BG	N/A	N/A	100	100	100	100	N/A
CZ	N/A	N/A	100	100	100	100	N/A
DK	N/A	N/A	100	100	100	100	N/A
HR	N/A	N/A	87	86	100	100	N/A
HU	N/A	N/A	100	100	100	100	N/A
PL	N/A	N/A	100	100	100	100	N/A
RO	N/A	N/A	100	100	100	100	N/A
SE	N/A	N/A	100	100	100	100	N/A
UK	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 A7.2

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

Percentage of possible integrity rules

2016Q3 to 2017Q2

	ACC	BAL	CONS	CS	EQ0	FUNC	GEO2	GEO3	GEO4	IAI	MAT	OTH	OW	RS	RSCS	STR
Euro area																
BE	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	100.0	100.0	100.0	100.0	100.0	100.0
DE	100.0	100.0	96.1	100.0	100.0	100.0	100.0	100.0	100.0	90.2	100.0	100.0	100.0	100.0	99.0	100.0
EE	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
IE	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GR	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
ES	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
FR	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.5	100.0	100.0	100.0
IT	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.4	100.0	100.0	100.0
CY	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
LV	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
LT	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
LU	100.0	100.0	100.0	100.0	100.0	100.0	99.7	99.5	99.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MT	100.0	100.0	100.0	99.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	98.0	100.0
NL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.7	100.0	100.0	100.0
AT	100.0	100.0	40.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PT	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
SI	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
SK	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.2	100.0	100.0	100.0
FI	100.0	100.0	99.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.5	100.0	100.0	100.0
Euro area median	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Non-euro area																
BG	100.0	100.0	100.0	100.0	100.0	100.0	99.1	99.1	99.1	93.2	N/A	92.0	100.0	99.1	100.0	99.0
CZ	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	N/A	100.0	100.0	100.0	100.0	100.0
DK	100.0	100.0	92.9	99.7	100.0	94.1	96.9	99.1	99.1	96.2	N/A	98.9	100.0	100.0	97.0	100.0
HR	100.0	100.0	62.7	95.4	100.0	94.7	82.1	77.0	77.0	99.0	N/A	96.6	100.0	99.2	76.0	99.5
HU	100.0	100.0	100.0	99.7	100.0	100.0	99.9	99.8	99.8	100.0	N/A	100.0	100.0	100.0	98.0	100.0
PL	100.0	100.0	98.9	100.0	100.0	100.0	100.0	100.0	100.0	99.9	N/A	100.0	100.0	100.0	99.0	100.0
RO	100.0	100.0	99.4	100.0	100.0	100.0	100.0	100.0	100.0	98.3	N/A	100.0	100.0	100.0	100.0	100.0
SE	100.0	100.0	100.0	90.8	100.0	99.2	100.0	100.0	100.0	87.2	N/A	92.0	100.0	96.3	52.0	87.7
UK	100.0	100.0	80.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	N/A	100.0	99.2	100.0	100.0	100.0

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

Table A7.3

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

Percentage of possible integrity rules

2016Q3 to 2017Q2

	ACC	CS	CURR	EQ0	FUNC	GEO2	GEO3	GEO4	MAT	OTH	OW	REC	RS	RSCS	STR
Euro area															
BE	100	100	100	100	100	100	100	99	100	95	100	86	100	100	99
DE	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
IE	100	100	100	100	100	100	100	99	100	100	100	99	100	100	100
GR	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
FR	100	100	100	100	100	100	99	100	100	100	100	100	100	100	100
IT	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
LV	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
LU	100	100	100	100	100	100	99	100	100	100	100	100	100	100	100
MT	100	100	100	100	100	100	100	94	100	100	88	69	100	63	95
NL	100	100	100	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
PT	100	100	100	100	100	100	100	97	100	100	100	100	100	100	100
SI	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
FI	100	100	100	100	100	100	100	96	100	100	100	89	100	100	100
Euro area median	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
CZ	100	100	100	100	100	100	100	100	100	100	N/A	N/A	100	100	100
DK	100	100	100	100	100	100	100	97	100	100	N/A	N/A	100	100	100
HR	100	92	89	100	100	87	88	97	89	95	N/A	N/A	100	40	99
HU	100	100	100	100	100	97	97	100	100	100	N/A	N/A	100	100	100
PL	100	100	87	100	100	99	98	95	85	100	N/A	N/A	100	100	100
RO	100	100	100	100	100	100	100	98	100	100	N/A	N/A	100	100	100
SE	100	100	100	100	100	100	100	84	100	100	N/A	N/A	100	100	100
UK	100	100	100	100	100	100	100	100	100	100	N/A	N/A	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 A7.4

Average time consistency for current account

Consistency between monthly and quarterly data as a percentage of the respective item

2016Q3 to 2017Q2

	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	97	98	-	94	96	98	97	99	98	98	85	88	100	99	-	99	100	99	93	94
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	100	100	-	100	100	100	100	100	100	100	100	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	100	100
CY	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	99	99	99	100
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	98	97	-	94	98	97	89	93	95	94	93	93	96	98	-	96	86	90	88	88
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	98	96	-	95	99	99	98	98	97	96	98	96	96	84	-	76	43	55	82	84
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-BGNo area																				
BG	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100
CZ	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100
DK	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100
HR	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	99
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	-	98	-	100	-	100	-	98	-	98
UK	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100

Source: ECB

Table A7.5

Average time consistency for financial account

Consistency between monthly and quarterly data as a percentage of the underlying i.i.p. item

2016Q3 to 2017Q2

	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	99	100	100	100	-	100	100	99	100	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	99	100	100	99	100	100	-	100	99	99	99	99
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	98	97	96	97	99	100	-	99	100	99	99	99
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	-	100	-	100	-	100	-	100	-	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 A7.6

Average relative explained changes for the financial account sub-components

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

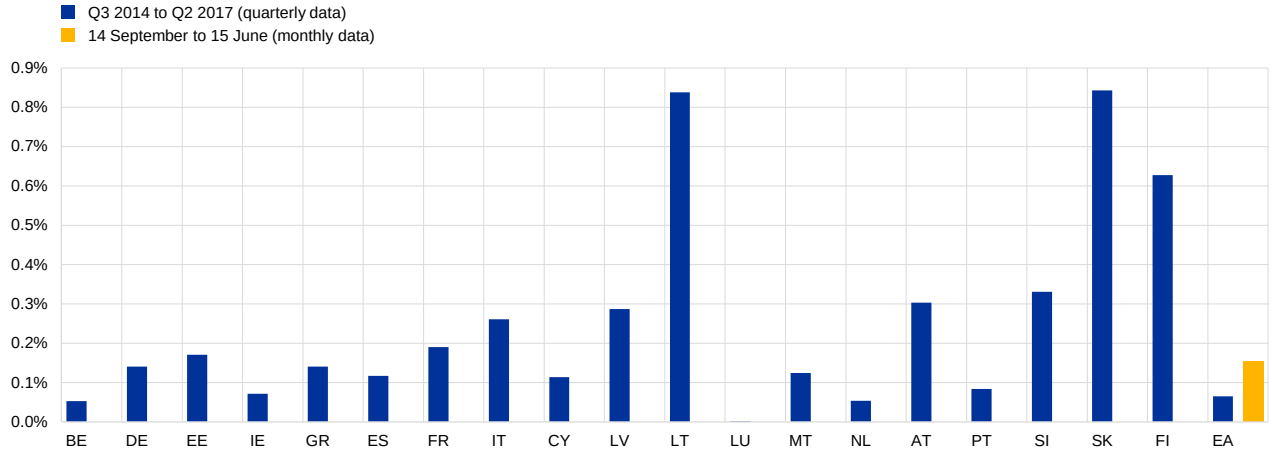
2016Q3 to 2017Q2

	Direct investment		Portfolio investment		Other investment	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Euro area						
BE	100	99	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	99	99	100	98	100	100
Euro area median	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	-	-	-	-	-	-
HU	100	100	100	100	100	100
PL	-	-	-	-	-	-
RO	100	100	100	100	100	100
SE	-	-	-	-	-	-
UK	-	-	-	-	-	-

Source: ECB

Chart A7.7

Average net errors and omissions relative to average international investment position



Source: ECB.

Coherence with international trade in goods statistics

Table A8.1

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

As a percentage of

2014Q3 to 2017Q2

	Exports/Goods Credits		Imports/Goods Debits	
	Rest of the World	Extra Euro Area	Rest of the World	Extra Euro Area
Euro area				
BE	91	91	100	82
DE	100	100	100	82
EE	82	100	82	82
IE	91	64	91	82
GR	100	91	100	82
ES	91	91	91	100
FR	100	100	100	100
IT	100	100	100	100
CY	91	100	91	91
LV	100	100	100	100
LT	91	91	91	100
LU	100	82	100	91
MT	55	73	55	27
NL	91	82	91	91
AT	82	91	82	82
PT	100	100	100	100
SI	100	100	100	100
SK	91	100	91	91
FI	91	100	91	100
Euro area median	91	100	91	91
Euro area	-	100	-	100
Non-euro area				
BG	91	-	91	-
CZ	82	-	82	-
DK	82	-	82	-
HR	82	-	82	-
HU	73	-	73	-
PL	64	-	64	-
RO	100	-	100	-
SE	100	-	100	-
UK	73	-	73	-

Source: ECB

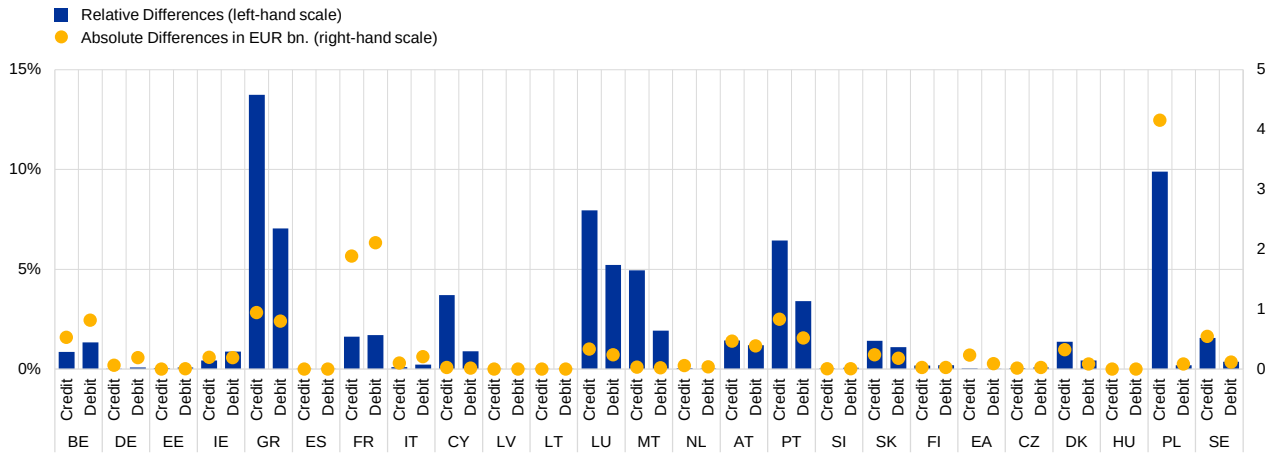
Consistency with sectoral accounts

Chart A9.1

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

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

2014Q3 to 2017Q2



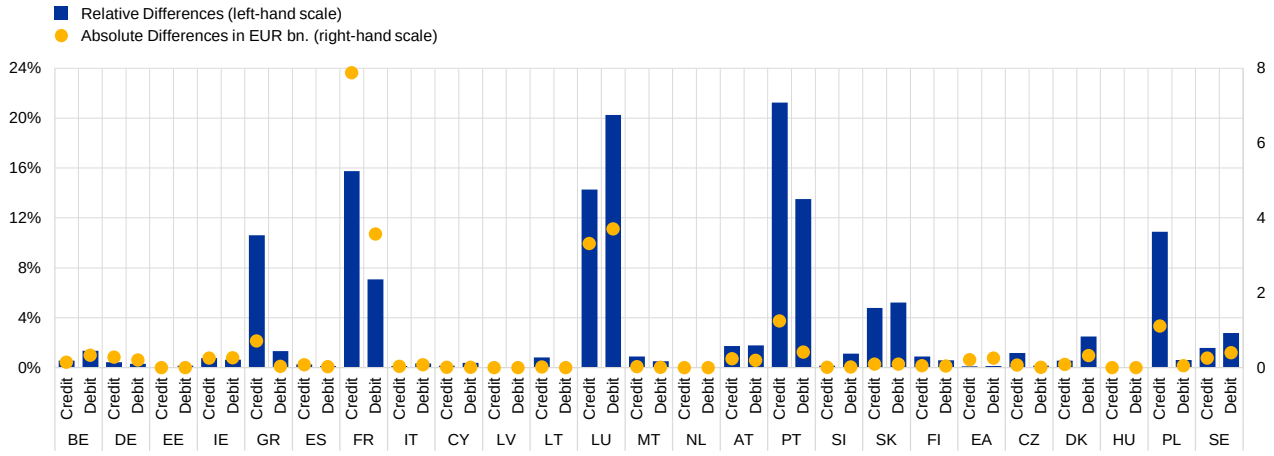
Source: ECB

Chart A9.2

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

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

2014Q3 to 2017Q2



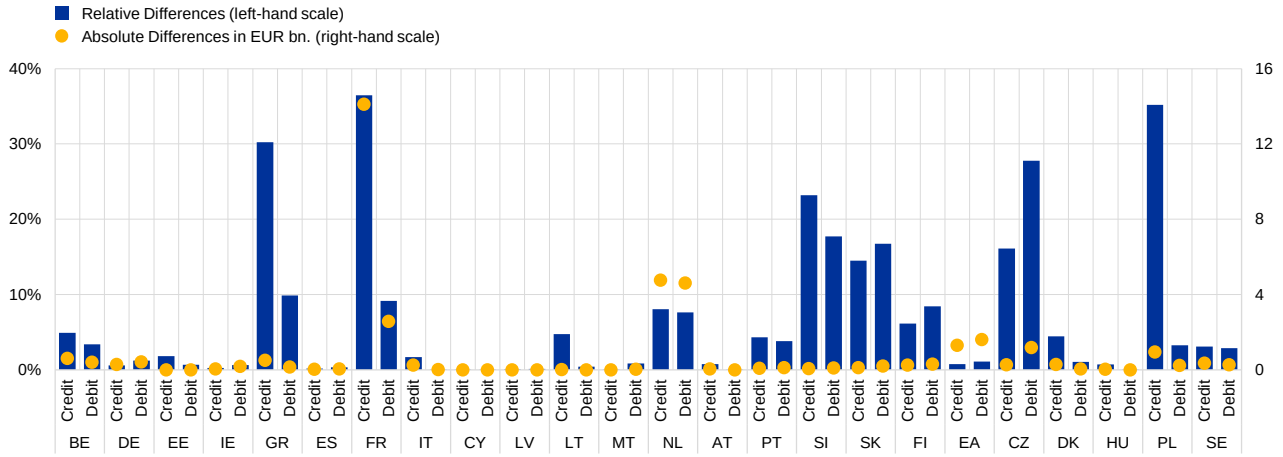
Source: ECB

Chart A9.3

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

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

2014Q3 to 2017Q2



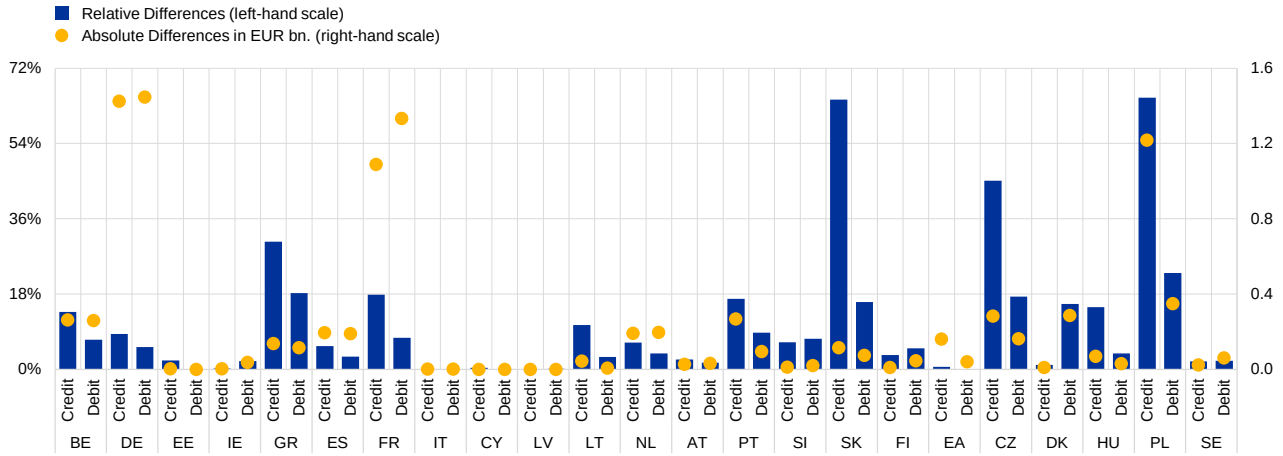
Source: ECB

Chart A9.4

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

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

2014Q3 to 2017Q2



Source: ECB

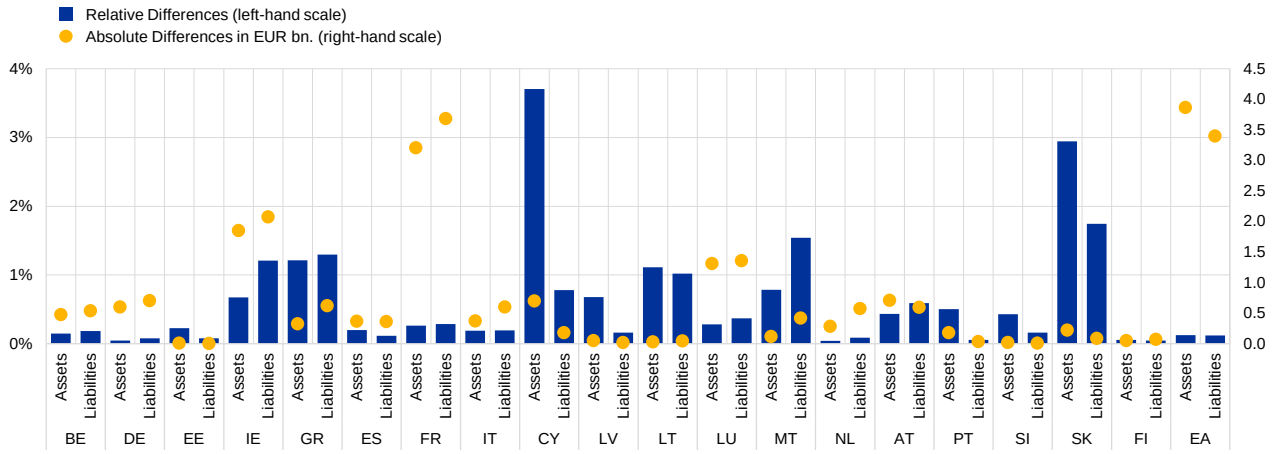
Coherence with MFI Balance Sheet data

Chart A10.1

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

Average absolute and relative difference (as a percentage of respective i.i.p. and BSI stocks)

2014Q3 to 2017Q2



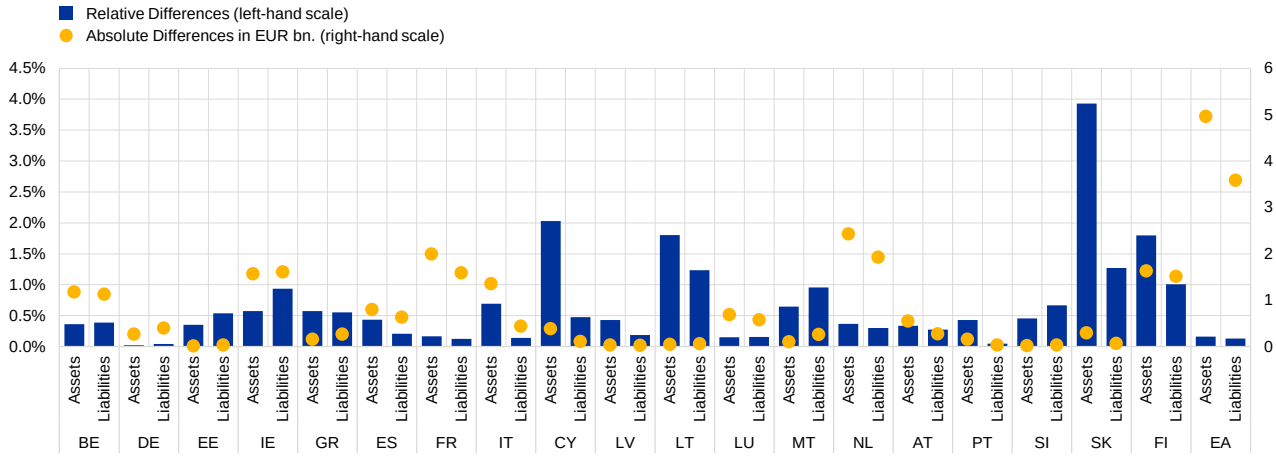
Source: ECB

Chart A10.2

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

Average absolute and relative difference (as a percentage of respective i.i.p. and BSI stocks)

2014Q3 to 2017Q2



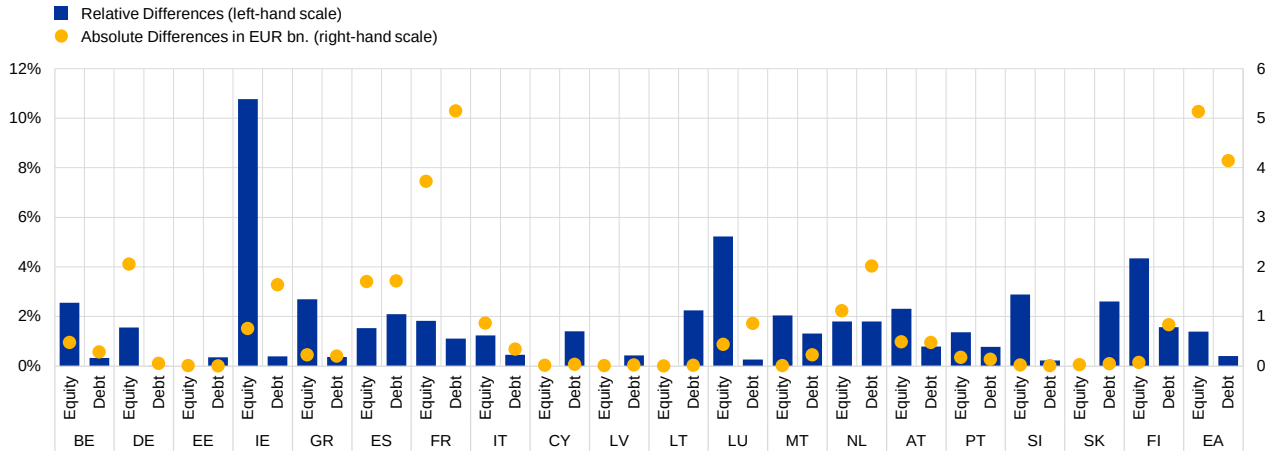
Source: ECB

Chart A10.3

Equity and debt securities assets transactions discrepancies between b.o.p. and BSI – quarterly data

Average absolute and relative difference (as a percentage of respective i.i.p. and BSI stocks)

2014Q3 to 2017Q2



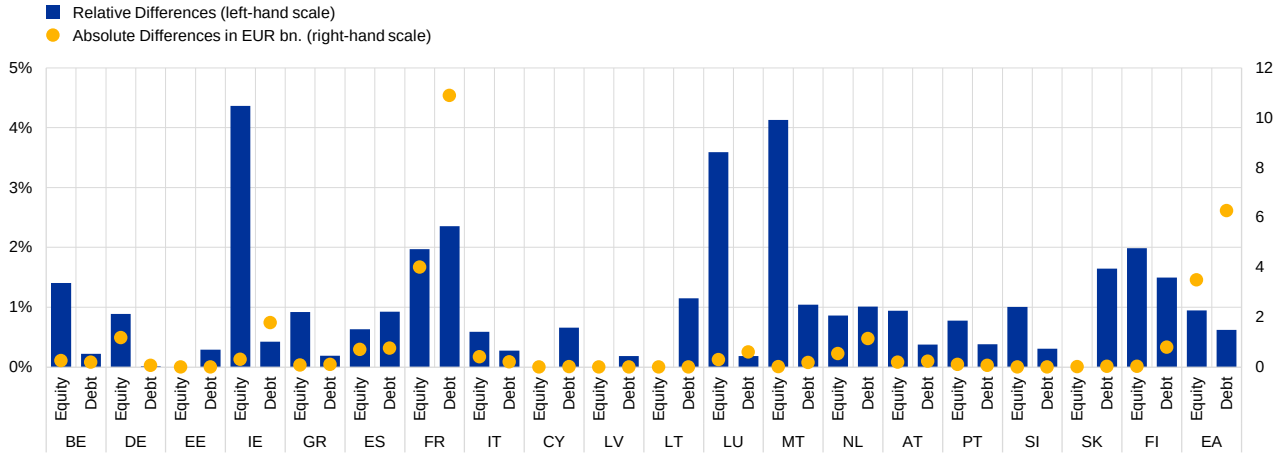
Source: ECB

Chart A10.4

Equity and debt securities assets transactions discrepancies between b.o.p. and BSI – monthly data

Average absolute and relative difference (as a percentage of respective i.i.p. and BSI stocks)

2014Q3 to 2017Q2



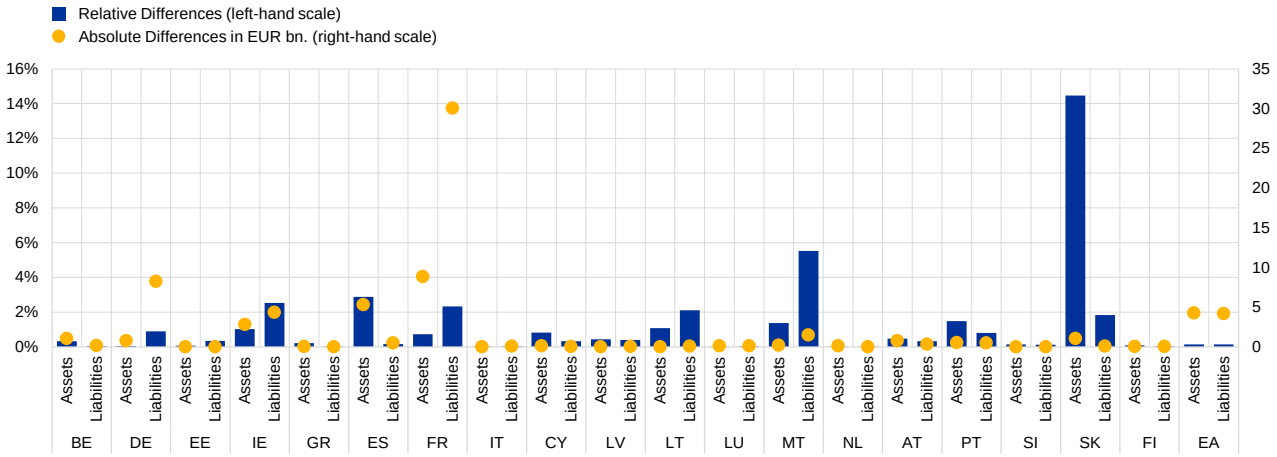
Source: ECB

Chart A10.5

Loans and deposits stocks discrepancies between i.i.p. and BSI – quarterly data

Average absolute and relative difference (as a percentage of respective i.i.p. and BSI stocks)

2014Q3 to 2017Q2



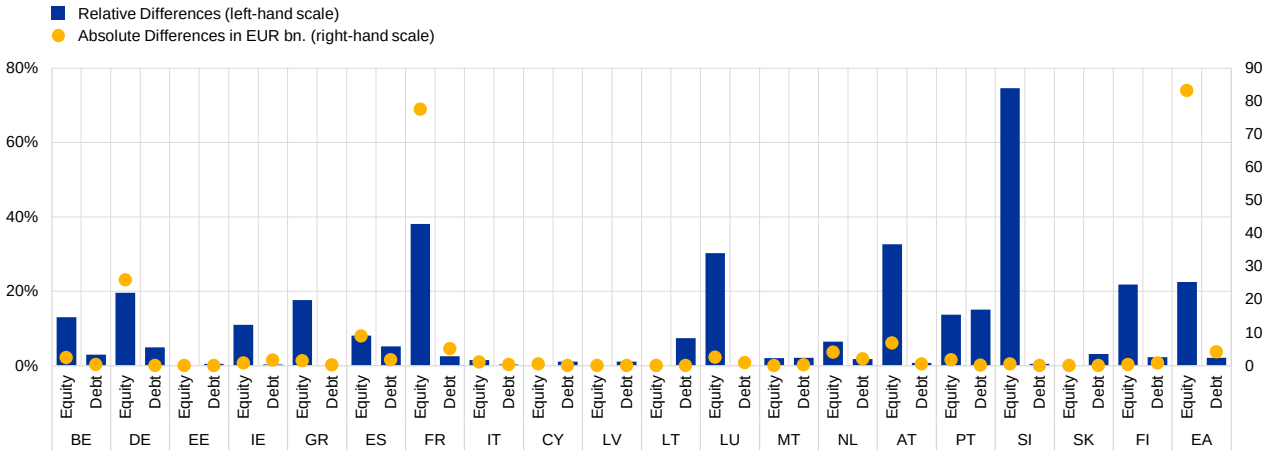
Source: ECB

Chart A10.6

Equity and debt securities assets stocks discrepancies between i.i.p. and BSI – quarterly data

Average absolute and relative difference (as a percentage of respective i.i.p. and BSI stocks)

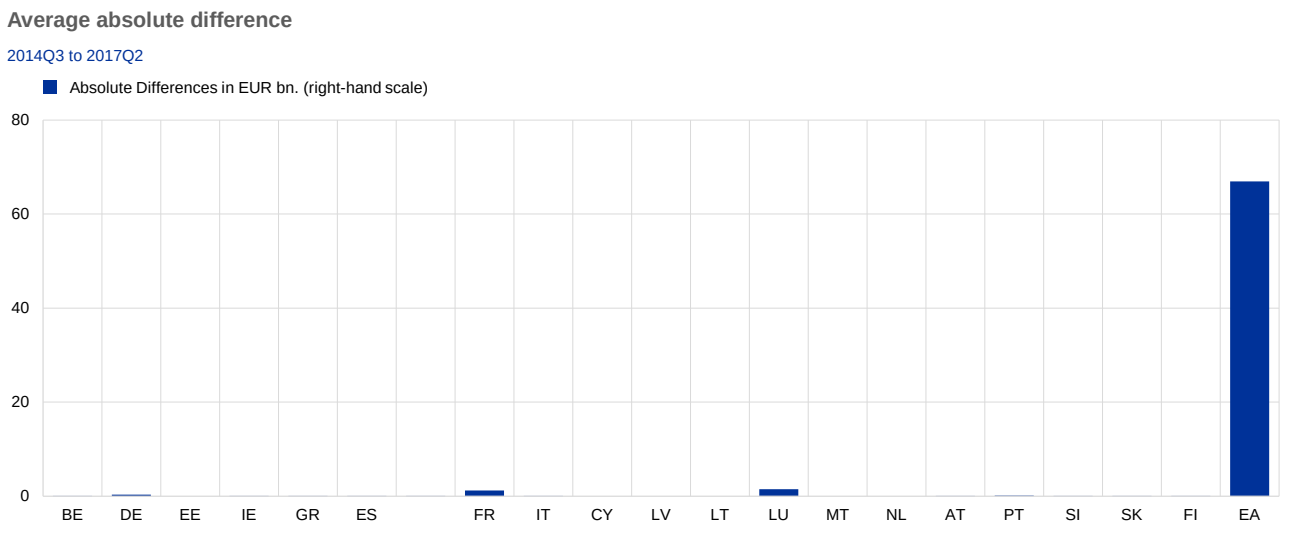
2014Q3 to 2017Q2



Source: ECB

Chart A10.7

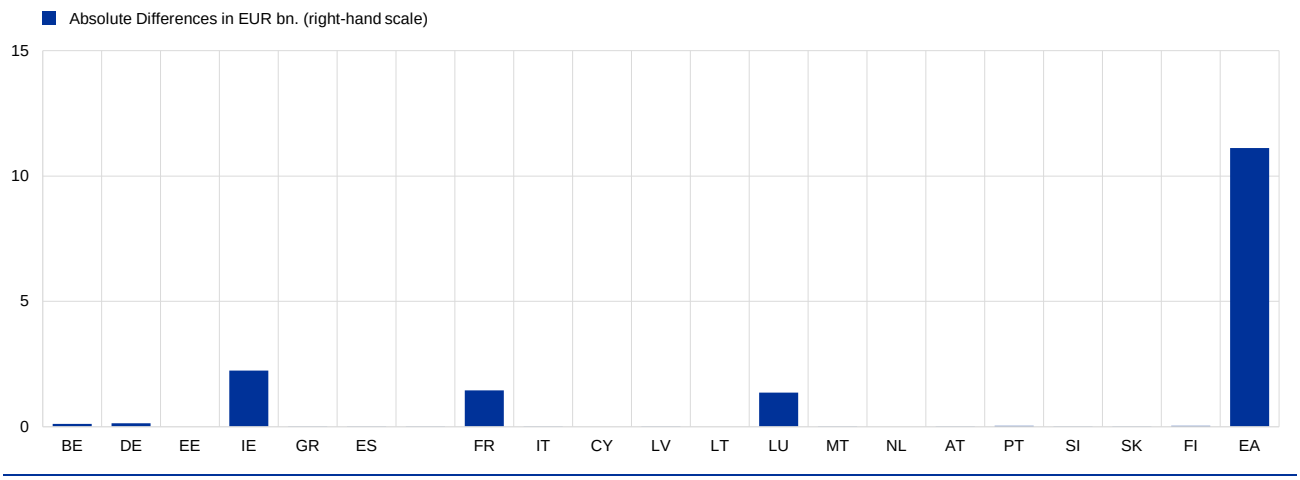
MMF shares (liabilities) stocks discrepancies between i.i.p. and MMF statistics



Source: ECB

Chart A10.8

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



Source: ECB

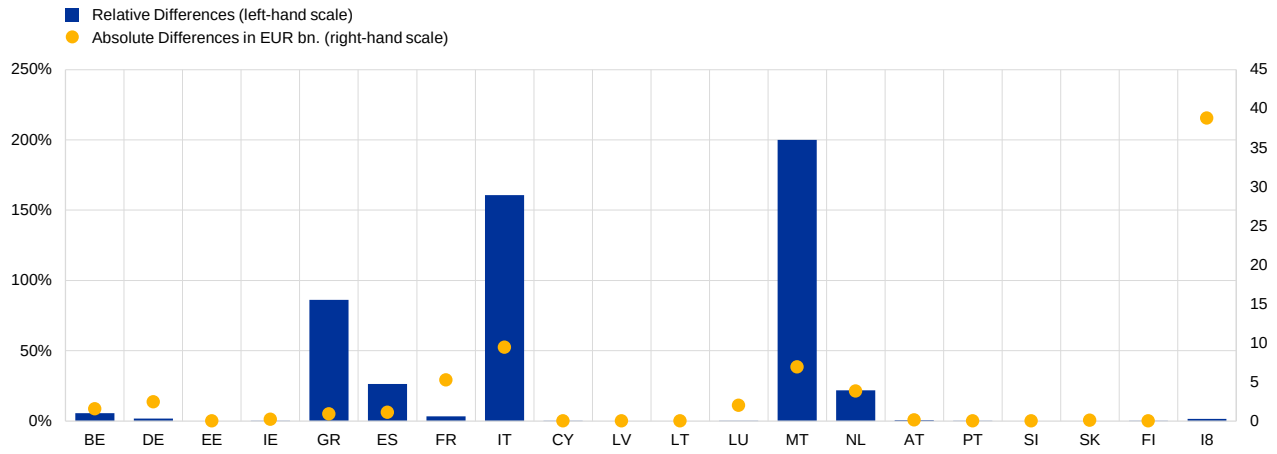
Coherence with investment fund statistics

Chart A11.1

IVF stocks discrepancies between i.i.p. and IF statistics

Average absolute and relative difference (as a percentage of respective i.i.p. and IF stocks)

2014Q3 to 2017Q2



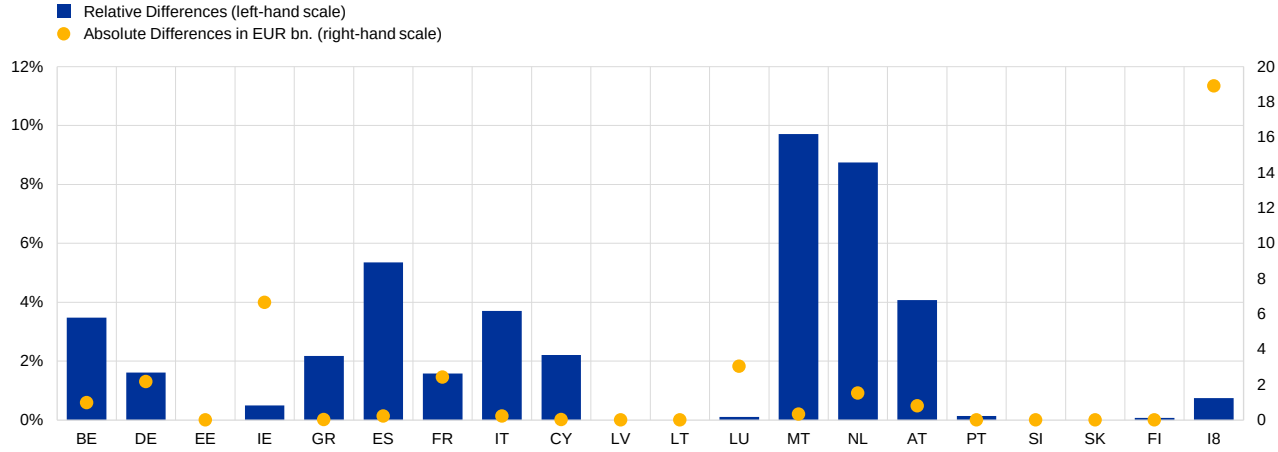
Source: ECB

Chart A11.2

IVF transactions discrepancies between b.o.p. and IF statistics

Average absolute and relative difference (as a percentage of respective i.i.p. and IF stocks)

2014Q3 to 2017Q2



Source: ECB

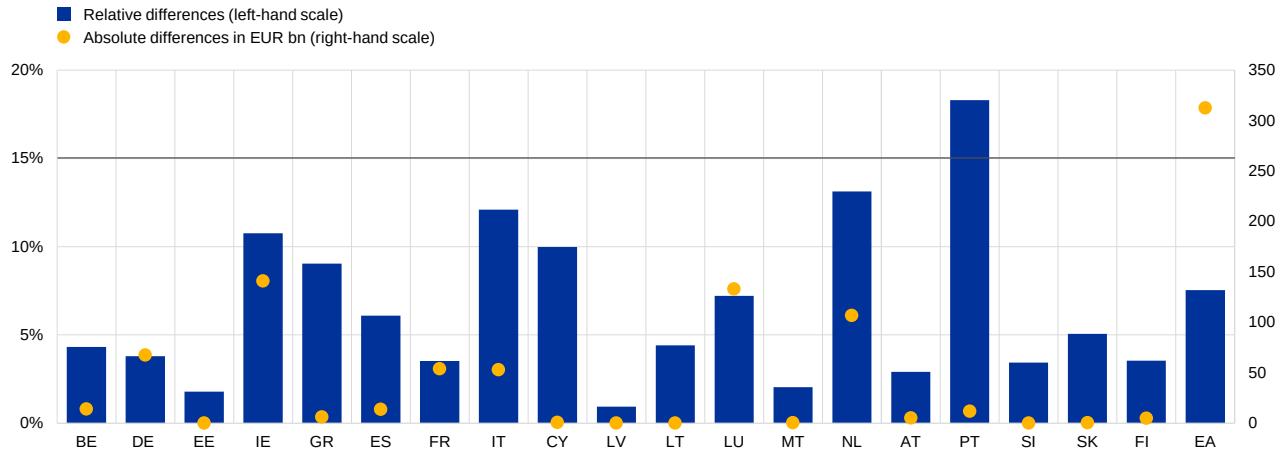
Coherence with Securities Holdings Statistics

Chart A12.1

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

Average absolute and relative difference (as a percentage of respective i.i.p. and SHSS stocks)

2014Q3 to 2017Q2



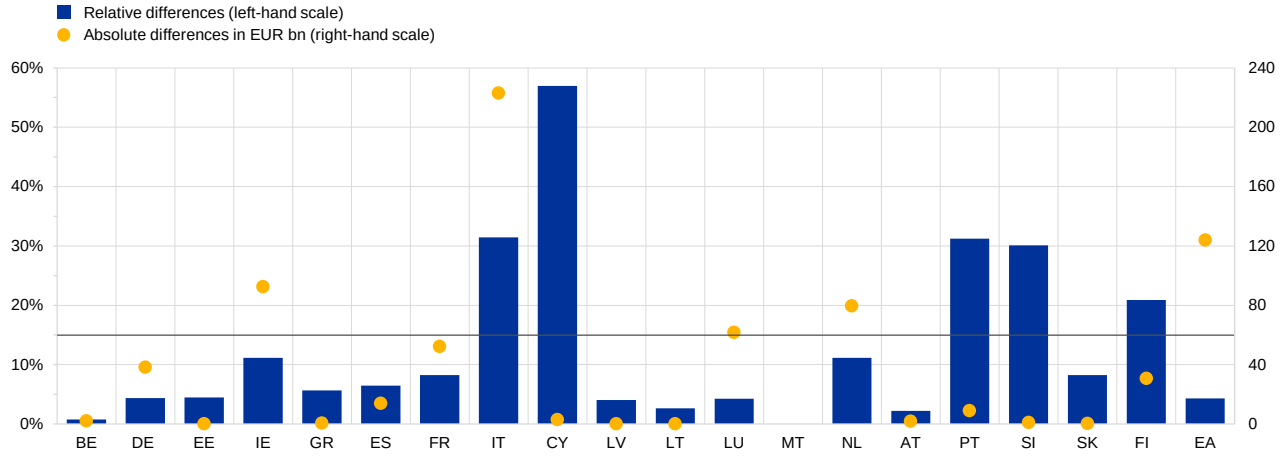
Source: ECB

Chart A12.2

Portfolio investment equity stocks discrepancies between i.i.p. and SHSS statistics

Average absolute and relative difference (as a percentage of respective i.i.p. and SHSS stocks)

2014Q3 to 2017Q2



Source: ECB

Summary indicators on bilateral asymmetries

Table A13.1

Internal geographical quality indicator, foreign direct investment transactions

2014Q3 to 2017Q2

Date	AT	BE	CY	DE	EE	ES	IE	IT	LT	LV	MT	NL	PT	SI	FI	FR	GR	LU	SK
Q3 2014	0.68	0.56	0.85	0.58	0.65	0.30	0.38	0.68	0.64	0.46		0.74	0.93	0.64		0.49		0.59	
Q4 2014	0.50	0.42	0.71	0.39	0.75	0.72	0.58	0.92	0.71	0.57		0.33	0.71	0.56		0.56		0.68	
Q1 2015	0.78	0.42	0.83	0.33	0.43	0.46	0.55	0.47	0.59	0.47		0.60	0.28	0.68	0.81	0.50		0.50	
Q2 2015	0.66	0.58	0.81	0.54	0.81	0.67	0.59	0.65	0.65	0.76		0.71	0.30	0.68	0.64	0.48		0.60	
Q3 2015	0.58	0.42	0.94	0.58	0.34	0.28	0.42	0.56	0.55	0.64		0.20	0.77	0.69	0.43	0.48		0.22	
Q4 2015	0.72	0.21	0.87	0.42	0.69	0.41	0.67	0.61	0.77	0.73		0.64	0.52	0.51	0.68	0.42		0.49	
Q1 2016	0.81	0.21	0.95	0.28	0.68	0.63	0.57	0.56	0.83	0.51		0.68	0.54	0.56	0.49	0.29		0.52	
Q2 2016	0.81	0.61	0.95	0.55	0.75	0.39	0.95	0.57	0.67	0.63	0.81	0.70	0.84	0.68	0.82	0.49		0.85	
Q3 2016	0.78	0.63	0.98	0.72	0.78	0.30	0.90	0.58	0.73	0.43	0.99	0.72	0.60	0.53	0.60	0.54			
Q4 2016	0.42	0.44	0.91	0.51	0.86	0.33	0.84	0.31	0.82	0.96	0.98	0.46	0.76	0.75	0.53	0.57		0.62	
Q1 2017	0.49	0.64	0.95	0.29	0.54	0.28	0.49	0.47	0.76	0.72		0.52	0.55	0.31	0.79	0.67		0.54	
Q2 2017	0.63	0.69	0.92	0.43	0.57	0.46	0.81	0.40	0.61	0.85		0.67	0.54	0.63	0.91	0.64		0.81	

Source: ECB

Table A13.2

External geographical quality indicator, foreign direct investment transactions

2014Q3 to 2017Q2

Date	AT	BE	CY	DE	EE	ES	IE	IT	LT	LV	MT	NL	PT	SI	FI	FR	GR	LU	SK
Q3 2014	0.43	0.32	0.50	0.34	0.45	0.04	0.23	0.20	0.49	0.19		0.15	0.40	0.19		0.46		0.52	
Q4 2014	0.27	0.18	0.50	0.10	0.15	0.34	0.52	0.29	0.24	0.09		0.08	0.52	0.12		0.11		0.21	
Q1 2015	0.49	0.13	0.21	0.07	0.12	0.30	0.40	0.25	0.11	0.24		0.29	0.02	0.10	0.47	0.25		0.44	
Q2 2015	0.25	0.53	0.40	0.15	0.49	0.36	0.09	0.16	0.20	0.09		0.43	0.23	0.55	0.51	0.18		0.33	
Q3 2015	0.55	0.07	0.61	0.11	0.08	0.18	0.17	0.22	0.24	0.22		0.11	0.74	0.54	0.26	0.13		0.08	
Q4 2015	0.46	0.06	0.10	0.36	0.14	0.29	0.63	0.29	0.26	0.25		0.25	0.24	0.25	0.33	0.13		0.39	
Q1 2016	0.67	0.11	0.34	0.08	0.08	0.48	0.52	0.23	0.45	0.45		0.40	0.39	0.27	0.21	0.06		0.22	
Q2 2016	0.47	0.36	0.75	0.29	0.30	0.11	0.46	0.21	0.19	0.23	0.56	0.39	0.61	0.40	0.71	0.37		0.25	
Q3 2016	0.27	0.34	0.73	0.38	0.63	0.18	0.80	0.10	0.24	0.20	0.86	0.41	0.42	0.11	0.19	0.18			
Q4 2016	0.22	0.20	0.22	0.23	0.35	0.12	0.43	0.20	0.43	0.42	0.16	0.11	0.68	0.22	0.33	0.20		0.14	
Q1 2017	0.03	0.10	0.79	0.04	0.03	0.10	0.17	0.03	0.51	0.11		0.33	0.26	0.03	0.62	0.21		0.35	
Q2 2017	0.33	0.51	0.50	0.20	0.34	0.12	0.56	0.20	0.30	0.53		0.12	0.38	0.24	0.31	0.27		0.67	

Source: ECB

Table A13.3

Internal geographical quality indicator, foreign direct investment positions

2014Q3 to 2017Q2

Date	AT	BE	CY	DE	EE	ES	IE	IT	LT	LV	MT	NL	PT	SI	FI	FR	GR	LU	SK
Q3 2014	0.16	0.07	0.33	0.10	0.50	0.10	0.18	0.11	0.34	0.37	0.91	0.10	0.19	0.30		0.06		0.14	
Q4 2014	0.14	0.07	0.35	0.09	0.50	0.09	0.19	0.10	0.37	0.36	0.94	0.07	0.19	0.28		0.07		0.09	
Q1 2015	0.15	0.08	0.34	0.07	0.41	0.10	0.16	0.10	0.33	0.34	0.95	0.08	0.21	0.29	0.32	0.08		0.08	
Q2 2015	0.15	0.09	0.34	0.07	0.42	0.09	0.15	0.09	0.34	0.34	0.95	0.09	0.27	0.29	0.31	0.07		0.09	
Q3 2015	0.16	0.09	0.35	0.06	0.43	0.09	0.14	0.09	0.36	0.36	0.95	0.08	0.28	0.29	0.31	0.07		0.09	
Q4 2015	0.17	0.08	0.35	0.07	0.43	0.09	0.17	0.11	0.36	0.37	0.95	0.09	0.26	0.30	0.34	0.07		0.10	
Q1 2016	0.13	0.07	0.34	0.07	0.44	0.10	0.17	0.11	0.35	0.35	0.94	0.09	0.27	0.27	0.25	0.07		0.10	
Q2 2016	0.14	0.07	0.34	0.08	0.43	0.11	0.18	0.11	0.34	0.35	0.94	0.09	0.28	0.27	0.27	0.07		0.11	
Q3 2016	0.15	0.06	0.34	0.08	0.45	0.10	0.19	0.11	0.34	0.35	0.95	0.09	0.29	0.26	0.27	0.07		0.11	
Q4 2016	0.15	0.07	0.33	0.08	0.45	0.09	0.21	0.12	0.40	0.40	0.95	0.09	0.30	0.25	0.26	0.07		0.11	
Q1 2017	0.16	0.08	0.37	0.08	0.44	0.07	0.19	0.13	0.41	0.41	0.95	0.09	0.15	0.40	0.19	0.06		0.12	
Q2 2017	0.16	0.09	0.37	0.08	0.45	0.06	0.22	0.14	0.41	0.36	0.94	0.09	0.16	0.38	0.26	0.07		0.14	

Source: ECB

Table A13.4

External geographical quality indicator, foreign direct investment positions

2014Q3 to 2017Q2

Date	AT	BE	CY	DE	EE	ES	IE	IT	LT	LV	MT	NL	PT	SI	FI	FR	GR	LU	SK
Q3 2014	0.03	0.01	0.29	0.03	0.21	0.01	0.16	0.04	0.12	0.20	0.81	0.05	0.15	0.23		0.04		0.03	
Q4 2014	0.03	0.02	0.31	0.02	0.23	0.04	0.17	0.07	0.15	0.19	0.87	0.02	0.15	0.23		0.04		0.03	
Q1 2015	0.05	0.03	0.30	0.02	0.18	0.05	0.13	0.08	0.13	0.20	0.87	0.03	0.17	0.23	0.27	0.04		0.06	
Q2 2015	0.04	0.01	0.30	0.02	0.18	0.05	0.13	0.08	0.14	0.19	0.87	0.04	0.22	0.25	0.24	0.04		0.06	
Q3 2015	0.05	0.01	0.30	0.03	0.19	0.05	0.12	0.07	0.12	0.18	0.86	0.05	0.23	0.25	0.25	0.04		0.06	
Q4 2015	0.07	0.03	0.30	0.03	0.20	0.05	0.16	0.07	0.14	0.19	0.87	0.04	0.23	0.25	0.25	0.04		0.06	
Q1 2016	0.09	0.02	0.28	0.02	0.19	0.05	0.16	0.07	0.13	0.19	0.86	0.03	0.24	0.20	0.18	0.05		0.06	
Q2 2016	0.11	0.02	0.28	0.02	0.22	0.06	0.17	0.06	0.14	0.18	0.87	0.04	0.25	0.20	0.17	0.06		0.07	
Q3 2016	0.12	0.02	0.29	0.02	0.23	0.05	0.13	0.06	0.15	0.18	0.88	0.04	0.26	0.21	0.17	0.05		0.06	
Q4 2016	0.11	0.02	0.28	0.02	0.21	0.05	0.14	0.07	0.19	0.13	0.88	0.04	0.27	0.20	0.17	0.05		0.06	
Q1 2017	0.12	0.03	0.32	0.02	0.21	0.03	0.15	0.07	0.18	0.15	0.86	0.03	0.13	0.22	0.08	0.04		0.07	
Q2 2017	0.12	0.05	0.32	0.03	0.22	0.03	0.21	0.08	0.17	0.20	0.85	0.03	0.14	0.21	0.08	0.03		0.09	

Source: ECB

Methodological documentation for quality indicators

Data availability

Completeness

BPM6 requirements are broken down into three types: mandatory series, agreed by the WG-ES/BOP-WG 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 data sets 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.

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

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 of 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 Guideline”[54] defines 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.

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

[54] 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).

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 per dataset:

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

Accuracy and reliability (including stability)

Upwards 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 considered observations (N).

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

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

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

Directional reliability indicator

To assess whether the information on the direction of changes as contained in the earlier estimates has been altered by the revisions, a 2 by 2 contingency table can be set up. In this contingency table, the columns consist of positive and negative first differences in the initial estimates:

$$\Delta x_{t_I} = x_{t_I} - x_{(t-1)_I}$$

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

$$\Delta x_{t_L} = x_{t_L} - x_{(t-1)_L}$$

Contingency table for directional reliability

	$\Delta x_{t_I} > 0$	$\Delta x_{t_I} \leq 0$	***Subtotal***
$\Delta x_{t_L} > 0$	n_{11}	n_{12}	$n_{11} + n_{12}$
$\Delta x_{t_L} \leq 0$	n_{21}	n_{22}	$n_{21} + n_{22}$
Subtotal	$n_{11} + n_{21}$	$n_{12} + n_{22}$	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 are defined (see previous section on upwards revisions).

This coefficient Q is equal to 1 if the changes following the first and the latest estimates always have the same sign ($n_{11} + n_{22} = N$), while it is equal to 0 when there is a total dissociation ($n_{11} + n_{22} = 0$). Therefore, higher values of this indicator are 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 in 8 out of 10 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 over the initial assessment:

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

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

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

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 the 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; b) as a ratio of averages. This second definition has a significant advantage over the first one: 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 Kempen and Vliet (2000)[55], that its expectation is asymptotically unbiased while the average of the ratio is biased.

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

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

Therefore, the recommendation is 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 Makridakis' example 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).[56] If, on average, revisions are positive, MAPE would be higher than if those revisions were to be negative. In the case of the denominator being defined in terms of the latest estimates, the result would be the opposite.

The 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 the Makridakis' proposal):

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

Compared with MAPE, this indicator fixes the previous issue of asymmetry and it is bounded between 0 and 1 (or 100% in percentage terms), while MAPE is not bounded in the upper side. However, SMAPE shows a different class of asymmetry. Following Goodwin and Lawton[57], if the actual value is 100 (the example is in terms of forecast errors again) and the forecast error is +10 or -10, SMAPE would result in 4.7% in the first case and 5.2% in the second one. On the other hand, MAPE would

[55] G.M.P. van Kempen and L.J. van Vliet (2000): "Mean and Variance of Ratio Estimators Used in Fluorescence Ratio Imaging", Cytometry 39, 300-305.

[56] Makridakis, S. (1993). Accuracy measures: Theoretical and practical concerns. International Journal of Forecasting, 9, 527– 529

[57] Goodwin, Paul and Richard Lawton (1999). On the asymmetry of the symmetric MAPE. International Journal of Forecasting, 15, 405– 408

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 in 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 $\frac{\mathrm{R}}{\mathrm{P}}$, 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.

The 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, the calculations of the MACE for revisions of the monthly b.o.p. data uses 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 net/balance 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 net/balance 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 net/balance items, the revisions can be related to average current account flows or the underlying stocks of financial assets/liabilities as applicable. The indicators are named net relative revisions (NRR):

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

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

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:

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

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 is subject to upon data reception. Therefore, this section of the quality report should focus on the extent to which national data sets 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 rest of the world;

RS: Reference sector: Total economy should be consistent with the sum of the subsectors (S121, S12T, S13, S1P);

CS: Counterpart sector: follows the same intuition as the reference sector type;

REC: Stock/flow reconciliation: stocks, transactions and other flows are interlinked: stock in period t is equal to stock in period t-1 plus transactions in period t plus other flows in period t;

ACC: Accounting item: e.g. balance should be equal to credit minus debit etc.;

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

FUNC: Functional category: equality between financial account and its sub-account following BPM6 conventions;

STR: Instrument and assets classification: e.g. gross external debt is equal to sum of its subcomponents;

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

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

RSCS: Resident sector – counterpart issuer sector consistency: this rule ensures that in the case of portfolio investment the totals by resident and counterpart issuer sectors are identical in the case of intra and extra euro area transactions;

Multidimensional checks such as ensuring that for other investment the sum of instruments by sector is smaller or equal than total other investment for that sector. This rule only applies to stocks.

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

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

where TYPE refers to the type of validation, DSET to the dataset in question and N 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 provide explanations when the target is not met. Therefore the recommended target should 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). Therefore, in some periods, quarterly and monthly data are not necessarily fully reconciled. An indicator assessing the monthly/quarterly consistency should be compiled as the average time consistency (ATC):

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

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 stock series as 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 should be 100%.

Reconciliation between stocks and flows

The stock flow reconciliation equation[58] ensures that b.o.p. and i.i.p. data are consistent. In order to ensure comparability between countries, one could express the average relative explained changes as a percentage of the corresponding i.i.p. item.

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

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 BOP WG) with total rest-of-the-word ("W1") as counterpart area.

Stock/flow consistency is one of the core features of the accounting framework and a necessary condition for a quality data set. Therefore, full reconciliation between stocks and flows should be an objective (i.e. a target of 100%).

Net errors and omissions

Average relative error to current account

The average relative error (ARE) to 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 during 3 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. is a residual (error) item in b.o.p., it is 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. is 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 to i.i.p.

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

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

[58] LE(t)=LE(t-1) + T(t) + K7A(t)+K7B(t)+KA(t); LE – stocks, T – transactions, K7A – exchange rate changes, K7B – other price changes, KA – other changes in volume.

Where EO_t are net errors and omission in reference quarter t, N is the number of periods analysed (12 quarterly observations during 3 years), $[FA\_LE, t]_A^{W1}$ is the i.i.p. in reference quarter t, 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 to be 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. 1 year, 5 years, 10 years) in order to show the long term behaviour and to isolate the sensitivity to significant outliers.

This indicator tests the persistency of the sign of n.e.o. or the bias. Therefore one would expect a value of zero 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. Therefore, cumulated errors and omissions should tend to zero in the long run.

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. A measure that provides information on the quality of the pure bilateral data, Internal Country Geographical Quality Indicator (ICGQ).

2. A measure that provides information on the country totals vis-à-vis the total mirror data, External Country Geographical Quality Indicator (XCGQ).

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

Given the following notation, the formulas for the three 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, that by default is equal to 0.5, $\sum_c |A_{i,c}|$ reflects the summation of absolute values of the assets reported by country i (stocks or transactions) broken down by counterpart countries c. Likewise $\sum_c |L_{i,c}|$ reflects the summation of the 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 $\sum_c |L_{i,c} - A_{c,i}|$ the 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:

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

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

It assesses the quality of the geographical breakdown vis-à-vis each of the countries also providing geographical information: it tries to assess the accuracy of the geographic classification within the sample of countries where bilateral data is 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 totals of the available mirror data. The purpose of the XCGQ is to assess how well a countries intra (EU or euro area) aggregate is reflected in mirror data, and thus provides an indicator of the quality of a countries' intra/extra breakdown. XCGQ is in the range [0, 1], with values close to 0 indicating a good value, and values close to 1 indicating low quality, one component being over or underestimated vis-à-vis the other:

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

The following principles underlie the exercise and the results provided in the main text and associated annex tables:

1. The analysis is performed on data for the reporting period 2014Q3 to 2017Q2;

2. The measures are calculated for each reporting period analysed only for countries that meet a coverage criterion of 80%, i.e. if more than 20% of the value allocated to the euro area aggregate is not geographically specified, the cell is supressed;

3. The results are presented with a traffic-light logic. Each cell is coloured using a continuous scale, from green (values of 0) to red (value of 1).

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